

INTERNATIONAL JOURNAL of CONTEMPORARY EDUCATIONAL RESEARCH

Volume 7 | Issue 1 | Year 2020 | e-ISSN: 2148-3868



JCER

**INTERNATIONAL JOURNAL
of
CONTEMPORARY
EDUCATIONAL RESEARCH**



J^{CE}R



International Journal of Contemporary Educational Research

June 2020

Volume: 7

Issue: 1

e-ISSN: 2148-3868

<http://ijcer.net/>

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International Journal of Contemporary Educational Research (IJCER)

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Determining the Geometry Problem Posing Performances of Eighth Grade Students in Different Problem Posing Situations

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To cite this article:

Geçici, M. E., & Aydın, M. (2020). Determining the geometry problem posing performances of eighth grade students in different problem posing situations. *International Journal of Contemporary Educational Research*, 7(1), 1-17. DOI: <https://doi.org/10.33200/ijcer.575063>

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Determining the Geometry Problem Posing Performances of Eighth Grade Students in Different Problem Posing Situations*

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Abstract

In this study, it was aimed to determine the geometry problem posing performance of eighth grade students in different problem posing situations. For this purpose, the convergent parallel mixed model accepted as one of the mixed method designs was preferred. The participants consisted of 151 eighth grade students from the same school. The “Geometry Problem Posing Test” was used as a data collection tool which consists of a total of six open-ended problems including free, semi-structured, and structured problem posing situations developed by the researchers. An analytical rubric including seven criteria was used for the analysis of the student posed problems. In the research, a significant difference was found among the problem posing situations. In order to examine this difference in depth, the rubric criteria were analysed descriptively with a qualitative approach. After the analysis, it was concluded that the success in structured problem posing situations was lower than the success in other problem posing situations. Therefore, it can be said that the structured problem posing situations can be more challenging for students in geometry problem posing.

Key words: Geometry problem posing, Middle school students, Problem posing situations

Introduction

Rich and useful discussions can take place when students interpret a problem in different ways since they can find different answers. Therefore, not only solving a problem but also posing a problem, classifying the problems and finding different ways to solve the problems are important activities (Walter, 1980). Olkun and Toluk-Uçar (2014) stated that problem solving includes pre-stages such as noticing the problem, determining the limits and characteristics of the problem, recognizing the problem, and posing the problem besides solving the problems determined by others. In this context, it can be said that problem posing has importance in mathematics teaching as well as problem solving.

Stoyanova (1997) defined problem posing as the process in which students form their personal interpretations from concrete situations and formulate them as meaningfully structured mathematical problems based on their mathematical experience. At the same time, problem posing is one of the high level active learning tasks that are important for students' development, and it is a term that suggests a link between higher order inquiry skills and problem based learning (Nardone & Lee, 2011). In mathematics education, the problem posing approach is not only seen as a means of understanding mathematical thinking of students but also as a tool for understanding mathematics (Cai & Middleton, 2015). Kilpatrick (1987) mentioned that the experience of discovering and creating one's own math problems should be a part of every student's education because students take on a new and more active role in their learning when they are encouraged to pose their own problems (Brown & Walter, 2005).

Cai (2003) stated that problem posing is a key element of mathematical discovery and determined that problem posing focuses on the study of examining students' thoughts from different perspectives. In this respect, Tichá

* This study is part of the master thesis entitled “An Investigation of Eighth Grade Students' Skills at Geometry Problem Posing” by first author conducted in supervisor of second author. Also, this study was presented as an oral presentation at the III. INES International Education and Social Science Congress.

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and Hošpesová (2009) stated that problem posing efforts contribute to a deeper understanding of mathematical concepts. It is stated that problem posing in mathematics courses can be applied as a teaching strategy or as a purpose of mathematics education (Kilpatrick, 1987). Kılıç (2013) stated that problem posing activities as well as problem solving activities should be included in courses. Similarly, Leung and Silver (1997) proposed to make a wide range of problem posing activities in the classroom.

Suggesting the implementation of problem posing activities in classrooms can be based on the idea that there is a strong relationship between problem solving and problem posing (Cai, 1998; Cai & Hwang, 2002; Silver & Cai, 1996). Moreover, it is stated that problem posing can encourage students for creating original ideas (Brown & Walter, 2005). Kar (2014) stated that problem posing is related to conceptual understanding, creativity, problem solving and reasoning skills, and conducting courses with problem-posing activities will contribute to the development of these skills.

Researches on problem posing have revealed that problem posing activities produce positive results in problem solving skills of students (Cai, 1998; Cai & Hwang, 2002; Lavy & Bershadsky, 2003), problem posing skills (English, 1997; Lavy & Bershadsky, 2003), mathematical thinking (Cai, 2003; Silver, 1997), and their tendency towards mathematics (Dickerson, 1999; Kilpatrick, 1987; Silver & Cai, 1996; Turhan & Güven, 2014). Apart from these, Brown and Walter (2005) stated that the problem posing is a critical component in dealing with math anxiety because it is less scary than responding to the problem.

It was stated that problem posing based education significantly improves students' problem solving skills (Abu-Elwan, 2002; Cankoy & Darbaz, 2010; Cifarelli & Cai, 2006; Turhan & Güven, 2014). It was determined that there are positive differences in attitudes and behaviours of students towards mathematics (Turhan & Güven, 2014). Furthermore, it is stated that problem posing activities support the development of advanced mental skills of students such as analysis, synthesis, and inductive thinking (Cai, 2003; Silver, 1997) and increase motivation (English, 1997). As can be seen, it can be said that the implementation of problem posing activities in the classroom contributes to the cognitive and affective development of students.

It is seen that there has been an increase in the number of studies on problem posing when the studies are examined in the literature in recent years. However, it is noticed in general that the conducted studies have focused on the numbers and operations (Bonotto, 2013; Bunar, 2011; Cai, 1998; Stoyanova, 2005), fractions (Atalay & Güveli, 2017; Bunar, 2011; Kar & Işık, 2015; Toluk-Uçar, 2009; Turhan & Güven, 2014), sets (Bunar, 2011; Şengül & Katrancı, 2012), ratio-proportion (Bayazit & Kırnap-Dönmez, 2017; Çelik & Yetkin-Özdemir, 2011), probability (Silber & Cai, 2017; Yıldız & Baltacı, 2015), and algebraic expressions (Akkan, Çakiroğlu, & Güven, 2009; Ünlü & Aktaş, 2017). In the literature, there is a limited number of studies in the field of geometry learning (Abu-Elwan, 2011; Chua & Wong, 2012; Kanbur, 2017; Lavy & Shriki, 2010; Singer, Voica, & Pelczer, 2017; Şengül-Akdemir & Tünnüklü, 2017; Tünnüklü, Ergin, & Aydoğdu, 2017). One of the frequently encountered situations related to geometry problem posing in the literature is problem posing in dynamic geometry environment. It has been seen that there are studies about this (Abu-Elwan, 2011; Christou, Mousoulides, Pittalis, & Pitta-Pantazi, 2005; Fukuda & Kakihana, 2009; Kanbur, 2017; Lavy & Shriki, 2010; Leikin, 2015), but there is a need for further studies related to problem posing without the environment of dynamic geometry because there is a gap in this field in the literature. It is thought that this study will contribute to the gap in the related field.

In the present study, a research was conducted towards the free, semi-structured, and structured problem posing situations suggested by Stoyanova and Ellerton (1996). In the literature, there has been a limited number of studies investigating different problem posing situations (Çarkçı, 2016; Kılıç, 2013; Kırnap-Dönmez, 2014; Ngah, Ismail, Tasir, & Said, 2016; Özgen, Aydın, Geçici, & Bayram, 2017; Özgen, Aydın, Geçici, & Bayram, 2019). Moreover, there has been no consensus on which problem posing situation is more challenging for students (Kılıç, 2013; Ngah et al., 2016; Özgen et al., 2017). In the current study, it was aimed to determine the geometry problem posing performance of eighth grade students in different problem posing situations. Furthermore, the frequently mentioned statement “different problem posing situations” in the study describes the classification posed by Stoyanova and Ellerton (1996).

Method

In this study, a mixed research approach that intertwined with quantitative and qualitative research approach was adopted as the research method. Yıldırım and Şimşek (2016) stated that the data collected from different methods confirmed each other and that the credibility of the results was strengthened as one of the important

features of mixed research. In the research, as stated by Creswell (2014), convergent parallel mixed model was preferred as one of the mixed method designs. In this design, qualitative and quantitative data are collected at almost the same time period. However, the data are analysed separately, and the findings are compared with each other. The quantitative data of the study consisted of the points obtained by the students in the problem posing test. Qualitative data were obtained by in depth analysis according to some criteria. These criteria were explained in detail in the data analysis.

Participants

The study was held at a state school located in the southeast region of Turkey. The study group consisted of 151 students studying in the eighth grade from the same school. A total of 151 students participating in the study were selected with purposeful sampling method.

Data Collection Instrument

The "Geometry Problem Posing Test" was prepared for triangles and parity-similarity sub-learning areas. These issues related to the geometry learning area of the eighth grade curriculum in Turkey were selected. In the eighth grade, the total number of acquisitions in geometry and measurement learning area and the number of items in the test are shown in Table 1.

Table 1. The total number of acquisitions in the geometry and measurement learning area in the eighth grade and the number of items in the test.

Sub-Learning Areas	Total Acquisitions Number	Frequency of Acquisitions	Number of Items in the Test
Triangles	5	29.4	4
Parity-Similarity	2	11.8	2
Transformation Geometry	4	23.5	-
Geometric Objects	6	35.3	-
Total	17	100	6

Table 1 shows that in the eighth grade mathematics curriculum, there are acquisitions in four sub-learning areas in geometry and measurement learning area. In this study, which aims to reveal the students' geometry problem posing skills, it has been seen that asking problem posing situation about each learning area will reveal too many problem posing situations. Therefore, all problem posing situations are constructed for triangles and parity-similarity sub-learning areas. Another reason why the test is to measure triangles and parity-similarity sub-learning areas is that the triangles sub-learning area occupies a large place in the eighth grade curriculum. In addition, triangles are an important topic in geometry learning area (Türnüklü et al., 2017). In the eighth grade curriculum, it was found sufficient to 6 problem posing situations in order to measure 7 acquisitions in triangles and parity-similarity sub-learning areas. There is no specific relationship between problem posing situations and acquisitions, and is designed suitable to student levels.

The test consisting of six open-ended problem posing activities contains questions about Pythagorean relation and parity-similarity concepts for free problem posing situations. For the semi-structured problem posing situations, the problems involving the angle-edge relationship and the triangle inequality context were asked. For the structured problem posing situations, there were problems including the basic similarity theorem and the auxiliary elements of the triangle. Two academicians specialized in their field were consulted in order to ensure the validity and reliability of the test. A pilot study was also conducted. Language, level, content, and scope of the questions were provided in accordance with expert opinions and pilot study. The "inter-rater adjustment" method was applied in order to ensure the reliability of the test.

Analysis of Data

Problems posed by students were scored with the rubric developed by Özgen et al. (2017). There are seven criteria in the rubric. The criteria scored according to 4 levels (see Appendix-1). The rubric also covers many criteria from the literature. For example;

- Mathematical expression (Gonzales, 1994; Stoyanova, 2005),
- Grammar and expression (Arıkan & Ünal, 2013; Cankoy & Özder, 2017; Gonzales, 1994),
- Suitability to acquisitions (Gonzales, 1994; Şengül-Akdemir & Türnüklü, 2017),

- Quality and quantity (Chang, Wu, Weng, & Sung, 2012; English, 1998; Kaba & Şengül, 2016; Kılıç, 2013; Silver & Cai, 2005),
- Solvability (Cankoy & Özder, 2017; Çelik & Yetkin-Özdemir, 2011; Silver & Cai, 1996),
- Originality (Chang et al., 2012; Gonzales, 1994; Silver & Cai, 2005),
- Solving the problem posed by the student (English, 1998; Şengül-Akdemir & Türnüklü, 2017).

The answers of the students were scored independently by two people, one was a mathematics teacher and the other one was the researcher of this study. Then the reliability percentage was calculated according to the formula “ $[(\text{Agreement})/(\text{Agreement}+(\text{Disagreement}))\times 100]$ ” suggested by Miles and Huberman (1994). According to this formula, inter-rater compliance was found to be 78%. The proximity of the compliance percentage indicated that performed scoring was consistent. A common decision was reached by discussing when there was an inconsistent score. In this way, the inconsistency was eliminated in the scoring.

The obtained data were analysed descriptively in order to determine the geometry problem posing skills of students. The findings are presented in the frequency and percentage tables. The problems posed by the students were graded according to seven criteria and the levels were presented descriptively that emerged according to each criterion. Moreover, in order to support statistical data and to increase the internal validity of the research, direct quotations were made from the students' answers. Each quote was coded as “S- (Student ID) - (Code of problem posing situation)” in order to indicate which activity belonged to which student and which problem posing situation. “1” was used for free problem posing activities, “2” for semi-structured problem posing activities, and “3” for structured problem posing activities. For example, code S146-3 referred to the quotation from the responses to the structured problem posing activity of the student number 146. The normality of the quantitative data was checked by Kolmogorov-Smirnov test. For normal distribution, coefficients of kurtosis-skewness, Histogram and Q-Q plots were checked and it was seen that the data showed a normal distribution. Therefore, a single-factor ANOVA test was used for the related samples in order to determine whether the students' skills showed a significant difference in different problem posing situations.

Results and Discussion

The descriptive statistics information of the student scores obtained from the Geometry Problem Posing Test is presented in Table 2.

Table 2. Student scores in terms of problem posing situations

Problem Posing Situation	n	Min.	Max.	\bar{X}	SS
Free	151	.00	41.0	21.79	11.78
Semi-structured	151	.00	41.0	19.06	13.57
Structured	151	.00	39.0	16.18	12.26
Total	151	7.00	120.0	57.03	27.75

According to the obtained data in problem posing test, the arithmetical average of the points of the students who participated in the research was calculated as 57.03. A student's total score from the Geometry Problem Posing Test was at least 7.00 and at most 120.0. It was seen that some of the students received “0” point because of incorrect answers to the questions in the geometry problem posing test or the posed problems which did not meet the requirements in the criteria. When each problem posing situation was considered one by one, it was seen that the arithmetic average of the scores obtained from free problem posing activities was more than the semi-structured problem posing and structured problem posing activities.

In order to test whether students' skills in different problem posing situations showed a significant difference, a single-factor ANOVA test was used for the related samples. Analysis results are given in Table 3.

Table 3. Single-factor ANOVA results for related samples of students' scores in geometry problem posing test

Source of Variance	Sum of Square	Sd	Mean of Square	F	p	Meaningful Difference
Interpersonal	38508.94	150	256.72			
Measurement	2381.67	2	1190.83	11.008	.000*	1-3, 2-3
Error	32452.32	300	108.17			
Total	73342.93	457				

1-Free problem posing, 2-Semi-structured problem posing, 3-Structured problem posing

A statistically significant difference was found between students' scores in free, semi-structured, and structured problem posing activities [$F(2,300)=11.008$, $p<.05$]. The mean score ($\bar{X}=16.18$) in structured problem posing activities was lower than the mean score ($\bar{X}=21.79$) in free problem posing activities and the average score ($\bar{X}=19.06$) in the semi-structured problem posing activities. There were no statistically significant differences between the other problem posing situations. According to this finding, it can be said that the points obtained from free problem posing situations and semi-structured problem posing situations were almost similar, but the obtained points differed in structured problem posing situations.

In order to find an answer to the other sub-problem of the study, the obtained data were separately analysed in terms of seven criteria of rubric. The frequency and percentages of the students' skills in geometry problem posing in terms of criteria are shown in Table 4.

Table 4. Geometry problem posing performances of students in terms of criteria

Criterion	Problem Posing Situation	Level 1		Level 2		Level 3		Level 4		Total	
		f	%	f	%	f	%	f	%	f	%
Using the Language of Mathematics	Free	77	25.5	75	24.8	91	30.1	59	19.6	302	100
	Semi-Structured	127	42.1	22	7.3	58	19.2	95	31.4	302	100
	Structured	131	43.4	59	19.5	67	22.2	45	14.9	302	100
	Total	335	37	156	17.2	216	23.8	199	22	906	100
Grammar and Expression Suitability	Free	103	34.1	67	22.2	47	15.6	85	28.1	302	100
	Semi-Structured	128	42.4	59	19.6	30	9.9	85	28.1	302	100
	Structured	148	49.1	44	14.5	47	15.6	63	20.8	302	100
	Total	379	41.8	170	18.8	124	13.7	233	25.7	906	100
Suitability to Acquisitions	Free	81	26.8	54	17.9	5	1.7	162	53.6	302	100
	Semi-Structured	130	43	15	5	3	1	154	51	302	100
	Structured	134	44.4	37	12.3	11	3.6	120	39.7	302	100
	Total	345	38.1	106	11.7	19	2.1	436	48.1	906	100
Quality and Quantity of Data	Free	84	27.8	12	4	40	13.2	166	55	302	100
	Semi-Structured	130	43.1	6	2	10	3.3	156	51.6	302	100
	Structured	139	46	9	3	32	10.6	122	40.4	302	100
	Total	353	39	27	3	82	9	444	49	906	100
Solvability	Free	81	26.8	44	14.6	11	3.6	166	55	302	100
	Semi-Structured	131	43.3	15	5	2	0.7	154	51	302	100
	Structured	134	44.3	35	11.6	5	1.7	128	42.4	302	100
	Total	346	38.2	94	10.4	18	2	448	49.4	906	100
Originality	Free	119	39.4	117	38.7	41	13.6	25	8.3	302	100
	Semi-Structured	142	47.1	104	34.4	43	14.2	13	4.3	302	100
	Structured	164	54.3	92	30.5	34	11.3	12	3.9	302	100
	Total	425	46.9	313	34.5	118	13.1	50	5.5	906	100
Solving the Problem Posed by the Student	Free	133	44.1	18	5.9	6	2	145	48	302	100
	Semi-Structured	160	53	21	7	4	1.3	117	38.7	302	100
	Structured	186	61.6	19	6.3	6	2	91	30.1	302	100
	Total	479	52.8	58	6.4	16	1.8	353	39	906	100

It is seen that almost 54% of the students who posed problems are at Level 1 and Level 2 according to the skill of using the mathematical language. Using the language of mathematics has great importance when expressing relationships in shapes presented in geometry problems. It is seen that half of the students who posed problems have failed in terms of this criterion. The most problematic problem posing situation is structured problem posing in students' use of mathematical language. It is seen that half of the answers given by students in free and semi-structured problem posing situations are in the Levels 3 and 4. This shows that the participants were more successful in terms of "using the language of mathematics" criterion in free and semi-structured problem posing activities compared to structured problem posing situations.

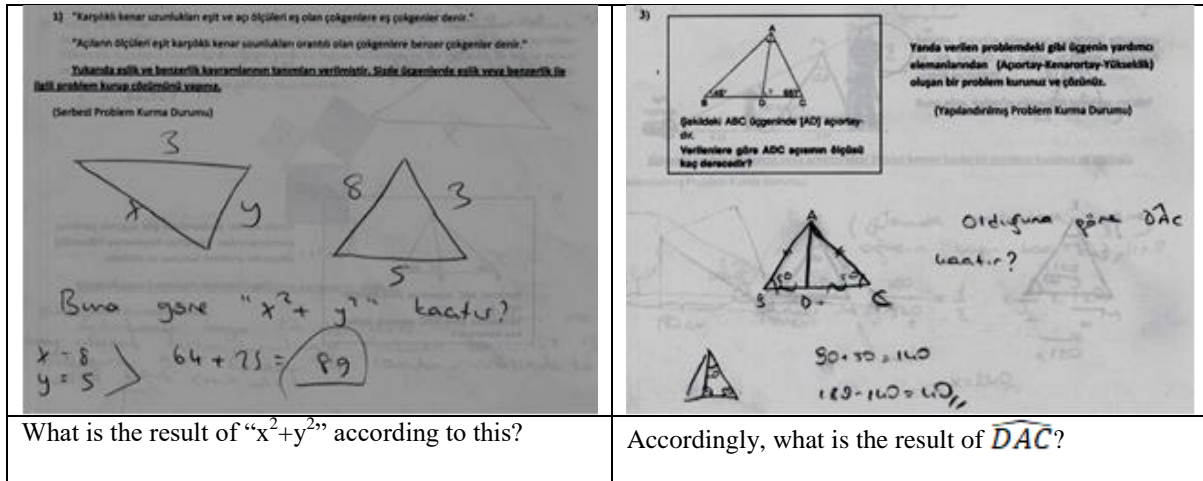


Figure 1. S82-1 coded activity

Figure 2. S93-3 coded activity

The free problem posing activity posed by the S82 coded student related to parity and similarity issue is shown in Figure 1. Here, the student has drawn two triangles based on the idea of drawing identical triangles to each other. However, the corner pointing the triangles has not been named. It has not been pointed out that the concurrence of the triangle or which sides are identical, and the lengths are not indicated in any unit. Therefore, it was scored as Level 2 according to the criterion of "using mathematical language" since there is lack of the mathematical concepts that should be mentioned in this problem.

The structured problem posing activity of the S93 coded student related to the auxiliary elements of the triangle is presented in Figure 2. The mathematical concepts were correctly stated on the figure in the student posed problem, and corner points of the triangle was indicated as well as describing the triangle as isosceles and stating [AD] as the median. However, it was seen that the student did not explain them as a text. Therefore, the posed problem was found to be incomplete in terms of "using mathematical language" criterion and it was considered as Level 3.

The criterion of grammar and the suitability of an expression is related to being appropriate with the rules of the language, not including incoherency or spelling mistakes. Approximately 42% of the students who posed problems are at Level 1 according to this criterion. This finding shows that almost half of the posed problems were scored as "0" according to this criterion. 25.7% of the posed problems were able to get a full score according to this criterion. It is seen that the students showed similar performances in different problems. In the structured problem posing situations, the percentage of responses in Level 1 (49%) is higher than the other problem posing situations. Here, it can be interpreted that students had more difficulty in the structured problem posing situations.

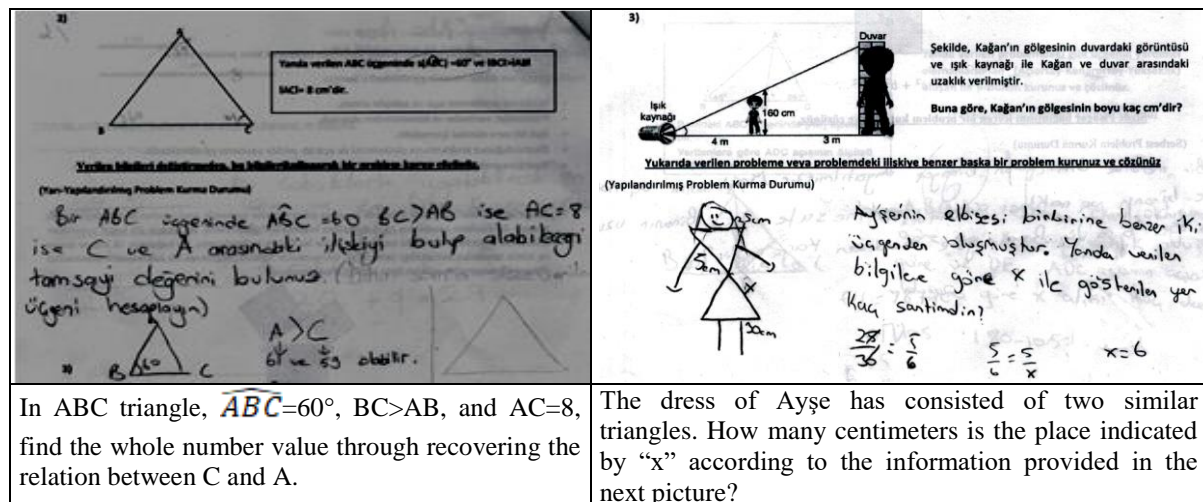


Figure 3. S16-2 coded activity

Figure 4. S73-3 coded activity

The problem in the semi-structured problem posing activity posed by S16 coded student is presented in Figure 3. It is not understood what the student wants to state by writing “the relationship between C and A” in the posed problem. What was meant here should be expressed more clearly in terms of both mathematical and language skills. Therefore, it is thought that there is an incoherency in this problem. Thus, the student posed problem was deemed to evaluate as Level 2 in terms of “grammar and expression suitability”.

The structured problem posing activity posed by the S73 coded student about parity and similarity issue is shown in Figure 4. Instead of posing a similar problem to the fiction in the given problem, the student posed a problem with a different fiction. In the student posed problem, it was stated that there were similar triangles and the one length of a side was asked by giving some side lengths of the triangles. However, when the problem was expressed, it was stated as “place indicated by x”. Instead, it was thought that a more understandable expression should be used. For this reason, the student posed problem was evaluated as Level 3 in terms of “level of knowledge of the grammar and expression” criterion.

Nearly half of the posed problems by the students (48.1%) were evaluated as Level 4 in terms of the suitability of the problems to the acquisitions. It is understood that the student problems are partially enough in terms of “suitability to acquisitions” criteria. 11.7% of the problems evaluated at the Level 2 were not able to be evaluated as Level 4 due to being convenient with the acquisitions but they were considered as deficient expression or data in the problems. The problems at the Level 3 were posed as expected but they were related to another acquisition. When the data obtained from different problem posing situations are examined, it is determined that most of the posed problems in structured problem posing situations are not suitable for acquisitions. In the free problem posing situations, 60% of the posed problems were in Levels 3 and 4. Here, it can be said that students are more successful in free problem posing situations than other problem posing situations.

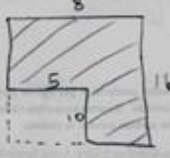

<p>Yukarıda zikil ve benzerlik kavramlarına temelden verilmiştir. Şimdi aşağıdaki zikil veya benzerlik ile ilgili problem kurma çalışmasını yapınız.</p> <p>(Serbest Problem Kurma Durumu)</p>  <p>Yanda verilen adıgiden kısıtla bir kare keskinlikten ve bu kardan benzerlik farklı kısımlar alınır?</p> <p>$\frac{16}{128}$ $128 - 80 = 48$</p>	<p>3)</p>  <p>Verilen ABC üçgeninde [AD] açıortaydır. Verilenlere göre ADC açısının ölçüsünü belirleyiniz?</p> <p>Yanda verilen üçgen ikizkenar üçgen ise ve $AB = 3$ cm ise y nedir?</p>
<p>Small parts will be cut from the given polygons and if these pieces are similar, what is the area of the hatched area?</p>	<p>If the triangle is an isosceles triangle and the $AB = 3$ cm, what is y?</p>

Figure 5. S134-1 coded activity

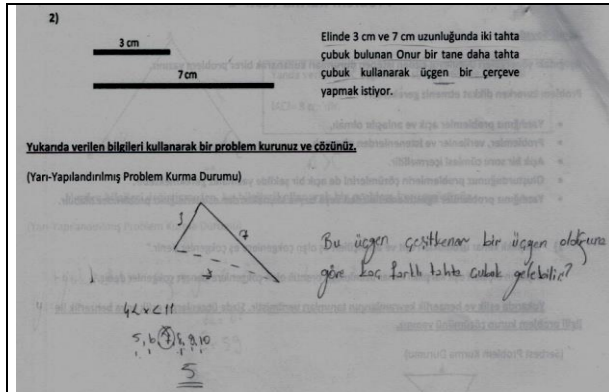
Figure 6. S34-3 coded activity

The free problem posing activity of the S134 coded student about parity and similarity in triangles is presented in Figure 5. It was seen that the student misunderstood and posed a problem with the area of the rectangle while suppose to pose a problem about congruent and similar triangles in the answer. Although the posed problem was a correct geometry problem, the response of the student was considered as Level 3 since it was related to another acquisition according to the “suitability to acquisitions” criterion.

The structured problem posing activity posed by the S34 coded student about the auxiliary elements of the triangle is shown in Figure 6. Here, the student has drawn an isosceles triangle and has posed a problem aiming to find the other side with the help of a height lowered from the peak through giving one of the isosceles. All the data in the posed problems were given on the figure thought to be solved with the help of these data. Moreover, giving the peak angle as 90° indicates that the triangle was a triangular triangle. It was considered as an appropriate problem for the eighth grade acquisitions and is considered as Level 4.

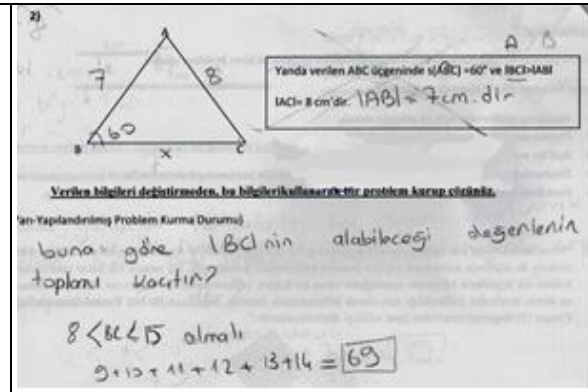
It is seen that approximately half of the posed problems (49%) are at the Level 4 according to the data quantity and quality criteria. Considering the problems of the students at other Levels, it is understood that most of the students were not able to respond to the activities or there was lack of data in their posed problems. It is understood that the answers evaluated at Level 1 in free problem posing situations are less (27.8%) than the other problem posing situations. It is seen that the given answers to structured problem posing activities are at the 4th Level and those who get full score (40.4%) from the evaluation are less than other problem posing

situations. It is seen that students achieve better results in terms of free and semi-structured problem posing situations in terms of “quality and quantity of data” criterion and they have more difficulty in structured problem posing situations.



Since this triangle is a scalene triangle, how many different wooden bars can come to this?

Figure 7. S23-2 coded activity



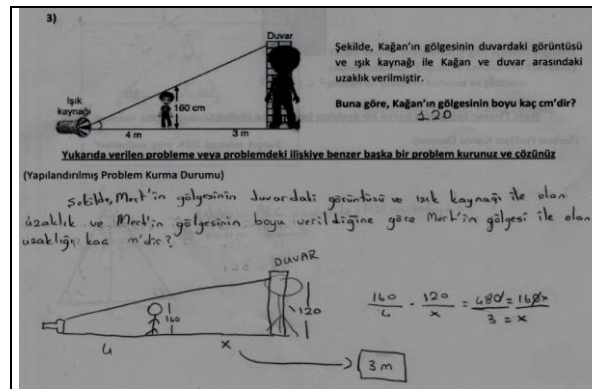
Accordingly, what is the sum of the values that $|BC|$ can take?

Figure 8. S87-2 coded activity

The response of the S23 coded student to the semi-structured problem posing activity related to triangle inequality is presented in Figure 7. The student who posed problems by the given information stated that the triangle to be posed would be a scalene triangle. In this way, the data was diversified in the posed problem. As the data in the posed problem were enough and appropriate, this problem was scored at Level 4 according to “quality and quantity of data” criterion.

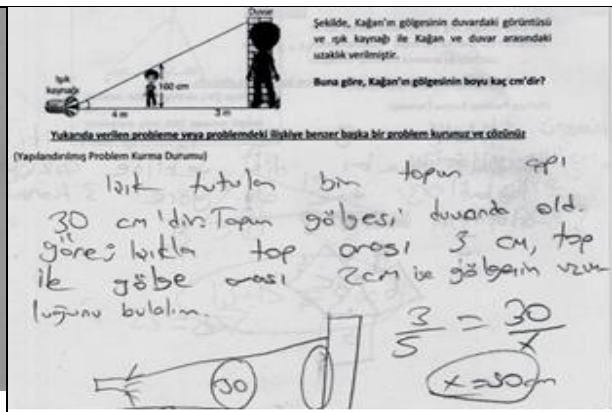
The semi-structured problem posing activity of the S87 coded student on the subject of angle-side relationship in the triangles is shown in Figure 8. In addition to the given information here, the student added a side length and asked for the values that the other side could take. Then, the problem was solved through thinking $|BC|$ will be the longest side. The posed problem was found to be appropriate according to “quality and quantity of data” criterion. Therefore, the student posed problem was seen at Level 4.

Approximately 40% of the posed problems were evaluated as Level 1 according to the solubility criterion. It can be understood that 40% of the student posed problems are the problems that are not possible to be solved. The problems considered as Level 2 (10%) cannot be solved because the data are not enough or appropriate or there is a lack of expression. 2% of the posed problems cannot be solved due to the incoherency or spelling mistakes. It is seen that almost half (49.4%) of the student posed problems are solvable problems. It is seen that the best results in terms of solvability of the problem are obtained in free problem posing situations and worst results are obtained in structured problem posing situations.



In the figure, the appearance of Mert's shadow on the wall and the distance from the light source, and the length of Mert's shadow are given, how many meters is Mert's distance from his shadow?

Figure 9. S139-3 coded activity



The diameter of a light-held ball is 30 cm. As the shadow of the ball is on the wall, let's find the length of the shadow if between the light and the ball is 3 cm and the distance between the ball and the shadow is 2 cm.

Figure 10. S7-3 coded activity

The problem posed by the S139 coded student is shown in Figure 9. The text in the student posed problem about basic similarity theorem is presented in a comprehensible way. Although the data appeared to be appropriate, the light from the light source was going to create a larger shadow than the person in behind. It was thought that the student who did not consider this did not create a real life related problem. Processing only by numbers did not mean that there was a solvable problem. From this point of view, the student posed problem was evaluated as Level 2 in terms of “solvability” criterion.

The structured problem posing activity posed by the S7 coded student about parity and similarity issue is shown in Figure 10. The student posed a problem like the problem given here, the created problem questions the same relationship by replacing the person in the given problem and replacing it with another object. This posed problem was clearly stated and seen as a solvable problem. Therefore, the student posed problem was evaluated as Level 4 in terms of “solvability” criterion.

The obtained data indicate that only 5.5% of the posed problems are original problems. When the obtained percentages from Level 1 and 2 considered, it is understood that approximately 35% of the posed problems are away from the originality. In other words, it shows that the posed problems are the problems that often encountered in the textbooks or evaluated in the type of exercise. Although there are no significant differences in terms of originality criterion among the different problem posing situations, it is seen that students have more difficulty in structured problem posing activities as in other criterions.

<p>Sizde Pisagor hipotezini içeren bir problem kurunuz ve çözünüz.</p> <p>(Serbest Problem Kurma Durumu)</p>	
<p>How many meters are the body diagonal of the cube given?</p>	<p>If you want to create a triangle from the bars (one of them is randomly broken), what is the length of the 3rd edge at most?</p>

Figure 11. S145-1 coded activity

Figure 12. S47-2 coded activity

The free problem posing activity posed by the S145 coded participant about the Pythagorean relation is presented in Figure 11. The student posed problem was expressed in clear way and it was seen that the problem is solvable. While posing the problem, the student, who also stated the solution of the posed problem, relating the problem in geometric objects which is another learning field were indicated the originality of the problem. This answer of the student was evaluated as Level 4.

The semi-structured problem posing activity posed by the S47 coded student about triangle inequality is presented in Figure 12. It is seen that the student guided the problem with a different perspective without changing the given information when posing the problem. When the long bar was broken to create the third side of the triangle, the problem is not an ordinary question, although there is no other option for the third side length. For this reason, the student posed problem was considered as partially original and it was scored as Level 3.

52.8% of the posed problems indicates that the students left the solution empty or made it completely wrong. 39% of the posed problems were solved by the student in a full correct manner. 48% of free problem posing situations, 38.7% of semi-structured problem posing situations, and 30.1% of structured problem posing situations are fully achieved in terms of different problem posing situations. Here, it can be said that students are more successful in solving the problems posed in free problem posing situations than other problem posing situations. The lowest success in solving the posed problems was provided in structured problem posing situations.

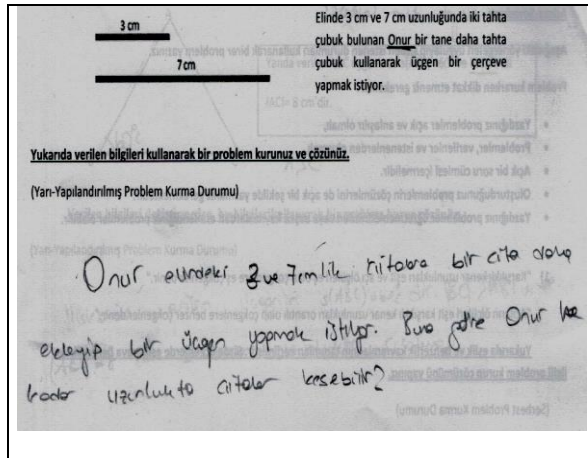
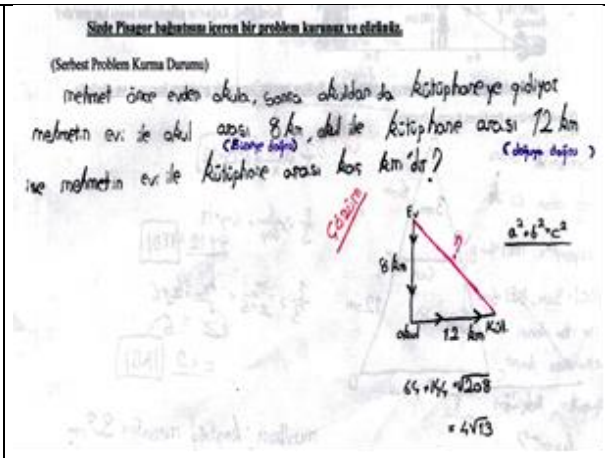
 <p>Elinde 3 cm ve 7 cm uzunluğunda iki tahta çubuk bulunan Onur bir tane daha tahta çubuk kullanarak üçgen bir çerçeve yapmak istiyor.</p> <p><u>Yukarıda verilen bilgileri kullanarak bir problem kurunuz ve çözünüz.</u></p> <p>(Yarı-Yapılandırılmış Problem Kurma Durumu)</p> <p>Onur evindeki Zue ailesi kütüphaneye bir cita alarak elelağıp bir üçgen yapmak istiyor. Bu üçgen Onur ile kütüphane arasında kaç cm olabilir?</p>	 <p>Sizle Posing beklentisi içeren bir problem kurunuz ve çözünüz.</p> <p>(Serbest Problem Kurma Durumu)</p> <p>Mehmet önce evden okula, sonra okuldan da kütüphaneye gidiyor. Mehmet'in evi ile okul arası 8 km, okul ile kütüphane arası 12 km (doğru doğru) ise Mehmet'in evi ile kütüphane arası kaç km'dir?</p> <p><u>Çözüm</u></p> <p>8 km</p> <p>12 km</p> <p>$a^2 + b^2 = c^2$</p> <p>$64 + 144 = 208$</p> <p>$= 4\sqrt{13}$</p>
<p>Onur wants to add a lath to the 3 and 7 cm laths in his hand and make a triangle. Accordingly, how long can Onur cut the laths?</p>	<p>Mehmet goes from home to school first, and then from school to library. The distance between Mehmet's school and home is 8 km (towards the south), and the distance between Mehmet's school and library is 12 km (east), then what is the distance between Mehmet's house and the library?</p>

Figure 13. S143-2 coded activity

Figure 14. S36-1 coded activity

The semi-structured problem posing activity of the Ö143 coded student about the triangle inequality is shown in Figure 13. Here, the student has posed a solvable problem, but leaves the solution blank. For this reason, the student posed problem was evaluated as Level 2 in terms of being solved by the student.

The free problem posing activity of the S36 coded student about the Pythagorean relation is shown in Figure 14. The student expressed the posed problem through a clear language and posed a problem that meets the criteria that should be in a problem. Complete operation was performed in the solution of the posed problem. Therefore, the solution of the student posed problem was graded as Level 4.

Conclusion

In this study, the performance of geometry problem posing of eighth grade students was investigated in different problem posing situations. Research findings showed that the products of students' problem posing activities were generally at the Level 1 or 2 according to the evaluation criteria. Similarly, it has been seen that there are many studies concluding that secondary school students' achievements in problem posing activities are not at the desired level (Gökkurt, Örnek, Hayat, & Soylu, 2015; Kar, 2014; Özdişçi & Kaba, 2018; Özgen et al., 2017). In the literature, there are also studies concluding that students are successful in problem posing activities (Cai, 2003; Lin & Leng, 2008; Şengül-Akdemir & Tünnüklü, 2017).

Gökkurt et al. (2015) stated that problem posing skills of eighth grade students were not at the desired level. In addition to this, it was stated that most of the students exactly copied the problem by changing the numerical values in the given problem or posed illogical problems that did not have a solution. In a study by Çarkçı (2016), it was stated that the students of fourth grade had difficulty in posing problems in different situations. Kar (2014) pointed out that the success of secondary school students was low in posing valid problems for collection with fractions and that the factors causing such deficiencies should be determined in order to eliminate such deficiencies in students. The similarity between the results of many studies in the literature and this study is that the student achievement is not at the desired level and this emerges as a subject that is needed to be considered. On this issue, Gökkurt et al. (2015) suggested to make problem posing activities to improve student problem posing skills and to give feedback to the students about the mistakes they made in the problem posing process. Moreover, in order to reach the desired level of problem posing skills of the students, first, problem solving should be endeared to the students. As a final step in problem solving, problem posing skills will be contributed by administering problem posing activities.

When the problem posing situations were examined on their own, it was observed that the average of the scores reached in free problem formation activities was more than the average in other problem posing activities. When

the problem-posing situations were examined statistically, a statistically significant difference was found between the points of geometry problem posing in students' different problem posing situations. A significant difference was detected between structured problem posing situation and other problem posing situations. It can be said that students have more difficulty in structured problem posing activities while posing geometry problems. When the literature is examined, it is observed that there are studies supporting this result (Çarkçı, 2016; Kanbur, 2017; Kılıç, 2013) or there are also other views (Bayazit & Kınap-Dönmez, 2017; Ngah et al., 2016; Özgen et al., 2017). Data collection tools and study subject or sample can be effective in the formation of these differences. Kanbur (2017) and Kılıç (2013), who worked with primary school students and teacher candidates, found concordant results with this study. However, Özgen et al. (2017) found no significant difference between the problem posing situations. In another study, Ngah et al. (2016) stated that secondary school students experienced more difficulties in posing free problems.

In order to examine the reasons of the result of a significant difference among the problem posing situations, the criteria included in the scoring key were examined separately. The aim was to reveal the students' skills through handling the posed geometry problems in terms of seven criteria of the rubric and to determine in which problem posing situation the students had more difficulty. Almost half of the student posed problems were found to be at levels 1 and 2 in the criterion of using the mathematical language. It is stated by various researchers that mathematical language plays an important role in the process of learning and teaching geometry (Cansız-Aktaş & Aktaş, 2012; Sarama & Clements, 2009). It can be said that using the language of mathematics has a great importance while expressing the relations with the shapes presented in geometry problems. In using the mathematical language, the least achieved problem posing situation is the semi-structured problem posing activities. It was found that more than half of the students' answers in free and semi-structured problem posing situations were at Levels 3 and 4.

The criterion of “grammar and expression suitability” is related to the fact that the wanted to be expressed need to be in accordance with the language rules and not be made incoherency or spelling mistakes. Almost 42% of the student posed problems were at Level 1 according to this criterion. Similar results were observed in the literature (Arıkan & Ünal, 2013; Yıldız & Özdemir, 2015). According to this criterion, it was seen that the students performed similar performances in different problem posing situations. However, in structured problem posing situations, the percentage of responses at Level 1 was higher than other problem posing situations.

It is concluded that the student posed problems were at the intermediate level according to the suitability with acquisitions criteria. This result is in parallel with the results of the study conducted by Şengül-Akdemir and Türnüklü (2017). Şengül-Akdemir and Türnüklü (2017) determined that 54.5% of the student posed problems were curriculum dependent problems. In the current study, it was determined that most of the student posed problems in structured problem posing situations were not suitable for the acquisitions. In free problem posing situations, it was found that most of the posed problems were found to be suitable for acquisitions. In terms of suitability for acquisitions, it can be said that students are more successful in free problem posing situations than other problem posing situations. The reason for this difference was thought to be derived from the allowance of activities given in free problem posing situations to pose too many different problems related to the subject.

When the posed problems were examined in terms of “quality and quantity of data”, it was seen that almost half of them were at Level 4. When the problems at other levels considered, it was understood that most of the students could not respond to the activities or they had a lack of data in posed problems. When the student posed problems examined in terms of the quality and quantity of data, it was concluded that they had better results in free and semi-structured problem posing situations and they had more difficulties in structured problem posing situations. Türnüklü et al. (2017) found that the percentage of the posed problems decreased as the mathematical quality increased, and students had difficulty in writing high quality mathematical problems. Gökkurt et al. (2015) stated that eighth grade students wrote problems using the given problems only by changing the numerical value or posed illogical and unsolvable problems. Similarly, Özdişçi and Kaba (2018) found that secondary school students were inadequate in problem posing. They also emphasized that this was due to the inadequate use of problem solving stages.

It was concluded that almost half of the student posed problems were solvable problems. The solvability of the posed problem and the control of whether including logical errors are the most important factors that should be taken into consideration in the process of problem formation (Kınap-Dönmez, 2014). According to different problem posing situations, in terms of solvability of the problem, it was seen that the best results were found in free problem posing situations while the worst results were obtained in structured problem posing situations. In the study analysing the middle school students posed problems, Silver and Cai (1996) determined that the large number of the students posed solvable problems and some of the posed complex problems. Yuan and Sriraman

(2011) emphasized that content knowledge of the students had a great impact on their problem posing success. In this study, it was considered that some of the students' missing information about the content of the subject was a big obstacle in the formation of solvable problems.

Another result of this study was that the very small number of the posed problems was original. It was determined that the student posed problems were the problems frequently encountered in the textbooks or evaluated in the type of exercises. Although there were no significant differences in terms of originality criterion among different problem posing situations, it was observed that students had more difficulty in structured problem posing activities as in other criteria. Restriction effect of the structured problem posing situations was the reason of this situation. Bayazit and Kırnap-Dönmez (2017) stated that the problems posed by the mathematics teacher candidates were the problems far from originality and creativity. As it is seen, both student and teacher candidate posed problems are generally composed of problems in a routine manner. In order to develop this skill of the students, it can be said that the activities that will stimulate the cognitive skills of the students should be applied in the courses. Özgen et al. (2019) mentioned that in order to solve this problem, students should face interesting or daily life problems.

In this study, the students left the solution blank or solved them in a completely wrong way in large number of problems posed by them. Only 39% of the posed problems were correctly solved by the students. It was observed that the students who were able pose problems had difficulties in solving posed problems. When it was examined according to different problem posing situations, it was concluded that the students were more successful in solving the problems they posed in free problem situations and they were less successful in structured problem posing situations. It is thought that facing many problems posed by students in their daily life make contributions such as “recognizing and determining the problem”. However, it can be interpreted that problem solving skills are still not developed. In the literature about this situation, it is stated that problem based mathematics teaching can be applied in order to increase the problem solving performance of students (Dickerson, 1999; Turhan & Güven, 2014).

As a result of the present research, it has been concluded that the success in structured problem posing situations is lower than the success in other problem posing situations. Therefore, it can be said that the structured problem posing situations are more challenging for students in posing geometry problems. The restriction of students' creativity skills in structured problem posing situations is thought to be the reason of this result. Kanbur (2017) stated that mathematical logic, data quality, instructions in posed problems, data quantity, and solvability criteria developed through the free problem posing situation from the structured problem posing situations in geometry problems posed by the pre-service teachers in dynamic environment. Kılıç (2013), in the study conducted with teacher candidates, found that teacher candidates experienced difficulties most in the structured problem posing situations and least in free problem posing situations and stated that this could be caused by the structure of problem posing situations. Considering the results of other studies (Ngah et al., 2016; Özgen et al., 2017), there may be many reasons why the results of the present study are compatible or different with other studies in the literature. In particular, the human factor can be shown as well as time and subject difference, different class level or different data collection tools. Because, even if the students are at the same class level, their performance on any subject may change over time and from region to region. Considering that different researchers can use different measurement tools, it can be considered as a normal situation that the results of research differ on similar subjects.

Recommendations

Based on the results of the research, the following recommendations are made:

- It has been seen that the student posed geometry problems are generally used in short sentences or only question marks are used in terms of mathematical language. So, teachers are suggested to express a problem in mathematics lessons clearly and pay attention to the use of symbols. For this purpose, teachers should provide opportunities to support students to use mathematical language.
- Experimental studies can be carried out to examine students' difficulties in the process of geometry problem posing. In this way, students' geometry problem posing skills and detailed information can be obtained about the difficulties encountered in the process of geometry problem posing.

- It has been noteworthy that students do not pose any original problems. In order to develop this skill, students should be introduced to problem posing activities from an early age. They can gain creativity when mental skills are mobilized.
- It is seen that students have difficulty in solving the geometry problems students have posed by themselves. In order to overcome this problem, problem solving and problem posing can be handled together. Similar problems to solved problems can be posed or solutions can be made for the posed problems.
- In this study, the problems that the eighth grade students posed for the triangles and the parity-similarity sub-learning area were examined. Problem solving skills of secondary school students about other sub-learning areas of geometry can be investigated.
- In other studies where there are different problem posing situations, students' opinions can be consulted.
- In this study, the classification stated by Stoyanova and Ellerton (1996) has been used and there are different problem posing strategies presented by other researchers in the literature. Secondary school students' skills to pose geometry problems can be examined in terms of other strategies.

Acknowledgements

We thank to Assoc. Dr. Kemal Özgen for his contributions to the development of this article.

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Appendix-1. Rubric towards Evaluation of Problem Posing Skills

	0 Point	1 Point	2 Points	3 Points
Ability to use mathematical language (symbol, notation, and so on) correctly	Null	There is an error in the use of the mathematical language (or concepts).	The mathematical language is/ (or concepts are) used correctly but incompletely.	The mathematical language is/ (or concepts are) used precisely and correctly.
Compliance of the text of the question with grammar rules, whether it contains an incoherency or spelling mistake	Empty, no text, or incoherency or misspelling.	There is no mistake in writing, but there is incoherency.	There is no incoherency, but the writing is wrong.	There are no incoherency and spelling mistakes.
The suitability of instructions used while referring to the operations to be done in problem or stating the problem to the acquisitions	Empty or unclear how the problem will be solved.	The operation to be done for the solution of the problem is suitable for the acquisitions but it is incomplete/wrong.	The operation to be done for the solution of the problem is not suitable for the acquisitions but it is complete/error free.	The operation to be done for the solution of the problem is suitable for the acquisitions and it is complete/error free.
In order for the problem to be solved, the amount of data and expressions contained in the problem, the logical/operational suitability, and the significance of the result	Empty, cannot be understood because it is not clear how to solve it, or there is no data available because there is no shape-text transfer.	There are both invalid and missing data or too much data-expression.	The data is incompatible or there is missing/more data-expression.	The data are adequate and appropriate.
Accessibility of the problem to the desired result (Solvability)	Empty or not be solved because data in the figure cannot be mathematically expressed in text form	Cannot be solved because it is not appropriate or sufficient data, or lack of expression	Although the data are appropriate and sufficient, they cannot be solved because of writing errors and incoherency.	Solvable.
The scenario of the problem text, the originality in terms of the operation steps in order to reach a solution	Empty or cannot be detected	The problem is pretty ordinary (Type of always been to).	The problem is partly original (so unique that it can be distinguished from the ordinary/classical question type).	The problem is largely original (a type of question whose originality is kept on the front line when it is produced, but not in textbooks or other sources).
Case of solving student posed problem	Empty	Could not apply the givens and desired to the solution	The problem is understood correctly and solved but there is an operation error.	The problem solved correctly.



International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Kalkan, B. & Bhat, C. S. (2020). Relationships of problematic Internet use, online gaming, online gambling with depression and quality of life among college students. *International Journal of Contemporary Educational Research*, 7(1), 18-28. DOI: <https://doi.org/10.33200/ijcer.594164>

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Relationships of Problematic Internet Use, Online Gaming, and Online Gambling with Depression and Quality of Life Among College Students

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Abstract

Young adults on college campuses have easy access to information and communications technology (ICT) which they use extensively for study, work, and leisure. The purpose of this study was to investigate the prevalence and extent of problematic Internet use, online gaming behavior, and online gambling behavior (together referred to as dysfunctional online behaviors), and their relationships with depression and quality of life among college students. Two hundred and twenty two valid surveys were used in the data analyses. Five instruments, Beck Depression Inventory-II (BDI-II), the WHO Quality of Life Scale-BREF (WHOQOL-BREF), the Internet Addiction Test (IAT), the Problematic Online Gaming Questionnaire (POGQ), and the Online Gambling Symptom Assessment Scale (OGSAS), were selected to measure the variables being studied. A non-experimental research design was employed to answer one descriptive and two research questions. The results of the analyses indicated that dysfunctional online behaviors predicted a higher level of depression ($R^2 = .14, p < .05$) and a lower level of quality of life ($R^2 = .20, p < .05$). The findings of the current study inform clinical practice and the treatment of dysfunctional online behaviors among college students.

Key words: Problematic Internet use, Online gaming, Online gambling, Depression, Quality of life

Introduction

In today's world, the Internet has become ubiquitous. Eighty-nine percent of adults in the USA use the Internet, and in the 18-29 years age bracket, 98% use the Internet (Pew Research Center, 2018a). Among this group of younger adults in the USA (18-29 years), 39% report being online all the time and 49% report accessing the Internet several times per day (Pew Research Center, 2018b). Young adults connect to the Internet for varied and various purposes, such as education, communication, information gathering, and leisure such as gaming, gambling, and social media that have both positive and negative effects on people. The purpose of this study was to explore the prevalence and extent of problematic Internet use, online gaming behavior, and online gambling behavior, and their relationships with depression and quality of life among college students. The combination of problematic Internet use, online gaming behavior, and online gambling behavior (independent variables of the study) has not been examined in previous studies in the field of counseling. Therefore, this study is unique in the counseling research field.

Internet Use

Since the millennium, a considerable number of researchers have studied the role and effects of Internet use. In the last decade, the pervasive and unlimited use of the Internet for work, study, and leisure on college campuses has been researched. On a positive note, Cotten (2008) reported that Internet access helps college students make an easier transition to higher education by improving communication, lessening ambiguity, and promoting online connection (p. 67). Kang (2007), and Shaw and Gant (2002), suggested that moderate Internet use and online communication may decrease depression and loneliness, and could increase feelings of happiness, self-esteem, and social support. Amichai-Hamburger and Furnham (2007) lent further support to this notion with findings indicating that when the Internet is used appropriately, it might improve the user's psychological well-being and quality of life. Romer, Bagdasarov, and More (2013) noted that moderate Internet use may positively affect participation in social activities through teams or clubs in a diverse range of interest areas

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Identifying what constitutes moderate or excessive use of the Internet is challenging. A decade ago, overuse of the Internet was defined as going online for more than 20 hours a week (Ko, Yen, Yen, Lin, & Yang, 2007), and more recently, as using the Internet more than 2 hours a day every day (Cassidy-Bushrow, Johnson, Peters, Burmeister, & Joseph, 2015). However, as reported by The Pew Research Center, 39% of users between the age of 18-29 are online constantly, and 49% are online several times a day (Pew Research Center, 2018b). Young, Yue, and Ying (2011) cautioned that heavy Internet usage may be linked to mental health issues such as depression and loneliness, and could have a negative impact on the user's quality of life.

Problematic Internet Use

Because the DSM-5 has no official diagnosis for problematic Internet use or Internet addiction, researchers use different terms in the literature, referring to problematic Internet use (Caplan, 2002; Young, 1998), Internet addiction (Young, 1998), and pathological Internet use (Davis, 2001; Young, 1998). Despite there being no official diagnosis for Internet addiction, instruments have been developed to identify Internet addiction and problematic Internet use. The DSM-5 suggests that the amount of Internet usage should be taken into consideration, but does not identify excessive usage as a diagnostic anomaly (American Psychiatric Association [APA], 2013). However, the International Classification of Diseases (ICD) has added gaming disorder (predominantly online) and gambling disorder (predominantly online) as addictive behaviors in the 11th revision of the ICD (International Classification of Diseases, 2018).

Negative Outcomes of Problematic Internet Use

A considerable body of research has been conducted regarding the relationship between problematic Internet use and mental health. Despite the advantages of Internet usage in our daily lives, it might be related to negative consequences depending on the extent and purpose of usage. South Korean researchers reported that an Internet dependent group displayed higher levels of "depression, loneliness, and compulsiveness" compared to people who were not dependent on the Internet (Whang, Lee, & Chang, 2003, p. 148). Ceyhan and Ceyhan (2008) reported that depression, loneliness, and computer self-efficacy are linked to increases in problematic Internet use (p. 700). Additional studies have detailed the relationships between types of online usage and mental health, such as social network usage and loneliness (Amichai-Hamburger & Ben-Artzi, 2003), and chatting and unhappiness (Kang, 2007).

Online Gaming

Online games are increasingly popular with children, adolescents, and young adults, and are often used for stress relief. People with high levels of stress may play online games excessively in order to escape from offline problems (Kraut et al., 2002; Snodgrass et al., 2014). When people engage in problematic online gaming, their engagement in daily life activities, such as work, school, social life, family life, and their general daily functioning may suffer (van Rooij, 2011). Problematic online gamers may try to fulfill needs that they believe are unattained in the offline world (Khan & Muqtadir, 2014). Given the increasing prevalence of online gaming and the associated problems, problematic online gaming was proposed for inclusion in the DSM-5, Section III as "Internet Gaming Disorder", with the intention of identifying it as a condition requiring further study (APA, 2013, p. 795). Gaming disorder is included in the 11th revision of the ICD (see 6C51.0 Gaming disorder, predominantly online, International Classification of Diseases, 2018).

Online Gambling

Online gambling is simply defined by Business Insights (2010) as an entertainment in the virtual world by placing, receiving, or transmitting a bet. It has increased in the past decade (Matthews, Farnsworth, & Griffiths, 2009), and in the USA, it is legal to gamble online in some states including Delaware, Nevada, New Jersey, and Pennsylvania (PlayUSA, n.d.). Petry and Gonzalez-Ibanez (2015) have indicated that online gambling is popular among college students and is associated with problematic gambling. Griffiths, Parke, Wood, and Rigbye (2010) noted that online poker is becoming an alternative to traditional poker and is one of the fastest growing types of online gambling. In Griffiths et al.'s (2010) study on problematic gambling behavior among university students, the researchers reported that online gamblers, who played regularly and for a long time, did not adhere to a budget and misreported their biological sex while gambling online. Griffiths et al.'s report showed these behaviors were predictive of problematic gambling. Matthews et al. (2009) found approximately one in five online gamblers (19%) in their study met the criteria for a pathological gambler using the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987). Owing to study results and symptoms of people who suffer from gambling problem, the DSM-5 recognizes problematic offline gambling behavior as "Gambling

Disorder” (APA, 2013, p. 585) and online gambling disorder is included in the 11th revision of the ICD (see 6C50.1 Gambling disorder, predominantly online, International Classification of Diseases, 2018).

Methodology

Grounded in prior research, the following variables were identified in the current study: problematic Internet use (Lee, 2009; Widianto & McMurrin, 2004; Young, 1998); online gaming behavior (Demetrovics et al., 2012; Linderroth & Ohrn, 2014; Papay et al., 2013); online gambling behavior (Hornle & Zammit, 2010; Kim, Grant, Potenza, Blanco, & Hollander, 2009); depression (Beck, Steer, Ball, et al., 1996; Brown & Bobkowsky, 2011; Harrison & Hefner, 2008); and quality of life (Berlim, Pavanello, Caldieraro, & Fleck, 2005; Castro, Driusso, & Oishi, 2014; Krageloh et al., 2013). The independent variables of this study are problematic Internet use, online gaming behavior, and online gambling behavior; the dependent variables are depression and quality of life. This study was approved by the Social/Behavioral Institutional Review Board committee of Ohio University (IRB#: 16-X-193).

Research Questions

Researchers in the current study aimed to answer one descriptive and two research questions:

Descriptive Question: What is the prevalence of problematic Internet use, online gaming, and online gambling among college students?

Research Question 1: Is there a relationship between depression and the linear combination of problematic Internet use, online gaming, and online gambling among college students?

Research Question 2: Is there a relationship between quality of life and linear combination of problematic Internet use, online gaming, and online gambling among college students?

Research design

This study utilized a quantitative non-experimental and cross-sectional research design, measuring the variables a single point in time, without repeated measures (Cohen, Manion, & Morrison, 2007). A web-based survey was created via Qualtrics and the link was emailed to students by the university's Office of Information Technology. Data were obtained through the survey completed by students who volunteered to participate in the study.

Instrumentation

The instruments used in this study are listed below:

Demographic Questionnaire: Through the demographic questionnaire information on participants' age, gender, race/ethnicity, grade level, GPA, residential status, participation in clubs, employment status, and average weekly Internet usage time were collected.

The Beck Depression Inventory-II: BDI-II is a 21-item multiple-choice self-report inventory designed to measure the severity of depression (Beck, Steer, & Brown, 1996).

The World Health Organization Quality of Life Questionnaire-BREF: WHOQOL-BREF is a 26-item questionnaire designed to measure an individual's quality of life (The WHOQOL Group, 1998).

The Internet Addiction Test: IAT is a 20-item Likert scale instrument designed to measure Internet addiction (Young, 1998).

The Problematic Online Gaming Questionnaire: POGQ is an 18-item questionnaire designed to measure problematic and non-problematic online gaming behavior (Demetrovics et al., 2012).

The Online Gambling Symptom Assessment Scale: OGSAS is a 12-item scale designed to measure the severity of gambling behavior (Kim et al., 2009). It has been modified by Kalkan and Griffiths (2018) with the permission of Kim et al. (2009) to measure the severity of online gambling behavior.

Reliability and Validity

Beck, Steer, Ball, et al. (1996) reported that the BDI-II has acceptable reliability and validity, test-retest reliability was $r = .93, p < .001$ (p. 590), the Cronbach's alpha reliability coefficient was $\alpha = .92$ (Beck, Steer, Ball, et al., 1996; Pearson Clinical, n.d., para. 5). In a New Zealand sample, Krageloh et al. (2013) found that the WHOQOL-BREF Cronbach's alpha reliability coefficient for the total score was $\alpha = .91$. Moreover, in a Brazilian sample, Castro et al. (2014) found the Cronbach's alpha reliability coefficients were $\alpha = .83$ for the WHOQOL-BREF total score. Frangos, Frangos, and Sotiropoulos's (2012) meta-analysis indicated the overall Cronbach's alpha reliability coefficients computed from studies using the IAT was $\alpha = .88$. Papay et al. (2013)

found the POGQ Cronbach's alpha reliability coefficient for the test was $\alpha = .91$. Kiraly et al. (2014) also found that the POGQ Cronbach's alpha internal reliability coefficient for the test was $\alpha = .93$. Kalkan and Griffiths (2018) showed that the OGSAS had a high level of reliability. The Cronbach's alpha reliability coefficient of the OGSAS was 0.83.

In the current study, reliability analyses of the instruments showed that the instruments had a high level of reliability. Cronbach's alpha reliability coefficient for IAT was .90, POGQ was .95, OGSAS was .73, BDI-II was .92, and WHOQOL was .92.

Sample

The random sampling method was used in selecting participants. The sample comprised undergraduate and graduate students at a large public Midwestern university in the USA. The total sample size of 112 needed for the study was determined by using the Precision Efficacy Analysis for Regression (PEAR) method (Brooks & Barcikowski, 2012). In order to arrive at sample size, an estimated p^2 .25 value was set at an alpha level of .05. The selected level of cross-validity shrinkage was limited to .20 with three predictors.

Results

Description of the Sample

After screening the data for invalid or missing data, 222 valid surveys were used in data analyses. Of the final sample of 222 participants, the mean age was 25.04 years, with a range between 18 and 69, and a standard deviation of 7.07 years. Eighty-seven of the participants were male (39.2%) and 135 of the participants were female (60.8%). One hundred sixty six participants identified themselves as White, nine identified as African-American, one identified as American Indian or Alaska Native, three identified as Hispanic, Latino, or Spanish origin, 14 identified as Asian-American, and 28 identified as other, such as Asian, Middle-Eastern, Black, and Multiple-Race. One person did not indicate his/her racial-ethnic identity. The sample included 18 freshmen, 33 sophomores, 33 juniors, 50 seniors, 40 master's, and 48 doctoral students. Of these participants, 195 students were enrolled full-time, 24 were part-time, and three students did not indicate their enrollment status. The mean GPA of the students was 3.40, with a range between 1.80 and 4.00 with a standard deviation of .53. Forty-one students resided on-campus and 181 students resided off-campus. Ninety-one students indicated that they participated in clubs and activities, 131 students indicated that they did not participate in clubs and activities. One hundred forty-three students were employed and 79 were not employed. Participants ranked the technology tools they use the most as mobile phone ($n = 107$), laptop computer ($n = 99$), tablet ($n = 79$), and desktop computer ($n = 69$).

Hours Online

Within the past six months, 15 students indicated that they spent 1-10 hours per week online, 66 students indicated that they spent 11-20 hours per week online, 61 students indicated that they spent 21-30 hours per week online, 40 students indicated that they spent 31-40 hours per week online, and 40 students indicated that they spent 40 or more hours per week online.

Descriptive Statistics of Study Variables

Descriptive statistics are presented in Table 1. Minimum and maximum scores for the IAT were 0 and 5; POGQ 1 and 5; OGSAS 0 and 4; BDI-II 0 and 3, where higher score was indicative of concern; and the WHOQOL 1 and 5, where lower scores were of concern.

Table 1. Descriptive Statistics of Study Variables

Variables	n	M	SD	Range		skew
				min	max	
IAT	222	1.48	.62	.15	3.60	.41
POGQ	222	1.55	.65	1.00	3.66	1.01
OGSAS	222	.09	.21	.00	1.66	3.48
BDI-II	222	.51	.49	.00	2.38	1.31
WHOQOL	222	3.77	.57	2.15	5.00	-.38

Note. IAT = Internet Addiction Test; POGQ = Problematic Online Gaming Questionnaire; OGSAS = Online Gambling Symptom Assessment Scale; BDI-II = Beck Depression Inventory-II; WHOQOL = World Health Organization Quality of Life Questionnaire–BREF.

The correlation statistics are presented in Table 2. Results show that there was a nonsignificant correlation between OGSAS and BDI-II ($r = .07$, $p > .05$). All other pairs of variables were significantly correlated with each other.

Table 2. Correlations of Study Variables

	IAT	POGQ	OGSAS	BDI-II	WHOQOL
1 IAT	-				
2 POGQ	.51**	-			
3 OGSAS	.18**	.25**	-		
4 BDI-II	.37**	.14*	.07	-	
5 WHOQOL	-.44**	-.17**	-.13*	-.74**	-

Note. * $p < .05$ (2-tailed) ** $p < .01$ (2-tailed); IAT = Internet Addiction Test; POGQ = Problematic Online Gaming Questionnaire; OGSAS = Online Gambling Symptom Assessment Scale; BDI-II = Beck Depression Inventory–II; WHOQOL = World Health Organization Quality of Life Questionnaire–BREF.

Research Question 1

Hierarchical multiple linear regression analysis was used to test the hypothesis that there is a relationship between scores on the BDI-II and IAT, POGQ, and OGSAS. The result of the regression analyses indicated that the first model was statistically significant and explained 14% of the variance in depression, $R^2 = .14$, $p < .05$. It was found that IAT significantly predicted depression in the baseline model, $\beta = .374$, $p < .05$. The other R^2 changes related to online gaming and online gambling were nonsignificant (see Table 3).

Table 3. Regression Analyses in Predicting Depression from IAT, POGQ, and OGSAS

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	.374 ^a	.140	.136	.463	.140	35.797	1	220	.000
2	.379 ^b	.144	.136	.463	.004	.936	1	219	.334
3	.380 ^c	.144	.132	.464	.000	.110	1	218	.740

Note. Dependent Variable = BDI-II; ^aPredictors = IAT; ^bPredictors = IAT, POGQ; ^cPredictors = IAT, POGQ, OGSAS.

Research Question 2

Hierarchical multiple linear regression analysis was used to test the hypothesis that there is a relationship between scores on the WHOQOL and IAT, POGQ, and OGSAS. The results of regression analyses indicated

that the baseline model was statistically significant and explained 20% of the variance in quality of life, $R^2 = .20$, $p < .05$. It was found that IAT significantly predicted quality of life in the baseline model, $\beta = -.449$, $p < .05$. The other R^2 changes related to online gaming and online gambling were nonsignificant (see Table 4).

Table 4. Regression Analyses in Predicting Quality of Life from IAT, POGQ, and OGSAS

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.449 ^a	.201	.198	.513	.201	55.509	1	220	.000
2	.453 ^b	.205	.198	.512	.004	1.074	1	219	.301
3	.458 ^c	.210	.199	.512	.005	1.303	1	218	.255

Note. Dependent Variable = WHOQOL; ^aPredictors = IAT; ^bPredictors = IAT, POGQ; ^cPredictors = IAT, POGQ, OGSAS.

Supplemental Analyses

Supplemental analyses were conducted in order to gather more information from the data and to learn if the groups differed in terms of gender and college class level to further understand students' Internet usage time, online behaviors, depression, and quality of life.

ANOVA analyses results showed that there was a statistically significant difference between freshmen and masters students' mean scores on the BDI-II [$F(5,216) = 2.97$, $p < .05$]. Post hoc Tukey results also showed a statistically significant difference in mean depression scores between freshmen and master's students (.46, $p < .05$).

Weekly Internet usage statistics showed that 6.8% ($n = 15$, 4 males and 11 females) of the participants reported their weekly Internet usage as 1-10 hours, 29.7% ($n = 66$, 24 males and 42 females) reported as 11-20 hours, 27.4% ($n = 61$, 27 males and 34 females) reported as 21-30 hours, 18% ($n = 40$, 19 males and 21 females) reported as 31-40 hours, and 18% ($n = 40$, 13 males and 27 females) reported as 41 and more hours.

Discussion

Through the descriptive question, the prevalence of problematic Internet use among college students was explored. Previous research indicated a link between the overuse of the Internet and mental health problems (Young et al., 2011). Thus, there is a potential link between the overuse of the Internet and the quality of life.

In this rapidly evolving field, in 2007, researchers defined the overuse of the Internet as being online for more than 20 hours a week (Ko et al., 2007), and in 2015, as using the Internet more than two hours a day every day (Cassidy-Bushrow et al., 2015). In 2019, with the widespread use of smartphones, these definitions of overuse may no longer be relevant. Descriptive statistics in the current study indicated that 63.5% of participants reported a weekly Internet usage of over 20 hours. Although Ko et al. (2007) had indicated that more than 20 hours a week of Internet usage constituted "overuse", the researchers of that study provided no differentiation between educational, professional, and leisure usage. Romer et al. (2013) proposed that Internet usage for information gathering or educational use was to be considered moderate use, while Internet usage with no purpose or for gaming or gambling was to be considered as heavy use. Owing to a lack of clarity in what constitutes problematic Internet use, a new definition is proposed here as "using the Internet for educational/professional or leisure purposes in a manner that interferes with the user's ability to engage in daily life activities and fulfill personal and professional responsibilities."

The first research question explored relationships between scores on the BDI-II and IAT, POGQ, and OGSAS. As presented in the results section, IAT significantly predicted depression in the baseline model. Preliminary analyses also showed that IAT and BDI-II were correlated significantly. Therefore, this relationship was expected and is supported by prior research.

Previous studies indicate that overuse of the Internet is related to depression (Ceyhan & Ceyhan, 2008; van der Aa et al., 2009), loneliness and anxiety (Clifton, Goodall, Ban, & Birks, 2013), lower psychological well-being

(Bell, 2007; Chen, 2012; Green et al., 2005; Kraut et al., 1998), and low self-esteem (van der Aa et al., 2009). Also, mobile phone and social network sites use are related to depression (Lauckner, Hill, & Ingram, 2018).

The second research question explored relationships between scores on the WHOQOL and IAT, POGQ, and OGSAS. As presented in the results section, IAT significantly predicted quality of life in the baseline model. Preliminary analyses also showed that IAT and WHOQOL had a significant negative correlation.

Negative outcomes of overuse of the Internet are related to quality of life including neglecting responsibilities and disrupting relationships (Young, 1998), insomnia, craving, and loneliness (Young et al., 2011), avoiding daily life activities (Caplan, Williams, & Yee, 2009), and social isolation (Clifton et al., 2013; Davis, 2001). Although the present study cannot assume a causal relationship due to the non-experimental design of the study, findings are consistent with existing literature in regards to problematic Internet use and depression and quality of life. Quality of life might be affected negatively because excessive Internet use decreases users' social interaction, face-to-face communication, time spent with friends and family, and fulfilling responsibilities both in school and at home. Further research is needed in order to understand if there is any causal relationships between problematic Internet use and quality of life.

As reported in the results section, the results of ANOVA analyses showed that freshmen and masters students differ significantly in depression levels. Post hoc Tukey results also indicated that freshmen and master students' depression levels are significantly different. The results showed that freshmen students are higher in depression than upper classmen. The results of the present study corroborate findings from previous studies that show decreases in depression levels from the first to the fifth semester of college (Chen & Lin, 2016), and among young adults from age of 17 to 21 (Rawana & Morgan, 2014). It is possible that with the transition from high school, and the adjustment to college and a new social environment, students' depression levels are highest initially, and decrease gradually throughout the college years.

Prior researchers presented different Internet usage time for males and females. For example, Widyanto and McMurran (2004) reported that overall Internet use of males was 31.62 hours per week compared to females at 26.61 hours. However, others reported no significant difference between males and females concerning Internet usage time (Chang, Yeh, Chen, & Lin, 2013). The current study results show gender differences in Internet usage time. Crosstabs results show that (a) more females spend between 1-20 hours online compared to males, (b) more males spend between 21-40 hours online compared to females, and (c) more females spend over 40 hours online compared to males.

Supplemental analyses concerning gender and class comparisons were needed because the existing literature does not provide detailed and comparative information of these variables. Therefore, the results of the present study not only contribute to the literature, but also provide general information for future research.

Theoretical Implications

The current study findings support prior research demonstrating a positive correlation between problematic Internet use and depression, and a negative correlation between problematic Internet use and quality of life. Findings of this study raise a question regarding what other variables might be related to depression and quality of life aside from problematic Internet use among college students. Since the findings of the current study showed significant differences in depression levels between undergraduate and graduate students, and depression levels decrease throughout the college years, adjustment could be another variable that might be related to depression. The current study findings contribute to the literature by showing that male and female college students differ in their Internet usage time.

Implication for Practitioners

Owing to significant study results, the staff at college counseling centers need to pay close attention to the effects of dysfunctional online behaviors that may impede college students' ability to succeed. Screening instruments cannot diagnose problematic Internet use because this phenomenon is not included in the DSM-5 (APA, 2013) as a diagnosable mental health disorder. However, college counseling centers may use existing instruments to identify potential problematic Internet use and related issues. Since the existing instruments do not measure Internet usage time, it will be beneficial to collect descriptive data, such as educational/professional and leisure usage time. With the 11th revision of ICD, clinical descriptions and manifestations of online gaming and online gambling disorders are available that will help practitioners to identify problematic online gaming and online gambling behaviors.

Another question raised after identifying problematic online behaviors is what treatment modality should be used. Although the literature does not suggest a specific treatment modality in order to treat problematic Internet use (Abreu & Goes, 2011, p. 155), CBT is suggested by Young (2011) as the most efficacious treatment for problematic online behaviors. Since the existing instruments do not measure Internet usage time, Young suggests a daily Internet use log to assess Internet usage time. Young also focuses on underlying issues in order to prevent relapse after the termination of the client.

Limitations and Directions for Future Research

The sample of respondents was a small percentage of the accessible population due to sampling procedures, limiting the generalizability of findings. Another potential limitation is related to the self-report nature of the survey and the possibility of underreporting due to social desirability. Finally, causal connections could not be drawn from the data due to the non-experimental design of the study. Further research with college population needs to be conducted in order to identify the at-risk status of college students who are having issues with dysfunctional online behaviors. Future researchers could consider replicating this study with college students in other regions of the USA or internationally. Also, the sample size of the current study was modest. Replication of this study with larger sample sizes is needed in order to generalize the findings. In addition, qualitative research with students identified as having problematic Internet use, or engaging in heavy online gaming or gambling could yield findings divergent from the current study. Moreover, further examination is needed in order to identify other possible factors that could influence depression and quality of life among college students.

Disclosure statement

No potential conflict of interest was reported by the authors.

Acknowledgements or Notes

This article is produced from the dissertation of Bilal Kalkan, titled as *Problematic Internet Use, Online Gaming, and Online Gambling, and Their Relationships with Depression and Quality of Life among College Students*.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

An Evaluation of the Systems of Transition to Secondary Education in Turkey

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To cite this article:

Taşkın, G. & Aksoy, G. (2020). An evaluation of the systems of transition to secondary education in Turkey. *International Journal of Contemporary Educational Research*, Vol(No), 29-39. DOI: <https://doi.org/10.33200/ijcer.610172>

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An Evaluation of the Systems of Transition to Secondary Education in Turkey

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Abstract

This study aims to evaluate the systems of transition to secondary education that have been practiced in Turkey to place students to secondary education institutions and to put forth to what degree these systems conform with the goals in Ministry of National Education (MoNE) 2023 Vision Document. In the study, the lessons in the systems of transition to secondary education that have been in practice so far are assessed with regard to distribution of questions, weight coefficients, the factors used in exam practices and evaluations, the grade levels of exams and years. The study employs the method of document analysis, which is a qualitative method. The data obtained were analyzed through content analysis. It was found out that though there is not a difference in the total number of questions in the transition to secondary education examinations through the years, the number of lessons that the students are responsible for increased. The numbers of questions in the Math, Science and Turkish lessons have reduced in the recent years, but their weight coefficients are still higher. The students were subjected to relative evaluation system except for the examinations of Transition from Primary to Secondary Education (TEOG). All the examinations were carried out at eighth grade Except for Placement Test (SBS). MoNE have reduced the number of questions in Social Studies lesson as well as its weight coefficient in evaluation system. MoNE included English lesson in the last three central transition systems and Education of Religion and Ethics lesson in the last two central transition systems. The questions of these two lessons were based on interpretation. This shows that MoNE tends to develop higher order thinking skills rather than knowledge level in the transition examinations. In the Entrance to High Schools Examination, put into practice in 2018 by MoNE, the obligation to participation to central examinations was abolished. The results of the study reveal that MoNE tries to increase content validity through holding students responsible for more lessons in the systems of transition to secondary education.

Key words: Transition to secondary education, Document analysis, Content analysis, Evaluation

Introduction

In every country, education institutions arise as the outputs of social needs. Education institutions need to choose their students when the demand is more than the offer. The system of transition to secondary education in Turkey is an example of this case, which is also similar to the cases across the world. It is well known that successful students are placed to distinguished schools after passing through an elimination system with other students in transition to secondary education. This elimination system is based on central examination in countries such as China, Japan, South Korea and U.S.A while it is based on school grades and teachers' opinions in such countries as Finland and Germany (Emin, 2018). A number of factors such as the country's regime, population and education culture play roles in transition to secondary education.

The practices of transition to secondary education came in sight after World War II. Following this war, the countries attached importance to science and technology, and colleges were established with secondary education in order to raise qualified populations. The successful students in primary education were placed to these colleges based on the criteria of academic achievement to cultivate them as science and technology literature individuals. The reflection of this case started in Turkey in 1955, when the high schools which were offering education in foreign languages selected their future students (Güven, 2018). Those schools, named as Education Colleges then, were renamed as Anatolian High Schools (AHS) in 1975. Later in the Seventh National Education Council, held in 5-15 February 1962, it was decided to establish Science High Schools

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(SHS). Based on this ruling, secondary education institutions started to accept students based on academic achievement criteria. The first Science High School was established in Ankara in 1964 and these schools have been accepting students since then (Gür, Çelik & Coşkun, 2013). Science High Schools accepted students through a two-phase examination until 1988 and after that date, they accepted students through a single-phase examination. After 1995, Anatolian Teacher Training High Schools (ATTHS) also started to accept students through central examinations and students were centrally placed to high schools until 1998 under the name of Science High Schools/ Anatolian Teacher Training High Schools (SHS/ATTHS) examinations.

In 1998, obligatory eight-year primary education started in Turkey, and the examinations of entrance to Anatolia High schools after the primary education were abrogated and the examinations were held after lower secondary education (upper elementary education then) for all education institutions. In that year, all examinations of transition to secondary education were combined in a single examination, named as Secondary Education Institutions Students Selection and Placement Examination (MoNE, 2002). As the name of this examination was too long, it was named as Entrance to High Schools Examination (LGS). In 2003, Social Sciences High Schools were established and accepted students through central examinations, and the system had to be renewed as the school types increased. MoNE accepted students to secondary education institutions through LGS until 2004, and in that year, it introduced Secondary Education Institutions Examination (OKS). With OKS, it was aimed to combine all transition to secondary education institutions examinations under a single examination. Thus, all examinations of Police College, private education institutions, free boarding education and scholarship were included to OKS except for military school examinations (MoNE, 2005). Acceptances to secondary education were carried out through this system until 2007-2008 academic year.

Acceptance to Secondary Education Institutions changed again in 2007 with the introduction of Placement Examination (SBS) (MoNE, 2007). The reason for this change was to include students' academic achievement in schools to the evaluation system in transition to secondary education. SBS involved a joint evaluation of central SBS scores and students' grade point averages. In line with this, students had a Secondary Education Placement Score (OYP), based on percentages of students' SBS central exam scores obtained in sixth, seventh and eighth grades and percentages of grade point averages the students got from their schools. The students were placed to secondary education institutions using the OYP (MoNE, 2009). Yet later on MoNE changed the system to some extent through canceling the central examinations in the sixth and seventh grades and implemented the central examination only in the eighth grade (MoNE, 2010; MoNE, 2013a).

Later on, MoNE introduced the system of Transition from Primary to Secondary Education (TEOG) in 2013 in order to lessen the need for out-of-school instruction institutions (such as private courses). TEOG brought along a number of radical reforms. The list of rationales in this change included reinforcing the link among students, teachers and parents, getting teachers to be more active in the education process, centralizing the school and thereby lessening the need for out-of-school institutions, ensuring simultaneous enactment of curricula across the country, increasing students' commitment to school, enabling evaluation of the process rather than making a single examination, monitoring students' learning outcomes objectively, and eliminating the impossibility of compensation caused by using one single examination (MoNE, 2013b). As another change, MoNE started to restrict quotas in the classes based on the types of high schools. Accordingly, the classes in Anatolia and Science High schools could not be over 30 and this figure was 34 for Vocational High Schools (MoNE, 2013c).

In 2018, MoNE abrogated TEOG system and introduced Entrance to High Schools Examination System (LGSS). With LGSS, the obligation for students to take central examination has been removed. In this system, there are two ways to place students to secondary education institutions. The first one is central placement and the second one is local placement. In central placement, students are placed to Science High Schools, Social Sciences High Schools, Project High Schools and Vocational and Technical Anatolian High Schools based on their scores on central examination (MoNE, 2018a). In local placement, the types and quotas of schools are determined in line with secondary education registration area, which is formed based on students' residential address. The placement of students in a registration area is planned to be carried out in accordance with the criteria of residential address, the amount of time the students had in the lower secondary schools in that area, preference priority, grade point averages, the ratio of attendance and absenteeism, and age. Placement of students to the schools that are accepting students through local placement is performed based on quotas announced by provincial or district national education directorates. Entrance to High Schools Examination (LGSS) is practiced in two sessions. The exam includes 90 questions in total. The verbal part, which is the first session, includes 50 questions and students are allocated 90 minutes. The second session is quantitative and includes 40 questions to be answered in 60 minutes. There is a 45-minute break between the two sessions. The lessons included in the verbal and quantitative parts and the distribution of questions are presented in Table 1 (MoNE, 2018b).

Table 1. Lessons in LGS and Question Distribution

Part	Lesson	Number of questions
Verbal	Turkish	20
	Turkish Revolution History and Kemalism	10
	Education of Religion and Ethics	10
	Foreign Language	10
Quantitative	Math	20
	Science	20

The experts claim that the questions in LGS, the first one held in 2018, were harder than the questions in TEOG and the students were short of time in the examination (Ekinci & Bal, 2019). The experts maintained that the questions in LGS measured higher order cognitive skills and other various skills and this increased selectiveness (Güler, Aslan & Çelik, 2019). It is seen that these expert opinions conform with the statement in the test rubric prepared by MoNE, which is: “The questions are prepared in order to measure students’ skills of reading comprehension, interpretation, deduction, problem solving, analysis, critical thinking, scientific process skills and other similar skills” (MoNE, 2018c).

Regarding transition between the school levels, in the 2023 Vision Document, MoNE aims to lessen students’ need to examinations based on competition and election in the medium-term plan. To realize this goal, MoNE aims to structure two main pillars. These elements and their contents are given in Table 2 (MoNE, 2019).

Table 2. Pillars of Transition between School Levels in MoNE 2023 Education Vision

1st pillar	Reducing the disparities between schools and regions
	Monitoring all students’ learning outcomes
	Forming the structures and processes to monitor student achievements
	Structing school development as the primary axis
	Reinforcing vocational and technical education and thereby reducing the demand for examinations
2nd pillar	Supporting schools with unfavorable conditions
	Developing flexible models for exam-free placement
	using central exams only for specific purposes and for certain children and schools with specific orientations in the medium term.

Within the pillars provided in Table 2, it is aimed to revise the aims, contents, question types of all exams in the education system as well as aims to enhance learning. MoNE aims to prioritize questions to measure reasoning, critical thinking, interpretation, forecasting, and other similar skills through the future arrangements. Accordingly, MoNE shares example questions every month with stakeholders before examinations in order to eliminate the uncertainties about existing practices in the new examination system, introduced in 2018. Besides, grade point averages are also included in the calculation of placement score in order to increase students’ commitment to school. MoNE thinks that the need to private teaching courses and private instruction intuitions (which were closed) stem from multiple choice examination system and argues that the results obtained from the central examination were not good enough when the private teaching courses were open and common, namely the presence of private teaching courses does not increase quality of education. Due to these reasons, in the medium term, MoNE plans to reduce the need to central examinations and increase the students’ access to learning support services. To realize these goals, it is needed to centralize students in education, enrich learning environments with various mediums such as home, school, digital and social media, and form an integrated learning ecosystem (MoNE, 2019).

Purpose and Significance

In terms of student potential, Turkey corresponding to the total population of many countries, has a high number of students reaching approximately 18 million (MoNE, 2019b). Approximately 5 million of these students are at secondary level. What's more, over one and a half million students transition from primary to secondary education every year. Moreover, with the increase of compulsory education to 12 years together with 4 + 4 + 4 in 2012, almost all of the primary school graduates were enrolled in secondary schools. Therefore, the need for

the elimination system is inevitable in transition to secondary schools with the number of students growing every year without wasting. From a broad perspective, it is obvious that the problems in the transition to secondary education will affect the large masses negatively. This situation reveals the importance of the research.

The above is the main reason for this line of research mentioned in the transition to secondary education system implemented in Turkey to identify the positive and negative practices and to note the new system will be implemented and measures should be taken to uncover. This study aims to evaluate the systems of transition to secondary education that have been practiced in Turkey to place students to secondary education institutions and to put forth to what degree these systems conform with the goals in MoNE 2023 Vision Document. In the study, the lessons in the systems of transition to secondary education that have been in practice so far are assessed with regard to distribution of questions, weight coefficients, the factors used in exam practices and evaluations, the grade levels of exams and years. The results of the study are expected to facilitate the general evaluation of the researchers by revealing a general perspective of the Transition to Secondary Education Systems. The limitation of the study is the transition system to five secondary schools which have been implemented since 1998.

Method

Research Model

The study employs document analysis, which is a qualitative method. Document analysis includes the analysis of written materials involving data as to phenomena of research. It is carried out in five steps, which are explained below based on Yıldırım and Şimşek (2005).

1. *Accessing the documents:* The study involves comparison of the systems of transition to secondary education that were employed in Turkey. To this end, it was decided to examine application, preference and placement guidelines of the systems of transition to secondary education (LGS, OKS, SBS, TEOG and LGSS). The guidelines of LGSS, TEOG, SBS and OKS were accessed on the website of MoNE. As the guideline of LGS was not accessible, the data obtained from MoNE Journal of Notifications Guideline for Central Examination system were used.
2. *Checking originality:* The application guidelines obtained online are the guidelines available on the official website of MoNE. The data for LGS was obtained from official website of MoNE Journal of Notifications. Therefore, the documents are original documents of the institution which has been performing the transition to secondary education.
3. *Understanding the documents:* Based on the data obtained from the documents, the question distribution in the examinations, weight coefficients of the lessons, categories related to the practice and evaluation of the examinations, grade level and years of the examinations, number of sessions in the examinations, the types of secondary education institutions accepting students with central examinations were compared.
4. *Analyzing the data:* The documents were subjected to content analysis in line with the aims of the study.
5. *Using the data:* The data obtained from the documents are accessible on the official website of MoNE. Besides, the data do not include information to identify any person, groups or institutions.

Instrument

The application, preference and placement guidelines of the systems of transition to secondary education (OKS, SBS, TEOG and LGSS) were used as data sources in the study. In educational research, textbook OKS, curriculum instructions, lesson units and other official documents can be used in document analysis (Yıldırım & Şimşek, 2005). As the guideline of LGS was not accessible, the data obtained from MoNE Journal of Notifications (2002) were used.

Data Analysis

A content analysis was carried out on the data. In the research studies with documents as the single data source, the data is analyzed comprehensively. Content analysis is carried out in these studies as follows (Yıldırım & Şimşek, 2005):

1. *Selecting a sample from the data of analysis:* As the guidelines could be analyzed as a whole, no sample was selected in the current study.

2. *Forming categories:* Categories reflecting the aim of the study were formed, which are secondary education institutions accepting students through central examination, question distribution in the examinations, weight coefficients of lessons in the examinations, factors in the implementation and evaluation of the examinations, grade level and years of the examinations and the number of sessions in the examinations.

3. *Identifying analysis unit:* The characters of analysis unit in the study are secondary education institutions accepting students through central examinations, name of the system, name of the lesson, question distribution, weight coefficient, duration of the examination, number of sessions, number of exam days, evaluation type, grade point average, and absenteeism.

4. *Quantification:* The data were not quantified in the current study. The numbers used in the findings are descriptive.

Validity and Reliability

In qualitative research, the competence, credibility and accuracy of the results are taken into consideration instead of validity and reliability (Krefting, 1991). In terms of the competence of the researchers, the researchers have sufficient competence on the subject and have already worked on the subject. In terms of credibility, document review studies go through expert review (Creswell, 2003). The study was reviewed by four field experts. The themes and categories of the study were reorganized in line with the opinions of the experts. For the accuracy of the results, the data obtained from the study were taken from the original sources of the subject.

Findings

The findings obtained from application guidelines of the systems of transition to secondary education are presented in the form of tables below. Admission of students to high schools through central examinations in Turkey has been in practice for nearly 20 years.

Central examinations implemented by MoNE in the last 20 years, their dates and the types of secondary education institutions accepting students through these examinations are presented in Table 3.

Table 3. Central Examinations implemented by MoNE in the last 20 years and types of schools accepting students through central examinations

Types of Schools / Examination Name	LGS	OKS	SBS	TEOG	LGSS
Science High Schools	X	X	X	X	X
Anatolian High Schools	X	X	X	X	-
Anatolian Teacher Training High Schools	X	X	X	-	-
Social Sciences High Schools	-	X	X	X	X
Vocational and Technical Anatolian High Schools	X	X	X	X	-
Police College	-	X	X	-	-
Anatolian Religious High Schools	X	X	X	X	-
Private High Schools	X	X	X	X	-
Multi-program Anatolian High Schools	-	-	-	X	-
Project High Schools (All High School Types)	-	-	-	-	X

As evident in Table 3, the high schools that are accepting students through central examinations are nearly the same in every transition system. With OKS, Police College accepted students through central examination but it ended with TEOG. In the last system, MoNE labels schools that are accepting students through central examinations as project schools. With the system of TEOG, which started in 2013, Anatolian Teacher Training High Schools are closed. With TEOG, MoNE combined all vocational and technical high schools (Anatolian Technical High Schools, Anatolian Vocational High Schools, Anatolian Land Registry and Cadastre Vocational High School, Anatolian Agriculture Vocational High School, Anatolian Meteorology Vocational High School, Anatolian Hotel Management and Tourism Vocational High School, Anatolian Communication Vocational High School, Vocational High School of Justice, Anatolian High School of Business, Anatolian Health Vocational High School and Health Vocational High School) under the name of Vocational and Technical

Anatolian High School. With TEOG, Anatolian Religious High Schools were removed from Directorate General for Vocational and Technical Education and transferred to Directorate General for Religious Education in MoNE.

The question distributions in the examinations are presented in Table 4.

Table 4. The distribution of questions in the examinations within the transition to secondary education

Exam	Turkish	Math	Science	Social Science	English	Religious Ed.	TOTAL
LGSS	20	20	20	10	10	10	90
TEOG	20	20	20	20	20	20	120
SBS	23	20	20	20	17	-	100
OKS	25	25	25	25	-	-	100
LGS	25	25	25	25	-	-	100

MoNE has reduced the number of questions of Turkish, Math, Science and Social Sciences by time. Instead of those reduced questions, questions of English and Education of Religion and Ethics were included. There are not significant differences in the number of total questions. Yet, MoNE tends to increase the number of lessons to be included in central examinations. In the last three systems, MoNE placed students to secondary education institutions based on a single score type.

Table 5 shows weight coefficients of lessons in the systems of transition to secondary education.

Table 5. Weight Coefficients of Lessons

Exam	Score Type	Turkish	Math	Science	Social Sciences	English	Religious Ed.
LGSS		4	4	4	1	1	1
TEOG	YEP	4	4	4	2	2	2
SBS	OYP	4	4	3	3	1	-
OKS	MF	3	4	4	1	-	-
	TM	3,5	3,5	2,5	2,5	-	-
LGS	MF	3	4	4	1	-	-
	TM	3,5	3,5	2,5	2,5	-	-

*Placement Score (YEP), Math Science (MF), Turkish Math (TM), Secondary Education Placement (OYP)

MoNE has reduced the number of questions of Turkish, Math and Science in central examination (Table 4). Despite this, MoNE has kept the weight coefficients of these lessons high. In central examinations, both the number of questions and weight coefficients of Social Sciences have reduced. In the last two systems, number of questions and weight coefficients of Social Sciences, English and Education of Religion and Ethics are the same.

The factors related to examination practices in the transition to secondary education are given in Table 6.

Table 6. The factors related to examination practices

Exam	Taking Exam	Number of Exam days	Number of sessions	Duration (mins)
LGSS	Optional	1	2	155
TEOG	Compulsory	2	6	240
SBS	Compulsory	1	1	120
OKS	Optional	1	1	120
LGS	Optional	1	1	120

With changes on central examinations, MoNE has increased the number of exam days and sessions. The time allocated to each question has also increased by time. In the system in which schools that are accepting students through central examination are limited, MoNE made taking the central exam optional. However, in the systems in which all high schools are accepting students through central examination (SBS and TEOG), taking the central examination was compulsory.

Implementation dates and grade levels of examinations in the transition to secondary education are given in Table 7.

Table 7. Dates and grade levels of central examinations

Exam	Year	6th grade	7th grade	8th grade
LGSS	2018-	-	-	X
TEOG	2013-2017	-	-	X
SBS	2010-2012	-	-	X
OKS	2008-2009	X	X	X
OKS	2004-2007	-	-	X
LGS	1998-2003	-	-	X

As given in Table 7, MoNE generally places students to secondary education institutions through central examination held in eighth grade. The only exception to this was SBS system, implemented in 2008-2009 academic year. In these years, central examinations were held at 6th, 7th and 8th grades. As a result of these examinations, placement scores were calculated based on certain percentages.

The factors related to evaluation of examinations in the transition to secondary education are given in Table 8.

Table 8. The factors related to evaluation of examinations

Exam	Evaluation type	Grade Point Average	Behavior scores	Absenteesim
LGSS	Relative	-	-	Effective
TEOG	Absolute	%30	-	Effective
SBS	Relative	%25	%5	Effective
OKS	Relative	-	-	-
LGS	Relative	-	-	-

MoNE has brought along different practices in each system in the evaluation of central examinations. In the recent years, school grades have also paid role in the calculation of placement scores. However, MoNE takes school grades into account in the system in which students are obliged to take central examinations. MoNE generally prefers relative evaluation in calculation of exam scores. As seen in Table 8, absolute evaluation was used only in TEOG. Students absenteeism has also been considered in the last three transition systems.

Results and Discussion

MoNE tends to not change the schools that accept students through central examinations in the transition to secondary education. However, it is tried to reduce the number of these school types and gather them under a single roof. For instance, a number of different vocational and technical high schools were combined under the name of vocational and technical high school (Table 3). Furthermore, with the LGSS examination, in practice since 2018, vocational and technical schools are described as project schools and it is aimed to increase the quality of vocational education. With this practice, it is thought that the students would be encouraged towards vocational education. This change can be regarded as a step towards raising the quality standards in vocational and technical schools and encouraging capable students towards vocational education, which is one of the goals stated in MoNE 2023 Vision Document (MoNE, 2019). The significance attached to vocational education conform with the goals in National Education Quality Framework and 10-year development plan (MoNE, 2014, Ministry of Development, 2013).

MoNE increased the number of lessons that the students are responsible in the central examinations for the transition to secondary education in the course of time. This means that the students are evaluated through more lessons in the selection for placement to secondary education institutions (Table 4). It can be argued that this case is positive with regard to content validity of examinations. Herewith increasing the number of the lessons that students are responsible for in the central examinations, students' commitment to school would also increase (Taşkın, 2016). In this regard, asking questions within the scope of the 8th grade achievements in LGSS reduces both the students' commitment and coverage validity. Besides, in accordance with the constructivist curricula, which have been enacted since 2005, the number of lessons is increased in the examination so as to take students' individual differences into account with respect to multiple intelligences (Balci, 2007). Despite the increase in the number of lessons in the examinations, the numbers of questions in total have not changed to a great extent. In TEOG, the number of lessons the students were responsible for increased to six and the number of total questions increased to 120. Yet in the current system, LGSS, the

number of lessons the students are responsible for remains as six while the number of total questions reduced to 90 (Table 1). The studies on the difficulty level of the examinations suggest that as MoNE reduced the number of questions, the questions are more about measuring higher order cognitive skills (Ekinci & Bal, 2019; Güler et al., 2019; Taşkın, 2016). In line with this, while the questions are easier in the compulsory central examinations, the optional examinations include more questions measuring higher order cognitive skills and therefore they are harder (Eş, 2005; Güler, 2010). Particularly in TEOG, a number of students ranked first in the examinations, base points of the schools increased extremely, point differences lessened to a great extent among many schools, which put forth that easier questions reduce validity and cannot distinguish between successful and unsuccessful students (Atıla & Özeken, 2015; Görmez & Coşkun, 2015). This case necessitates higher order questions to be asked in the central examinations.

MoNE has reduced the number of questions of Turkish, Math and Science in central examination for transition to secondary education; however, it has increased the weight coefficients of these lessons (Table 5). The reason for higher weight coefficients of particularly Math and Science may be related to the low scores the Turkish students got from international assessment examinations such as PISA and TIMSS. The scores the Turkish students got from math lesson, in particular, were lower than the mean score of all participating countries (MoNE, 2007; Taş, Arıcı, Ozarkan & Özgürlük, 2016). As for social sciences lesson, MoNE not only reduced the number of its questions in the central examinations but also reduced its weight coefficients. In addition, MoNE included English lesson in the examinations in the last three transition systems and Education of Religion and Ethics in the last two ones. In TEOG, the weight coefficients of Social Sciences, English and Education of Religion and Ethics were half of the weight coefficients of Turkish, Math and Science lesson; however, in LGSS, the sum of the weight coefficients of the three lessons do not equal to Turkish, Math or Science lessons. It is thought that this strategy is a result of the failure in the international examinations, particularly with higher order questions (MoNE, 2016, Taş et al., 2016). In addition, this situation makes students insensitive to courses with low coefficient of weight (Özdaş, 2019). Besides, the transition from traditional education system based on learning system to constructive strategies based on research and questioning enabled through the changes in curricula as of 2004 is in parallel with this case (Çepni & Çil, 2009). This shows that MoNE tends to develop students' higher order cognitive skills as opposed to comprehension level knowledge. The questions based on interpretation in Social Sciences, Education of Religion and Ethics and English lessons confirm this tendency (Taşkın & Aksoy, 2018a). The main reason why students find the questions in the examination in which the quota is limited (particularly in LGSS examinations) may be the necessity for higher average difficulty and distinctive level (Güler et al., 2019). Because these exams aim to identify students who have top-end proficiency.

MoNE tends to prolong the duration and days of the examination with every change in the transition systems (Table 6). This strategy aims to lessen students' exam anxiety and excitement (Buldur & Acar, 2019; Görmez & Coşkun, 2015; Taşkın, 2016). In the last examination system, LGSS, the exams were held in two sessions and there were breaks between the sessions (MoNE, 2018b). Yet, despite all these arrangements, there are studies in the literature which argue that even the presence of exams is a source of stress for students (Demir & Yılmaz, 2019; Öztürk & Aksoy, 2014; Taşkın & Aksoy, 2018b; Zorlu & Zorlu, 2015). Accordingly, with LGSS system, MoNE made taking central examination optional for students by introducing secondary education placement system based on student's place of residence as well as getting scores from central examinations.

In the systems of transition to secondary education in which taking central examinations was compulsory (TEOG and SBS), the achievement in the previous education level was included in the evaluation as all the schools accepted students through exam scores. As seen in Table 5, students' grade point averages and behavior grades were taken into consideration in SBS system. However, in LGS, OKS and LGSS the students were not obliged to take central examination and the grades they got in primary education were not included in the evaluation. Through making central examination optional and reducing the number of high schools that accept students with the scores from central examinations in LGSS, MoNE aims to eliminate the quality discrepancy among the schools (MoNE, 2019; Table 1).

In most of the systems of transition to secondary education, the central examinations were held only in eight grade (Table 7). Only in SBS system, all the students in the middle school (lower secondary school) took central examinations at 6th, 7th and 8th grades. However, SBS was in practice only for two years. It was abrogated because the children experienced exam anxiety in their very early ages, the children of those ages could not comprehend the examinations, they caused negative pressure on students, the need for private teaching course was increasing every year (MoNE, 2019; Öztürk & Aksoy, 2014). However, the summative evaluation held only in the graduation year is contrary to the view in constructivism that process oriented evaluation is more

important that summative evaluation. In addition, it is inevitable that system changes made in a short time will cause unrest among the stakeholders (Eroğlu & Özbek, 2017).

The systems of transition to secondary education mostly made use of relative evaluation (Table 8). Only TEOG system evaluated students through absolute evaluation. In addition, correction factor (wrong answers subtract correct answers) was not implemented in TEOG (Taşkın, 2016; Taşkın & Aksoy, 2018a; Taşkın & Aksoy, 2018b). In the studies in the literature, not applying the correction factor in the examinations is criticized because it reduces the reliability of the exams and increases the chance factor (Gür et al., 2013; Şad & Şahiner, 2016). This may be the reason why correction factors are put back in practice in LGSS system.

Recommendations

It is recommended that, in the future systems of transition to secondary education, MoNE should consider the opinions of students, teachers, administrators, parents and academics who are stakeholders of the education system and form the central placement practices which are stable. The examinations should be of high reliability and students, parents and teachers should clearly know about the content and form the examinations. The central examinations should not be in a state of constant changes and the stakeholders of education should not experience negative cases due to surprise changes every now and then. The Directorate General for Measurement, Assessment and Examination Services, which is affiliated to MoNE, should take more active roles and prepare immediate action plans to eliminate the problems experienced in central placement practices without delay to prevent bigger problems. It is advised that the reforms practiced in vocational and technical schools to encourage students towards these schools should be reconsidered given the number of students preferring these schools. Besides, in order for MoNE to troubleshoot the problems in the transition to secondary education, it should put the targeted pillars of transition between school levels, as stated in 2020 Vision Document, into practice swiftly. It is also advised that the evaluation system in the examinations should be based on formative rather than summative evaluation. Similar research studies can be carried out on the transition to higher education and stable arrangements can be put into practice based on those research results.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Öztürk, G., Karamete, A., & Çetin, G. (2020). The relationship between pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies. *International Journal of Contemporary Educational Research*, 7(1), 40-53. DOI: <https://doi.org/10.33200/ijcer.623668>

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The Relationship between Pre-service Teachers' Cognitive Flexibility Levels and Techno-pedagogical Education Competencies*

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Abstract

The study aimed to examine the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies in terms of several variables and to determine whether there is a relationship between their cognitive flexibility levels and techno-pedagogical education competencies. Determining whether the relationship between the cognitive flexibility and techno-pedagogical content knowledge that was emphasized in theoretical studies exists would contribute to teacher education. Thus, it could be stated that the cognitive flexibility might be included among the factors to enable the development and use of the techno-pedagogical content knowledge. The study was conducted with a total of 616 pre-service teachers and designed by using the exploratory correlational research model. The sample was determined by using convenience sampling methods. "Cognitive Flexibility Scale" and "Techno-pedagogical Education Competency Scale" were used for data collection. The findings demonstrated that the pre-service teachers have a high level of cognitive flexibility and techno-pedagogical education competency. It was also found that the cognitive flexibility scores had a statistically significant difference in terms of all independent variables (gender, type of program, and having a computer and internet access), and the techno-pedagogical education competency scores did not indicate a statistically significant difference in terms of gender and type of program, while they demonstrated a significant difference in terms of having a computer and internet access. Pearson's correlation coefficient was calculated to determine the relationship between the pre-service teachers' cognitive flexibility and techno-pedagogical education competency scores, and a moderately significant relationship was found. It could be concluded that the relationship emphasized in theoretical studies between the cognitive flexibility and techno-pedagogical content knowledge is moderate. Accordingly, the cognitive flexibility could provide the development and use of techno-pedagogical content knowledge which has an important role in teacher education.

Key words: Cognitive Flexibility, Techno-pedagogical Education Competency, Pre-service Teachers

Introduction

As a result of developments in the field of science and technology, people's ways of accessing and producing information have changed (ISSU & Ulmer, 2006). This change has caused the age we live to be called the information age (Cox, 2000). In this process, the use of technology in the teaching environment has inevitably increased. This emphasizes that the teacher, the most important element of teaching environment (Orhaner & Tunç, 2003), should possess the characteristics of techno-pedagogical education competency to integrate technology into teaching and cognitive flexibility to adapt to change (Krueger, Hansen, & Smaldino, 2000).

The cognitive flexibility is defined as awareness that a person has choices for new situations in which there are options and alternatives available, being willing to be flexible and adaptable to new situations, and having self-determination to be flexible, namely self-efficacy or belief that one has the ability to be flexible (Gündüz, 2013; Martin & Anderson, 1998; Martin & Rubin, 1995). According to Altunkol (2011), the cognitive flexibility requires to be aware of choices to deal with a problem or to adapt to situations, to apply these choices willingly and to feel self-sufficient. The complexity of everyday life grasped by individuals requires the necessity of being cognitively flexible (Altunkol, 2011; Martin & Anderson, 1998). Accordingly, it could be said that the cognitive flexibility includes several skills such as having a different perspective for problems, finding different solutions

* The study was supported by Balıkesir University Scientific Research Projects Coordination Unit as 2017/155 research project. A part of the study was orally presented at the International Necatibey Education and Social Sciences Research Congress (UNESAK 2018) organized at the Necatibey Faculty of Education, Balıkesir University between 26-28 October 2018.

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to problems, transferring information to different situations, being versatile and open to change, thinking fluently, going beyond mediocrity, making the necessary arrangements for an activity and discovering new ways (Duman, 2018). The cognitive flexibility was discussed by Karadeniz (2004) in the form of hypertext and hypermedia of cognitive flexibility. In the study, she introduced the applications of the cognitive flexibility theory and hypertext and hypermedia based applications. In another study conducted by Karadeniz (2008) with 13 students studying in the second year of the department of computer education and instructional technology, the students were asked to find solutions to problems through research in case studies that were in the form of hypertexts and designed according to the cognitive flexibility theory. In the study, the students' level of knowledge in the hypertext environment and their opinions about learning in this environment were determined. It was found that the students who had different pre-knowledge about the hardware problems mentioned in the case study in the hypertext acquired expert-level knowledge. In addition, the students stated that they enjoyed learning in the hypertext environment; after learning the subjects under the teacher supervision, they expressed that the use of the hypertext environment as an activity in the courses would be beneficial (Karadeniz, 2008).

In the literature, measuring the cognitive flexibility was considered by Martin and Rubin (1995) and a cognitive flexibility scale consisting of three dimensions (awareness, willingness and self-efficacy) was developed. That the cognitive flexibility scale had internal reliability, structure validity and concurrent validity was revealed in the study. Martin and Anderson (1998) conducted a three-part study on the validity of the cognitive flexibility scale. In the first part, it was found that the cognitive flexibility was positively associated with self-confidence and sensitivity, which were two other communication competencies. In the second part, the participants' self-reported cognitive flexibility evaluations were positively correlated with their friends' scores. In the third part, a significantly positive relationship was found between the cognitive flexibility and confidence in performing communication behaviors. As a result of the study, it was concluded that the validity of the cognitive flexibility scale was supported and therefore, additional support was provided to the scale.

In several studies, the cognitive flexibility was measured and examined its relationship with other variables (Altunkol, 2011; Asıcı & İkiz, 2015; Bilgin, 2009a, 2009b; Bilgin, 2017; Camcı Erdoğan, 2018; Chen, He, & Fan, 2019; Çikrikçi, 2018; Dennis & Vander Wal, 2010; Doğan Laçın & Yalçın, 2019; Esen Aygün, 2018; Gabrys, Tabri, Anisman, & Matheson, 2018; Günaydın & Öztürk, 2016; Gündüz, 2013; Kaptanbaş Gürbüz & Sezgin Nartgün, 2018; Kercood, Lineweaver, Frank, & Fromm, 2017; Lange & Dewitte, 2019; Önen & Koçak, 2015; Özgür & Çuhadar, 2015; Sapmaz & Doğan, 2013; Turan, Durgun, Kaya, Ertas, & Kuvan, 2019; Üzümcü & Muezzin, 2018; Yaşar, 2019; Yaşar Ekici & Balci, 2019; Yelpaze & Yakar, 2019). Bilgin (2009b) found that authoritarian parental attitudes, social competency expectancy and problem-solving skills affected the cognitive flexibility significantly. Altunkol (2011) adapted the cognitive flexibility scale developed by Martin and Rubin (1995) to Turkish by investigating its reliability and validity. In the study, conducted with 484 university students, Altunkol (2011) reported a significant negative relationship between the perceived stress and cognitive flexibility levels. In addition, it was concluded that the male students' cognitive flexibility levels were higher than that of the female students and there was a positive relationship between age and the cognitive flexibility levels. Gündüz (2013) examined the relationship between the emotional intelligence, cognitive flexibility, and psychological symptoms of 414 pre-service teachers. The emotional intelligence and cognitive flexibility were negatively correlated with the anxiety and depression. Önen and Koçak (2015), in their study conducted with 554 high school students, investigated the relationship between the cognitive flexibility levels and the attitudes of the students towards studying. It was found that the students demonstrated more positive attitudes, became more willing to study and developed a better studying practice as their cognitive flexibility levels increased. In their study with 105 pre-service teachers studying in the department of computer education and instructional technology, Günaydın and Öztürk (2016) stated that there was a positive correlation between the cognitive flexibility and self-efficacy scores, while there was no significant relationship between the pre-service teachers' demographic information and their cognitive flexibility and self-efficacy perceptions. In the study conducted with 441 adolescents to investigate the relationship between the cognitive flexibility and five factor personality traits, Bilgin (2017) reported that the adolescents became more extroverted, increased self-control skills and became more open to self-improvement as their cognitive flexibility levels increased, whereas the emotional inconsistency was found to increase in the adolescents with low cognitive flexibility. In terms of emotional inconsistency, it was seen that the rate of females was higher than that of males. Camcı Erdoğan (2018) examined the pre-service teachers' cognitive flexibility levels of gifted students in terms of different variables (gender, grade, parental occupation, living place) and found significant differences in terms of the occupations of parents and the place where they live. Esen Aygün (2018) conducted a study to determine the relationship between the pre-service teachers' cognitive flexibility levels and interpersonal problem-solving skills. While there was a significant difference in terms of gender and mothers' educational level, no significant difference was found in terms of grade, department, fathers' educational status, socio-economic, and socio-cultural status in the study. In addition, there was a moderate relationship between the pre-service teachers' cognitive

flexibility and interpersonal problem-solving skills. Kaptanbaş Gürbüz and Sezgin Nartgün (2018) demonstrated that the pre-service teachers attending pedagogical formation training certificate program had high levels of the cognitive flexibility and self-efficacy, and a positive, moderate statistically significant relationship was found between these variables. Yaşar Üzümcü and Müezzın (2018) found that there was a significant positive relationship between teachers' cognitive flexibility and professional satisfaction levels. Ekici and Balcı (2019) stated that as the pre-service preschool teachers' cognitive flexibility levels increased, their emotional responsiveness levels decreased significantly, and their cognitive flexibility and emotional responsiveness levels differed significantly in terms of income, the reason for choosing the department, participating in sports, and perceived parental attitude.

According to Spiro, Feltovich, Jacobson, and Coulson (1992), areas in which complex and irregular situations are required to be applied and many different processes and concepts are employed at the same time are not well-structured areas. Areas such as mathematics and engineering might be considered as well-structured areas, while areas such as medicine, history, literature, law, and teaching might not. Working in well-structured areas requires the cognitive flexibility (Karadeniz, 2004, 2008; Spiro et al., 1992). In the teaching which includes elements such as teachers, students, aims, subjects, methods, tools and the environment, the teacher is the main element that ensures harmony and cooperation between all these elements (Orhaner & Tunç, 2003). Teachers need to decide wisely based on the situation in which she/he is fulfilled this task, to use her/his knowledge when necessary and to develop a self-efficacy, namely having a sufficient level of cognitive flexibility.

Teachers are the foremost practitioners to integrate technology into the teaching processes in schools. Therefore, pre- or in-service teachers should follow the technological developments as well as their knowledge, skills and perceptions related to the profession and have competencies to use technological tools at a certain level (Akgün, 2013). Because pre-service teachers are expected to have students intertwined with technology when they begin their career, they should accept the role of technology and could use this technology in education (Erdemir, Bakırcı, & Eydurhan, 2009). With pre- or in-service teachers' use of technology in teaching, the concept of techno-pedagogical content knowledge has developed. The techno-pedagogical content knowledge model was created by adding the technology dimension to the pedagogical content knowledge of Shulman (1986). According to Shulman (1986), who suggested the concept of pedagogical content knowledge, pedagogical content knowledge includes the most useful representation of the most powerful analogies, illustrations, examples and explanations for subjects regularly taught in the subject area. This model mainly consists of content knowledge [CK], pedagogical knowledge [PK] and technological knowledge [TK] components. The pedagogical content knowledge [PCK], the technological content knowledge [TCK] and the technological pedagogical knowledge [TPK] are the binary intersections of these basic components and the technological pedagogical content knowledge [TPCK or TPACK] is expressed as a combination of all components (Kereluik, Mishra, & Koehler, 2011; Koehler & Mishra, 2005, 2008, 2009; Mishra & Koehler, 2006). Figure 1 presents the components of TPACK (Kereluik et al., 2011; Koehler & Mishra, 2005). TPACK model is an approach emphasizing the interaction and cooperation among three different disciplines: pedagogy, technology and content knowledge (Kabakçı Yurdakul, 2011).

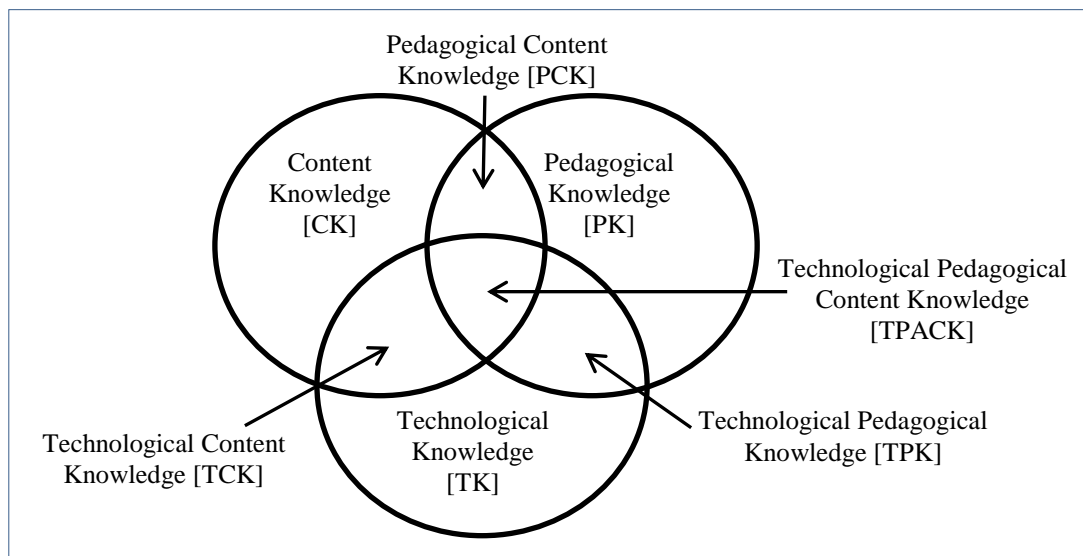


Figure 1. Components of Technological Pedagogical Content Knowledge [TPCK or TPACK] (Kereluik et al., 2011; Koehler & Mishra, 2005).

Considering that technological developments continue at a rapid pace and the technology is inevitable in the teaching environment, it could be stated that pre- or in-service teachers should have techno-pedagogical education competencies. The techno-pedagogical education competency, which means that the TPACK competency is given to pre- or in-service teachers, was discussed within the scope of a the Scientific and Technological Research Council of Turkey [TUBITAK] project and the Techno-pedagogical Education Competencies and Indicators were created for the teaching profession in a workshop attended by 24 instructors from nine different universities. As a result of this study, six competency areas, 20 competencies and 120 indicators were determined for the techno-pedagogical education competencies. The determined competency areas are as follows (Kabakçı Yurdakul, 2013; Kabakçı Yurdakul, Odabaşı, Kılıçer, Çoklar, Birinci & Kurt, 2014):

- designing the teaching process,
- conducting the teaching process,
- being innovative,
- considering ethical issues,
- problem-solving,
- expertise in the field.

The TPACK framework recognizes that teaching is a highly complex problem-solving form that requires the use of flexible and integrated knowledge. Teachers working in a complex and dynamic environment need to integrate their knowledge about how the student thinks and learns into their knowledge of the subject area and technology. The intersection of pedagogical knowledge, content knowledge and technological knowledge is an indication of the knowledge that should be in the teacher in addition to the technological pedagogical content knowledge (Mishra, Koehler, & Henriksen, 2010). Expert teachers use technological pedagogical content knowledge by integrating technological knowledge, pedagogical knowledge and content knowledge simultaneously. Each situation presented to teachers is a different combination of these three elements. There is not a single technological solution for each teacher, course or teaching approach. Solutions depend on the teacher's ability to manage the areas determined by content, pedagogical and technological knowledge in flexibility and the complex interactions between these elements. Not considering the unique complexity of each knowledge component or the complexity of the relationships between these components could cause simplified solutions or failure. Therefore, as well as developing fluency and the cognitive flexibility in these basic areas (TK, PK and CK), teachers need to develop fluency and the cognitive flexibility about how these contexts and contextual parameters are related (Koehler, Mishra, & Cain, 2013). The TPACK framework emphasizes the role of teachers in designing their educational technology environments. In this approach, rather than taking specific tools into account, teachers focus on teaching approaches that continue with the change of technology, pedagogy or content. Teachers who have the flexibility to think, tolerance of ambiguity and are eager to experience could perfectly design and adapt their content, pedagogical and technological knowledge (Kereluik et al., 2011).

There are several studies in the related literature aiming at measuring the level of technological pedagogical content knowledge of pre- or in-service teachers and examining the relationship between those levels and various variables (Akgün, 2013; Çoklar & Özbek, 2017; Çuhadar, Bülbül, & Ilgaz, 2013; Erdemir et al., 2009; Ersoy, Kabakçı Yurdakul, & Ceylan, 2016; Hacıömeroğlu, Şahin, & Arcagök, 2014; Kabakçı Yurdakul & Çoklar, 2014; Kabakçı Yurdakul, 2011, 2018; Kabakçı Yurdakul, Odabasi, Kilicer, Çoklar, Birinci, & Kurt, 2012; Karakaya & Avgin, 2016; Karalar & Altan, 2016; Kiray, 2016; Kul, Aksu, & Birisci, 2019; Lau, 2019; Roussinos & Jimoyiannis, 2019; Şimşek, Demir, Bağçeci, & Kınay, 2013; Valtonen et al., 2019). In their study conducted with 325 pre-service teacher to determine their self confidence levels regarding technology use in education, Erdemir et al. (2009) reported that the pre-service teachers did not consider themselves adequate in computer and internet use for educational purposes and prepare complex multipurpose teaching materials but to search for information and prepare simple materials. In addition, it was concluded that the female pre-service teachers had a better level of self-confidence in using technology for educational purposes than that of males. In another study with 3105 pre-service teachers, Kabakçı Yurdakul (2011) aimed to determine the pre-service teachers' techno-pedagogical education competencies and differentiation in terms of using information and communication technologies [ICT] in these competencies. In the study, it was concluded that the pre-service teachers consider themselves as advanced in terms of their techno-pedagogical education competencies, the design, the implementation and the ethics sub-dimensions of the techno-pedagogical education, whereas they consider themselves to be sufficiently moderate in the expertise sub-dimension. In addition, it was concluded that the pre-service teachers' techno-pedagogical education competencies differ according to ICT use. In his study with 214 pre-service teachers, Akgün (2013) found that the pre-service teachers had a high level of web pedagogical content knowledge and teacher self-efficacy perception and there was a positive relationship

between the web pedagogical content knowledge and the teacher self-efficacy perception. There was also a significant relationship between the department and internet usage frequency. However, no significant relationship was found between web pedagogical content knowledge and gender variable. Çuhadar et al. (2013) determined that the pre-service teachers were questioning in terms of their individual innovation characteristics, but their techno-pedagogical education competencies were at an advanced level. A positive and moderate relationship was found between the individual innovativeness traits and the techno-pedagogical education competencies. In the study conducted by Şimşek et al. (2013), the techno-pedagogical education competencies of the teacher trainers were found to be advanced. While there was no significant difference in terms of gender, department and title, there was a significant difference in favor of the 31-40 age group.

Kabakci Yurdakul and Coklar (2014) determined that the usage stages and levels of ICT directly affect the TPACK competencies. In an experimental study, it was observed that the pre-service teachers' TPACK competencies increased from intermediate to advanced level and the TPACK competencies increased as the ICT usage increased. However, no significant relationship between gender and the TPACK competencies was found (Ersoy et al., 2016). In the studies of Karakaya and Avcin (2016), it was found that physics, chemistry, biology and science teachers (N=87) had a high level of TPACK self-efficacy, but they did not demonstrate a significant difference according to gender, the institution they worked in and technology course participation. However, there was a significant difference according to branch, duration of work and education status. In the study of Karalar and Altan (2016), there was no significant difference between the pre-service teachers' TPACK competency perception scores, the design, the application and the ethics sub-dimensions scores according to gender, while significant difference was observed in favor of males in the expertise sub-dimension. In addition, while the pre-service teachers' TPACK competencies indicated a significant difference according to their computer usage levels and having an internet access, there was no significant difference in terms of having a smartphone. Çoklar and Özbek (2017) applied the TPACK self-efficacy and individual entrepreneurship scales to 421 teachers and found a positive relationship between teachers' individual entrepreneurship and TPACK self-efficacy levels. In a longitudinal study, Valtonen et al (2019) followed TPACKs of 148 pre-service teachers from three Finnish universities for three years. The measurements done at three different times demonstrated that there was an improvement in all TPACK areas.

Although there have been several studies investigating the relationship between the cognitive flexibility and various variables, and the relationship between technological pedagogical content knowledge and various variables, no study investigating the relationship between the cognitive flexibility and technological pedagogical content knowledge based on data has been found. However, in the theoretical studies, it was stressed that the pre- or in-service teachers who have the cognitive flexibility could use the pedagogical content knowledge appropriately (Kereluik et al., 2011; Koehler et al., 2013; Mishra et al., 2010). Therefore, it is thought that determining whether the relationship between the cognitive flexibility and techno-pedagogical content knowledge emphasized in theoretical studies exists would contribute to teacher education. Thus, it could be stated that the cognitive flexibility might increase the pre-service teachers' techno-pedagogical content knowledge which has an important role in teacher education. Additionally, it is possible to develop the pre-service teachers' cognitive flexibility as well as the development of techno-pedagogical content knowledge by utilizing environments designed according to the cognitive flexibility theory (Karadeniz, 2008). The study aims to investigate the relationship between the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies. The study also includes the examination of the relationship between the pre-service teachers' cognitive flexibility levels and technopedagogical education competencies in terms of various variables (gender, type of program, and having a computer and internet access).

The problem of the study is "what is the relationship between the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies and does this relationship differ in terms of various variables?" The sub-problems of the research are as follows:

1. What are the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies?
2. Do the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies differ in terms of various variables (gender, type of program, and having a computer and internet access)?
3. What is the relationship between the pre-service teachers' cognitive flexibility levels and in techno-pedagogical education competencies?
4. Does the relationship between the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies differ in terms of various variables (gender, type of program, and having a computer and internet access)?

Method

Research model

The study, which was conducted to examine the relationship between the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies, used the exploratory correlational research model. This model is used to identify and analyze the relationships between the variables (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2014; Fraenkel & Wallen, 2006). The exploratory correlational research is executed either to explain important human behaviors or to predict likely outcomes. If a relationship of sufficient magnitude exists between two variables, it becomes possible to predict a score on one variable if a score on the other variable is known. Basic steps in correlational research are selecting a problem, choosing a sample, selecting or developing instruments, determining procedures, collecting and analyzing data, and interpreting results (Fraenkel & Wallen, 2006).

Sample

The sample of the study was determined by using convenience sampling method. In the convenience sampling method, the sample is selected from easily accessible, easy to implement units due to the limitations in time, money and labor (Büyüköztürk et al., 2014). The sample consisted of 616 pre-service teachers from all departments of the faculty of education in a western Anatolian university in the 2017-2018 academic year. Table 1 demonstrates the distribution of the pre-service teachers in the sample according to gender and the program.

Table 1. The distribution of the pre-service teachers according to gender and program

		Female	Male	Total
Type of program	Faculty of Education	355	143	498
	Pedagogical Formation	64	54	118
Total		419	197	616

Data collection tools

The Cognitive Flexibility Scale [CFS] (Altunkol, 2011, adapted from Martin & Rubin, 1995) was used to determine the pre-service teachers' cognitive flexibility levels. The scale, developed by Martin and Rubin (1995), consists of 12 items and aims to determine the cognitive flexibility levels of individuals. The Turkish adaptation of the scale which includes the awareness, the willingness and the self-efficacy sub-dimensions was done by Altunkol (2011). In the six-point likert type scale, from 12 to 72 points could be obtained and higher scores demonstrate higher levels of cognitive flexibility. The scale items are answered as "strongly disagree", "disagree", "slightly disagree", "slightly agree", "agree" and "totally agree". Higher scores on the scale indicate higher levels of cognitive flexibility. Because the items 2, 3, 5 and 10 included negative expressions, the points were reversed in the SPSS program through re-coding option. While the Cronbach's alpha coefficient was 0.81 and test-retest reliability coefficient was 0.73 after adaptation (Altunkol, 2011), the Cronbach's alpha coefficient was calculated to be 0.84 with the data obtained in this study. According to Büyüköztürk et al. (2014) values of 0.70 and above are the high level reliability indicators.

To determine the pre-service teachers' techno-pedagogical education competencies, Techno-pedagogical Education Competency Scale that was named as TPACK-deep Scale [TPACKS] developed by Kabakci Yurdakul et al. (2012) was used. The scale, which consists of 33 items, has four factors including the design, the implementation, the ethics and the expertise. The scale is a five-point likert type and answers are given as "I can easily do it", "I can do it", "I can partially do it", "I cannot do it" and "I definitely cannot do it". The lowest score to be obtained from the scale is 33 while the highest score is 165 and higher scores demonstrate higher techno-pedagogical education competency. While the Cronbach's alpha coefficient for the whole scale was 0.95 and the test-retest coefficient was 0.80 (Kabakci Yurdakul et al., 2012), the Cronbach's alpha coefficient in this study was calculated as 0.96 for the whole scale. According to Büyüköztürk et al. (2014), values above 0.70 and above indicate high reliability.

In addition to these scales, a form which included the demographic information about the gender, the type of program, and having a computer and internet access was applied to the participants. These questions and the two scales were arranged by writing a short instruction about the purpose of the study and how to complete it.

Data analysis

In the analysis of the data, as well as descriptive statistics, independent samples t-test and Pearson correlation coefficient were used as the data were normally distributed. In order to determine whether the data were normally distributed, the total scores obtained from the scales and sub-dimensions were calculated and histogram, box- line, Q-Q, detrended graphs, and the skewness and the kurtosis coefficients were examined according to the independent variables (Aminu & Shariff, 2014; Çokluk, Şekercioğlu, & Büyüköztürk, 2014; Drezner, Turel, & Zerom, 2010; Ghasemi & Zahediasl, 2011; Kline, 2011; Razali & Wah, 2011). The skewness and kurtosis coefficients obtained from the data are given in Table 2.

Table 2. The skewness and kurtosis coefficients

Scales	Variables	N	Skewness		Kurtosis		
			Value	SE	Value	SE	
CFS	Gender	Female	419	-.332	.119	.743	.238
		Male	197	-.484	.173	.774	.345
	Type of program	Faculty of Education	498	-.345	.109	.627	.218
		Pedagogical Formation	118	-.533	.223	1.413	.442
	Does she/he have a computer?	Yes	516	-.485	.108	.994	.215
		No	100	.148	.241	-.293	.478
	Does she/he have internet access?	Yes	547	-.399	.104	.832	.209
		No	69	-.358	.289	-.116	.570
TPACKS	Gender	Female	419	-.521	.119	.701	.238
		Male	197	-.488	.173	1.369	.345
	Type of program	Faculty of Education	498	-.516	.109	.925	.218
		Pedagogical Formation	118	-.502	.223	.828	.442
	Does she/he have a computer?	Yes	516	-.541	.108	1.087	.215
		No	100	-.418	.241	.340	.478
	Does she/he have internet access?	Yes	547	-.531	.104	1.072	.209
		No	69	-.528	.289	-.158	.570

Note. CFS: Cognitive Flexibility Scale; TPACKS: TPACK-deep Scale; SE: standard error

Aminu & Shariff (2014) and Kline (2011) stated that if the absolute value of the skewness is greater than +3 and the absolute value of the kurtosis is greater than +10 in large samples ($N > 200$), it is considered a problem in terms of normality. As the skewness and the kurtosis coefficients were in the range of -1.5 to +1.5 in the Table 2, it was determined that the data demonstrated normal distribution (Aminu & Shariff, 2014; Kline, 2011). The histogram, box-line, Q-Q and detrended graphs also demonstrated that the data had the normal distribution (Alpar, 2016).

Results and Discussion

To find the answer to the first sub-problem of the study “What are the pre-service teachers’ cognitive flexibility levels and techno-pedagogical education competencies?”, total scores, minimum and maximum values, mean scores and standard deviations were calculated. The results are given in Table 3.

Table 3. Findings related to CFS, TPACKS and their sub-dimensions

Scale	Sub-dimensions	N	Min	Max	\bar{x}	SD.
CFS	Awareness	616	8	18	14.22	2.07
	Willingness	616	13	24	19.71	2.26
	Self-Efficacy	616	10	30	24.25	3.27
	Total	616	33	72	58.18	6.69
TPACKS	Design	616	14	50	40.57	5.76
	Application	616	21	60	49.94	6.56
	Ethic	616	10	30	24.86	3.63
	Expertise	616	7	25	19.34	3.36
	Total	616	54	165	134.72	17.42

Note. CFS: Cognitive Flexibility Scale; TPACKS: TPACK-deep Scale; \bar{x} : mean; SD: standard deviation; df: degree of freedom

When Table 3 is examined, it could be seen that the mean CFS scores of the pre-service teachers was 58.18. Considering that the lowest score that could be obtained from the scale is 12 and the highest score is 72, if the group average is assumed to be 42 points, it could be stated that the pre-service teachers' cognitive flexibility levels were quite high. The mean TPACKS scores of the pre-service teachers was 134.72. According to Kabakci Yurdakul et al. (2012), the scores calculated to be higher than 131 by using the scale were considered to have a high techno-pedagogical education competency. This finding could be interpreted as the pre-service teachers' techno-pedagogical education competencies were high. When the scores obtained from the sub-dimensions of the scales and the highest scores to be obtained in the sub-dimensions could be considered, it could be seen that the willingness sub-dimension of CFS and the application sub-dimensions of the TPACKS were higher, while the awareness sub-dimension of CFS and the expertise sub-dimension of TPACKS were found to be lower.

To answer to the second sub-problem of the research "Do the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies differ in terms of various variables (gender, type of program, and having a computer and internet access)?", the distribution of the total scores taken from the scales according to the independent variables was examined. In order to test the significance of the differences observed in the scores, independent samples t-test was performed. The results are given in Table 4.

Table 4. Independent samples t-test results of CFS and TPACKS scores according to various variables

Scales	Variables		N	\bar{x}	SD	df	t	p
CFS	Gender	Female	419	58.03	6.57	614	.776	.43
		Male	197	58.48	6.49			
	Type of program	Faculty of Education	498	58.06	6.78	614	.904	.36
		Pedagogical Formation	118	58.68	6.30			
	Does she/he have a computer?	Yes	516	58.29	6.67	614	.926	.35
		No	100	57.61	6.76			
	Does she/he have internet access?	Yes	547	58.36	6.73	614	1.956	.05
		No	69	58.70	6.17			
TPACKS	Gender	Female	419	135.00	17.46	614	.590	.55
		Male	197	134.11	17.34			
	Type of program	Faculty of Education	498	134.52	17.23	614	.585	.55
		Pedagogical Formation	118	135.56	18.24			
	Does she/he have a computer?	Yes	516	135.82	17.24	614	3.601	.00
		No	100	129.03	17.27			
	Does she/he have internet access?	Yes	547	135.62	17.31	614	3.677	.00
		No	69	127.52	16.65			

Note. CFS: Cognitive Flexibility Scale; TPACKS: TPACK-deep Scale; \bar{x} : mean; SD: standard deviation; df: degree of freedom

When Table 4 is examined, the female pre-service teachers' mean score of CFS is lower than that of males, while the mean score of TPACKS is higher than that of males. When independent samples t-test was performed, it was seen that the differences in relation to gender were not statistically significant. Similarly, differences were found in the mean scores of CFS and TPACKS according to the program type, having a personal computer and having internet access variables, and independent samples t-tests were performed to test the significance of observed differences. As a result of the tests, it was found that the mean score of TPACKS differed significantly in favor of those who had their personal computer and internet access. The findings did not significantly differ according to other variables.

To answer the third sub-problem of the study "What is the relationship between the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies?", the Pearson correlation coefficients between the total scores taken from the scales and their sub-dimensions were analyzed. The results are given in Table 5.

Table 5. Correlation analysis results between CFS and TPACKS, and their subscales scores

Variables	N	P	r
CFS	616	.00	.569
CFS	616	.00	.558
		.00	.535
		.00	.461
		.00	.450

TPACKS	CFS Awareness		.00	.450
	CFS Willingness	616	.00	.470
	CFS Self-efficacy		.00	.552

Note. CFS: Cognitive Flexibility Scale; TPACKS: TPACK-deep Scale; r: correlation coefficient

When Table 5 is examined, it could be seen that the correlation coefficient between the CFS and the TPACKS scores of the pre-service teachers was moderate ($r=.569$, $p<.05$). According to Büyüköztürk et al. (2014), if the correlation coefficient is between 0.30 and 0.70, there is a moderate positive correlation between the variables. That is, there might be a moderate positive relationship between the cognitive flexibility and the techno-pedagogical education competencies. In Table 5, the correlation coefficients between the scales and the sub-dimensions are also given. Accordingly, it could be said that the correlations ($r=.558$ and $r=.535$; $p<.05$) between the cognitive flexibility, and the design and the application sub-dimensions of the techno-pedagogical education competency were higher than the correlations ($r=.461$ and $r=.450$; $p<.05$) between the cognitive flexibility, and the ethics and the expertise sub-dimensions of the techno-pedagogical education competency. Similarly, it could be interpreted that the relationship between the techno-pedagogical education competency and the self-efficacy sub-dimension of cognitive flexibility ($r=.552$, $p<.05$) was higher than the relationship between the techno-pedagogical education competency, and the willingness and the awareness sub-dimension of cognitive flexibility ($r=.450$ and $r=.470$; $p<.05$).

To find an answer to the fourth sub-problem of the study “Does the relationship between the pre-service teachers’ cognitive flexibility levels and techno-pedagogical education competencies differ in terms of various variables (gender, type of program, and having a computer and internet access)?”, partial Pearson correlation coefficients between the total scores of the scales and their sub-dimensions were analyzed. The findings are given in Table 6.

Table 6. Partial correlation analysis results between CFS and TPACKS scores

Variables	Control Variables	df	p	r
TPACKS*CFS	Gender		.00	.570
	Type of program	613	.00	.569
	Having a computer		.00	.570
	Having internet access		.00	.565

Note. CFS: Cognitive Flexibility Scale; TPACKS: TPACK-deep Scale; df: degree of freedom

When Table 6 is examined, it was found that the correlation coefficient between the cognitive flexibility and the techno-pedagogical education competency did not change when program type variable was kept constant ($r=.569$, $p<.05$). A little change was observed ($r=.570$, $p<.05$) when gender and having computer variable was kept constant, and a slight change ($r=.565$, $p<.05$) was seen when having internet access variable was kept constant. This finding could be interpreted that the relationship between the cognitive flexibility and the techno-pedagogical education competency was not affected by any other variables except having internet access.

Discussion, Conclusion and Recommendations

In this study in which the pre-service teachers’ cognitive flexibility levels and techno-pedagogical education competencies were investigated, it was seen that both the cognitive flexibility levels and the techno-pedagogical education competencies were quite high. The finding of high levels of the cognitive flexibility could be interpreted as a high level of awareness of the pre-service teachers’ choices for new situations, willingness to adapt to new situations, and self-determination to be flexible. Similar findings related to the cognitive flexibility levels in this study were found in the studies of Camcı Erdoğan (2019), Esen Aygün (2018), Günaydın and Öztürk (2016), and Gündüz (2013). More research could be conducted with the pre-service teachers studying in faculties of education in universities.

Similar findings related to the pre-service teachers’ techno-pedagogical education competencies in this study were found in the studies of Akgün (2013), Akgün, Özgür and Çuhadar (2016), Erdemir et al. (2009), Kabakçı Yurdakul (2011), and Karalar and Altan (2016), suggesting that the pre-service teachers’ techno-pedagogical education competencies were high. The finding that the techno-pedagogical education competencies have been found to be high could be interpreted as the pre-service teachers benefiting from technology in the design and application of the courses, paying attention to ethical principles while using technology and trying to find solutions when they face problems. At the same time, the fact that the participants are intertwined with technology due to the characteristics of their age group might result in high techno-pedagogical education

competencies (Kabakci Yurdakul, 2018). On the other hand, the present study demonstrated that the pre-service teachers had lower scores in the expertise dimension of TPACKS than other dimensions. Similar findings were found in the studies of Kabakçı Yurdakul (2011), and Karalar and Altan (2016). The reason why the pre-service teachers had lower scores in the expertise dimension might be that they did not consider themselves sufficient in solving technological problems. It could be stated that more research is needed to investigate the reasons for the decrease in the expertise dimension seen in three studies (present study, Kabakçı Yurdakul, 2011, and Karalar & Altan, 2016), and to increase the level in this dimension.

In the study, it was found that the pre-service teachers' cognitive flexibility levels did not demonstrate a significant difference according to the variables that was gender, type of program, having a personal computer and having internet access. In the study of Camcı Erdoğan (2019), Doğan Laçın and Yalçın (2019), Günaydın and Öztürk (2016), and Üzümcü and Müezzın (2018) there was a similar finding, supporting that the cognitive flexibility levels did not differ according to gender. It could be stated that the pre-service teachers' cognitive flexibility would not change depending on whether the individual is male or female. Accordingly, it could be concluded that the cognitive flexibility levels are not specific to gender. In a study conducted with university students, Altunkol (2011) found that the cognitive flexibility levels of male students were higher than that of female students. Further investigations could be suggested to reveal the differentiation of the cognitive flexibility levels according to gender and the reasons for the differentiation.

In the study, it was found that the pre-service teachers' techno-pedagogical education competencies differed statistically in favor of those with personal computers and internet access. Gender and program type variables were not found to be different. The finding that the pre-service teachers' techno-pedagogical education competencies did not differ according to their gender are similar to the findings obtained from the studies of Akgün (2013), Ersoy et al. (2016), Karakaya and Avcı (2016), Karalar and Altan (2016), and Şimşek et al. (2013). In the study of Erdemir et al. (2009), it was concluded that there was a difference in favor of the female pre-service teachers in terms of having self-confidence in using instructional technology. While there is no significant relationship between gender and the techno-pedagogical education competency in the majority of studies, it could be concluded that gender variable should be considered in future research because there are a few studies indicating a relationship between gender and the techno-pedagogical education competency. Because the finding that the pre-service teachers' techno-pedagogical education competencies differed statistically in favor of those with their personal computer and internet access are similar to the findings obtained from Akgün (2013), Kabakçı Yurdakul (2011), Kabakci Yurdakul and Coklar (2014), and Karalar and Altan (2016), it could be concluded that the techno-pedagogical education competency and having a computer and internet access are positively related. The reason why the techno-pedagogical education competencies were high in favor of those who had their personal computer and internet access might be that the pre-service teachers used technology effectively to access all kinds of information inside and outside the school.

In the literature, it has been theoretically stated that pre- or in-service teachers with the cognitive flexibility could use the technological pedagogical content knowledge appropriately (Kereluik et al., 2011; Koehler et al., 2013; Mishra et al., 2010), but there has been no study investigating the relationship between the cognitive flexibility and technological pedagogical content knowledge. In this study, which was conducted to investigate the relationship between the pre-service teachers' cognitive flexibility levels and techno-pedagogical education competencies, it was seen that there was a moderate positive relationship between the scores of the cognitive flexibility and the techno-pedagogical education competencies. Based on this finding, it could be concluded that the relationship which was emphasized in theoretical studies (Kereluik et al., 2011; Koehler et al., 2013; Mishra et al., 2010) between the cognitive flexibility and techno-pedagogical content knowledge is moderate. In other words, this study is one of the pioneering studies supporting the theory. Accordingly, the cognitive flexibility could provide the development and use of the techno-pedagogical content knowledge which has an important role in teacher education. Similar to the study conducted by Karadeniz (2008), it is possible to develop the pre-service teachers' cognitive flexibility as well as the development of techno-pedagogical content knowledge by utilizing environments designed according to the cognitive flexibility theory.

The convenience sampling method was used in this study, which could be considered as a limitation of the study. Pre-service teachers from different universities might be included in prospective studies. It is a limitation that in-service teachers were not included in the study. Therefore, a similar study could be executed with in-service teachers. The study is limited to use of the scales developed by Altunkol (2011) and Kabakci Yurdakul et al. (2012). Different scales might be used in future studies. In addition, an in-depth study might be conducted by interviewing with a group of the pre-service teachers to be selected from the sample. Considering that the pre-service teachers' techno-pedagogical education competencies are lower in the expertise sub-dimension, experimental studies might be executed to increase their competencies in this dimension.

Acknowledgments or Notes

The study was supported by Balıkesir University Scientific Research Projects Coordination Unit as 2017/155 research project.

A part of the study was orally presented at the International Necatibey Education and Social Sciences Research Congress (UNESAK 2018) organized at Necatibey Faculty of Education, Balıkesir University between the October 26-28th, 2018.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Ökmen, B., Şahin, S. & Kılıç, A. (2020). A critical view to the primary school teaching. *International Journal of Contemporary Educational Research*, 7(1), 54-70. DOI: <https://doi.org/10.33200/ijcer.633051>

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A Critical View To The Primary School Teaching

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Abstract

The aim of this study is to determine the views of academicians, teachers, and pre-service teachers on primary school teachers and to bring a critical perspective to primary school teaching. The case study design, one of the qualitative research designs, was used in this study. The study group of research consists of four academicians, eight class teachers, and four pre-service teachers in the fourth year of the Department of Primary Education in Düzce University in the 2018-2019 academic year. In the research, “interview” and “focus group interview” techniques were used as data collection method. Content analysis method was used in the analysis of the data obtained from the research. At the end of the research, it was concluded that the qualifications the primary school teachers should have are general culture, primary school management, guidance, communication, personal/professional development, personal/moral characteristics, pedagogical knowledge/skill, technological knowledge/skill, and field knowledge/skill. Furthermore, findings revealed that the necessary education is not given in the education faculties, primary school teachers are not successful in all academic courses and inadequate in skill courses, and primary school teachers cannot be successful in all areas. Given these, it is necessary to go into branching in the field (academic and especially skill courses) or class basis.

Key words: Primary School Teacher, Qualification, Branching, Academician, Teacher Candidate

Introduction

In this day and age, when the need for skilled labor is increasing consistently, primary education period, which is in the compulsory education period, is the first and the basic step to bring the individuals the necessary skills required by the community. Primary education underlies a very important and critical period for an individual's education and improvement (Ergun & Ersoy, 2014). Researches carried out on brain development show that the brain develops rapidly in the first years of life, and environmental arousal affects the developing brain positively (Rao & Li, 2009). The primary education of an individual is the key position for the success of the rest of his/her education life. The information and the skills acquired in this period bears background qualification for the information and skills to be acquired in upper secondary education (Jaiyeoba, 2011). Students who do not make a good start for the education life generally cannot make a good progress in the later years (ACT, 2013; Ball, 1994; Dougherty, 2014).

The importance of primary school teachers on the development of students is an undeniable fact. Primary school teachers influence students in primary education, covering a critical educational period in which many skills are laid. They also support the development of future generations and greatly influence the way students live. In this case, primary school teachers, who are important element in primary education, need qualified education (Aydın, Şahin, & Topal, 2008).. Unlike other teachers, primary school teaching includes many disciplines such as first literacy, science, Turkish, and mathematics. Considering this situation, the age groups, and term characteristics of the students addressed by primary school teachers, it is necessary that pre-service primary school teachers gain different competences (Çaycı, 2011).

Teachers play a leading role in order for an individual to become socialized and prepared for his/her social life; the cultural values of the society that an individual learns from his/her teachers can be transferred to him/her (Şahin & Kartal, 2013). One of the most important factors in determining the quality of education a student has is the quality of the teachers who educate the students. The quality of the new generation will doubtlessly be identical to the quality of the teacher who raises them (Watweman, 2010). The success of the education system depends on the quality of the teachers and other education personnel who operate and carry out the system. No education model can serve above the quality of the personnel who uses that model. Hence, it can be said that a school is as good as its teachers (Aydın, Şahin & Topal, 2008). Primary school teachers not only accelerate the

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developments of the children by organizing rich learning environments but also narrow down their developments by presenting learning environments which are not suitable for the children (Senemoğlu, 2003).

Teachers need to have some competences for the students to measure up in education. The teacher competency is a notion adopted by educators in recent years (Kahyaoglu & Yangin, 2007). Guiding the teachers in order for them to be effective in guiding the students is very important for the lives of individuals and for the future of the societies. To effectively perform their duties, teachers need to be equipped with necessary information, skill, and attitude (Kılıç, 2007; Kılıç, 2010).

When the updated primary school undergraduate program in 2018-2019 academic year is examined, it can be seen that the number of compulsory courses decreased and the number of elective courses increased in general. In this context, the program gained flexibility. However, the disadvantages of the program are the abolition of the basic lessons that a classroom teacher will need such as children's literature, Turkish 1 written expression, and Turkish 2 oral expression. In addition, another negative aspect of the program is the abolition of the school experience in which pre-service teachers have acquired prior knowledge by observing the school, teachers, and students before the teaching practice (Yurdakal, 2018).

There are studies in the literature examining the perception of academic self-efficacy of primary school teachers (Arseven et al., 2015; Bahar, 2019), ecological citizenship levels of primary school teachers (Karatekin, Salman & Uysal, 2019), field knowledge of primary school teachers (Dağ & Şahin, 2019; Jaiyeoba, 2011; Karakuş, 2018), opinions about inclusive education (Stemberger & Kiswardy, 2018), characteristics that primary school teachers should have (Gipps, Hargreaves & McCallum, 2015), job stresses, personalities and burnout levels of primary school teachers (Kokkinos, 2007), and opinions about undergraduate programs undergraduate programs. However, there is no study on the phenomenon of primary school teaching, its current situation, and its positive and negative aspects. In this regard, the aim of this study is to determine the views of the academicians, teachers, and pre-service teachers to primary school teaching. This basic purpose searched answers from the following questions in the framework.

1. What are the necessary qualifications for a primary school teacher?
2. What are the fields where the participants feel competent and incompetent?
3. What are the views on the adequacy of undergraduate education?
4. What are the views on being competent on all fields?
5. What are the views on branching out on the basis of the field?

Method

Search Model

The research was carried out within the context of phenomenological design, which is one of the qualitative research designs. Qualitative research was preferred because it allows participants to explore their experiences in depth, to explain how life practices are made meaningful in the cultural context, to explore rather than to test, and perhaps most importantly, to illustrate their perspectives by entering their own world (Corbin & Straus, 2008). In phenomenology studies, researchers try to uncover the essence of the participants' experiences on certain subjects (Creswell, 2014). The phenomenon examined in the study was determined as primary school teaching.

Study Group

While forming the study group of the research, purposeful sampling method was used. In qualitative researches, the aim is to acquire the maximum information by small sampling. Thus, it was suitable to choose the participants who seem to give the most comprehensive information about the research problem by the way of purposeful sampling (Brinkmann, 2013). The study group of the research consists of:

- ✓ 4 academicians –two of them are male while the other two are female- working in the Department of Primary School Teaching in different state universities in different cities. While academicians were determined, those with academic studies in the field of primary school teaching were selected.
- ✓ 8 Primary school teachers – four of them are male while the other four are female – working in state school in Düzce. While teachers were determined, firstly, a teacher known as a successful teacher was interviewed. Afterwards, another successful teacher recommended by that teacher was interviewed. The interviewing process with teachers was completed in this way.
- ✓ 4 pre-service teachers studying in the fourth grade of the Department of Primary School Teaching of a University in West Black Sea region.

Data Collection

The techniques “interview” and “focus group interview” were used in this research. In the interview technique, the aim is to reveal the experiences of people and their meaning and to acquire data that answer the question of the research by searching the life story of the individuals (Kvale, 2006). Focus group interview is a name given to the interview made in group to gather information and detailed views about a certain subject from selected participants. In focus group interview, the aim is not to reveal the answers of the participants one by one but read between the lines with regard to the meaning and standards of the group answers by encouraging discussion and group interaction (Bloor et.al., 2001).

Within the scope of the research, semi-structured interviews were carried out with three academicians through video conferencing. The views of one of the academicians was acquired using interview form on the net. Face-to-face semi-structured interviews were carried out with teachers. A focus group interview was carried out on pre-service teachers.

In the interviews and focus group interview, eight basic questions and some other questions were asked. The questions of the interview were prepared by the researchers, and expert opinions were taken to provide content validity. After revising in accordance with expert opinions, final form of the interview was composed. Seven questions took part in the interview form. Those questions are given below:

- ✓ Which qualifications should a primary school teacher have?
- ✓ What do you think about the fact that all these lessons are/are not deadweight for the teacher (for both learning and teaching)?
- ✓ How do the fields where primary school teachers aren't competent affect the students?
- ✓ What can you say about the competency of education the primary school teacher had in undergraduate education in all these areas?
- ✓ How do you evaluate the fact of entrusting the students to one teacher for all these fields for four years?
- ✓ What do you think about branching out?
- ✓ What kind of system do you want to carry out for primary school teaching if you are given a chance?

Data Analysis

For analyzing the data, content analysis method was used. The content analysis provides the data to be gathered in the frame of certain notions and themes and transforms them into a form readers can understand easily (Fraenkel & Wallen, 2000).

Before the analysis, some codes were given to the academicians, teachers, and pre-service teachers in the study group to provide privacy. While the academicians were coded as A1,A2,A3,A4 and teachers as Ö1,Ö2 and Ö8, pre-service teachers were coded as ÖA1, ÖA2, ÖA3 and ÖA4. The content analysis process consists of the following stages: coding, categorizing, and interpreting. In the stage of coding, the data were coded by two researchers separately and classified according to their features. In this process, the data belonged to other categories; new sub-categories were formed and gathered together in top categories. After categorizing the data, researchers linked the categories with each other.

Validity and Reliability

To provide validity and reliability of the research, interview questions were prepared by the researchers after the literature review to acquire in-depth views. The questions were supported with other questions. For the questions of the interview, expert opinion was benefited and necessary corrections were made according to the expert opinion. The data of the research were coded by researchers independently from each other. As a result of the codification, the codes “consensus” and “dissensus” were determined and by using the formulas suggested by Miles and Huberman (1994), the reliability between coders was found as 84% for the data acquired by teachers, 91% for the data acquired by academicians, and 95% for the data acquired by pre-service teachers. The researches, with coefficient of concordance above 70%, were accepted as reliable. By checking the consistency of the categories rising as a result of the content analysis and their consistency with other categories, a reasonable integrity was provided. For data triangulation, the data were gathered from academicians, teachers, and pre-service teachers, and common results were obtained from the data obtained. Researchers tried to avoid subjective judgement and assumption, and they did not count their pre-judgements in the process of the research transparently. The problem of the research was analyzed in its natural environment and scrutinized with multiple perspectives in a circular way. The process of the research and data were described in detail. The expert opinion was benefited to link the data with results of the research. The data of the interview were quoted directly. All the original data of the research were included to be analyzed when needed.

Results and Discussion

In this part, the findings acquired from academicians, teachers, and pre-service teachers were gathered together and presented in three topics as “The Necessary Qualifications for a Primary School Teacher”, “The Evaluation of the Current Situation of the Primary School Teaching”, and “Evaluation of Alternatives to the Current Situation.”

The Necessary Qualifications for a Primary School Teacher

The findings about the necessary qualifications for a primary school teacher were presented on Table 1:

Table 1: Views about the Necessary Qualifications for a Primary School Teacher

Categories/Sub-categories		Codes
Field Knowledge/Skill	Academic	They must have knowledge on the field. They must have the literature about the branch. They must have knowledge on verbal and math course. They must have a little knowledge about everything. They must know first-aid. They must realize the wrong information in the book. They must understand what they read. They must have creative reading-writing skills.
	Skill	They must play an instrument. They must be interested in music, art, and physical education. They must have a baseline level of knowledge about every branch of sports. They must create a table.
Pedagogical Knowledge/Skill		They must teach according to individual differences. They must educate the students according to the future conditions. They must know child psychology. They must know the growing features of children. They must educate children in accordance with their levels and ages. They must use materials effectively. They must get the students adopt the habits such as sitting down-standing up, having a break, eating, cleaning, potty training, etc. They must know very well the lessons of pedagogical formation lesson. They must put the theory into practice. They must know/adopt the innovative and constructivist philosophy.
Technological Knowledge/Skill		They must benefit and follow the technology.
World Knowledge		They must have world knowledge.
Classroom Management		They must manage the students all at the same time and go around all of them. They must solve the problems in an instant. They must have the skills of classroom management.
Counseling		They must be a good counselor. They must be a role model.
Personal/Moral Characteristics		They must have good moral characteristics. They must have the ability for empathy. They must act their age. They must have positive personal characteristics. They must be patient. They must have high motivation.
Personal/Vocational Development		They must follow the developments about the branch They must attend in-service training. They must improve themselves continuously. They must always read.
Communication		They must talk to children in a constructive way. They must communicate with children positively. They must love children. They must act like mothers/fathers. They must make the children feel special. They must recognize every child.

Communication	Communication with the Family	They must communicate with the family. They must cooperate with the family.
	Linguistic	They must speak clearly and must have a good diction.
	Performance	They must have the ability to express themselves.

As seen on Table 1, the necessary qualifications of a primary school teacher were gathered in the categories as “Field Knowledge/Skill”, “Pedagogical Knowledge/Skill”, “Technological Knowledge/Skill”, “World Knowledge”, “Classroom Management”, “Counseling”, “Personal/Vocational Development”, “Personal/Moral Characteristics”, and “Communication”.

The teacher is thought to have the knowledge of all the academic lessons, to have knowledge about art, physical education, and music, to play an instrument, to have a baseline level of knowledge about every branch of sports, and to know how to create a table. The teacher is expected to know the individual differences and growing features of the students and educate them in accordance with their situations, to benefit from the technology, to have world knowledge, to manage the students, to solve the problems in an instant, and to be a good counselor and a role model. A1 expressed his views about the subject by saying “I think what is expected from the teacher formally is qualified as world knowledge, knowledge of formation, and field knowledge, but it is also important to have personal characteristics as well.” Teacher is expected to talk to children in a constructive way, to love the children, to make them feel special, to have the skills of speaking clearly, and to know how to express himself/herself. Ö8 expressed his views about the subject as “As you take care of early-age group, you must be in cooperation with their family. The teacher must know which growing features of that early-age group need to have. The teacher is also expected to follow the developments about the branch, to attend in-service training, to have good moral characteristics, to have the ability to empathize, to have high motivation, and to be patient. ÖA1 expressed his views about the subject as, “The teacher must be patient and must love the children”.

Other competencies, except field knowledge and skills, are not different from the qualifications that all branch teachers should have. However, under the field knowledge/skill category, there are qualifications in math, verbal, and skill fields. It can be said that having the necessary qualifications for many different academic courses as well as skill courses is quite a burden for a single person.

Negative Views on the Current Situation of Primary School Teaching

Negative views of the participants about the current situation of primary school teaching are presented below under the four headings; “Participants Feel Incompetent in Some Areas”, “Undergraduate Education is Inadequate”, “Teachers Cannot Be Successful in All Areas”, and “Branching is Required”.

Participants Feel Incompetent in Some Areas

The fields where the participants feel incompetent are presented in Table 2:

Table 2: The fields where the participants feel competent and incompetent

Codes	
Ö1	feels super in every field including lessons requiring skill
Ö2	is generally good at all lessons, baseline level of Science and Social Science, good at math and Turkish
Ö3	is good at math, Turkish, science and social science but bad at art and music
Ö4	is good at math, science, and social science
Ö5	is good at math, Turkish, and social science; has difficulties in science, art, and music
Ö6	is good at verbal and math course but has difficulties in art, music, and organizing activities
Ö7	is good at physical education, math, Turkish, and social studies but bad at art
Ö8	is good at all of them but bad at music and art
ÖA1	is good at Turkish and social studies but has difficulties in science, physics, biology, and chemistry
ÖA2	has difficulties in science
ÖA3	has difficulties in math and science; hopeless about physics for public personnel selection examination
ÖA4	has difficulties in math course (can learn it by heart but doesn't know the general philosophy of math; he forgets it easily)

As seen in Table 2, the teacher was coded with Ö5 and all the teacher candidates do not feel competent in all of the academic courses; furthermore, they have difficulty in some academic courses. In talent classes, it is seen that there are no teachers and teacher candidates who feel competent except for teachers coded Ö1 and Ö2. This shows that it is difficult or even impossible for a person to feel good and be successful in all areas.

Incompetent Undergraduate Education

The views about the adequacy of undergraduate education are presented in Table 3:

Table 3: The views about the adequacy of undergraduate education

Categories	Codes
Competent	They are given a good education about field knowledge/methods and techniques. The lessons are given at high order level. The required education is given in the department of education. The education is given at the level of bachelor's degree. They are given a good education of verbal and math course
Incompetent	The lecturers are not competent <p> They don't give high order education for academic lessons. The physical education lessons are not enough and effective. The lecturers aren't specialized for the ones between 7 and 12. For the music lesson, the lecturer is generally teacher of music and performing arts. The lecturers are not competent. The number of lecturers being specialized in primary school teaching is little. Skill lessons are not cared and taught enough. </p> Programs are not enough <p> There is a big difference between the lessons learned and taught. The number of lessons is little while it must be more. Everything is too theoretical - hands on training, training period; lectures are lacking. There is no English lesson in undergraduate degree but there is in primary school. There is no lesson for special training. </p>

As seen in Table 3, views about the adequacy of undergraduate education are categorized under "Competent" and "Incompetent".

The participants generally mentioned the fact that the programs are lacking; they cannot educate a good primary school teacher; there is a big difference between the lessons learned and taught; the lessons are theoretical and hands-on training lessons are lacking. Ö5 mentioned about the lack of undergraduate education by saying, "*The programs are not enough and efficient. We need more lessons, hands-on training lessons, and a good education.*" On the other hand, A4 indicates that the skill lessons are not cared enough, the pre-service teachers are not qualified enough, and the competency of the lecturers is not at a good level by saying, "*Pre-service teachers are educated in lessons requiring special ability as it was the same in our time. There is a big problem about that situation. The lessons of plays and physical activities are lacking in this university. The lecturers do not know how to educate students between the ages 7 and 12.*" Also, there are some participants thinking the necessary education is given efficiently at the universities. Ö3 indicates that the education he is having is enough and efficient but everybody doesn't have the same education. He said, "*I believe that I have enough education. Everybody doesn't have the same education. There are teachers who do not know the methods and techniques that I use.*"

All these findings show that the education given in the undergraduate education is inadequate for various reasons and therefore the pre-service teachers cannot gain the necessary competencies for effective teaching in the future.

Teachers Cannot Succeed in All Fields

The views that teachers cannot be successful in all fields are presented in Table 4:

Table 4: The views that teachers cannot be competent in all fields

Categories	Codes
It is not for human nature	Some people are good at verbal lessons while some of them are good at math course. As they graduated from the Department of Equal Weight (math, Turkish, and social lessons), they have difficulty in physics, chemistry, and biology. Each one has some fields he/she has difficulty or competency with. It is impossible for every teacher to adept at skill lessons. The teachers should have both the competency and interest for that field.
It cannot be efficient enough	They cannot be as successful and efficient as an expert/branch teacher. Knowing the alphabet, everybody cannot teach how to read and write. They cannot be good at every field equally.

	They cannot know the learning outcomes as efficiently as a teacher of art and music. They have to make contact with the teachers of art, physical education, and music.
It cramps the students	If the lessons are given by the branch teachers, the children can be more successful and their abilities can be realized. There can be misconception and it cannot be a good start. They can be competent in educating an average student. The student is educated inefficiently and productivity can be insufficient. The future of the student is affected negatively. The potential of the student cannot be discovered, realized, and developed. The better the teacher is at one field, the better the student is at that field. The teacher cannot appeal to the student who is good at a field where the teacher is bad at. The teacher cannot rock the students' world but he/she can cramp and affect their destiny negatively. The students good at fields where the teacher is good at will be more successful and will be at the forefront. The teacher cannot discover gifted students. The teacher cannot develop students as he/she doesn't believe in the necessity of skill lessons. Learning will occur shallowly, so full learning won't exist.
It is tiring	It is a big burden to the teacher. The teacher gets tired and bored. They learned skill lessons theoretically, but it is difficult to put them into practice. It is difficult to organize skill lessons as they require extra time.
Education is insufficient.	It cannot be, because of the policy of educating teachers. It cannot be, because of the fact that the teacher cannot develop himself/herself. A qualitative teacher cannot be educated in a wide field with one standard selection. To be very good at all fields, education given is not enough. It is difficult to get a handle on every field with little lesson time in the current program.
It requires professional development	The teacher of a certain age cannot do it. Poorly-trained teachers cannot be efficient.
Not everyone can	There are some who make them do experiments, while there are some who do not. One or two teachers can be enough in every school. It varies from teacher to teacher.

As seen on Table 4, the views about primary teacher's not being successful in all fields are gathered under seven categories as "It is not for human nature", "It cannot be efficient enough", "It cramps the students", "It is tiring", "Education is insufficient", "It requires professional development", and "Not everyone can".

It is thought that being qualified at all academic and skillful fields is not for human nature; some of them are good at verbal lessons, while some of them are good at math course. It is impossible for teachers to be skilled at art, physical education, and music without having interests in them. Ö7 indicated his views about the subject by saying, "*The same person can't have all competencies. We realize this situation when we talk about the parents. They can say frankly that our primary school teacher is good at math, so is our child.*" It is also thought that a primary school teacher is successful in all fields at a certain level; he cannot know the learning outcomes as efficiently as a branch teacher. A teacher not having all competencies educates students ineffectively; he/she cannot realize the potential of the student and he/she cannot appeal to the student who is good at a field where he/she himself/herself is bad at. ÖA2 indicated his views by saying, "*The learning will not be efficient, it will be shallow. We cannot see full learning.*" On the other hand, it is thought that it is a big burden for the teachers even if they are successful at all fields at a certain level in their own right, and it is impossible for the ones who are not well-trained. It is impossible to educate a primary school teacher who has full knowledge about all fields with these standard selections and current programs. A3 expressed his opinion on this with these words: "*In fact, it is a question mark if it is possible to educate a fully-qualified primary school teacher. It is too difficult to educate a primary school teacher being competent on all fields.*"

All these findings show that primary school teachers cannot be successful in all fields; it is difficult or even impossible to have these competencies for a single person. It is a burden for the teacher, and this situation will affect the student negatively.

Branching is Required

The views about branching are presented as two separate tables: “Branching out on the basis of the field” and “Branching out on the basis of class”.

The views about the essence of branching out on the basis of the field are presented in Table 5:

Table 5: *The views about the essence of branching out on the basis of the field*

Categories	Codes
Success	<p>The ones knowing the branch teach better.</p> <p>By means of the branch, the permanence of the thing learned can be provided better.</p> <p>The branch teacher gives the academic education better, thus increasing the academic success.</p> <p>The branch teacher does more experiments.</p> <p>There is an effective education by means of branching out.</p>
Discovering	<p>Branch teacher can discover the abilities better.</p> <p>The student can find the chance of developing his skill or interest about a branch.</p> <p>With one teacher, some abilities or skills can be overlooked or missed.</p>
Burden	<p>The preparation for the lesson is tiring; it is too difficult to prepare a daily plan every week or teacher's planning can get easy.</p> <p>Teacher's course load decreases.</p> <p>The easier the teacher's work gets, the better it is for his/her job.</p> <p>It is impossible for one teacher to hold all the lessons.</p> <p>The burden decreases as the teacher is like a caretaker.</p>
Skill lessons	<p>The branch teacher must teach it; primary school teacher does not care about it.</p> <p>Teaching the lesson skids into the basic lessons.</p> <p>Branching out on skill lessons is necessary.</p> <p>As there are exams for 3rd and 4th grades, other basic lessons are taught in skill lessons.</p> <p>It is more beneficial to have branch teachers for the students between 7 and 12.</p>
Specialization	<p>The teacher focuses on his own branch.</p> <p>The teacher can specialize.</p>
Teacher's having the goods	<p>It is necessary to branch out with a teacher syncing into the students' level.</p> <p>It is necessary to branch out with a well-educated teacher.</p> <p>If the teacher is not qualified, the student gets lost with one teacher.</p>
Variety	<p>It is difficult to stand the same teacher if the student does not like the teacher.</p> <p>The teacher must be all-around and not only one model, so the choice is the students'.</p> <p>Lessons with different teachers are entertaining and not boring.</p> <p>The student chooses good features of every teacher.</p> <p>The student chooses the teacher or teachers whom he/she likes as a role model.</p> <p>The student learns different techniques from different teachers.</p> <p>A new voice means new interaction area.</p>
Adaptation / Attachment	<p>The students can adapt to the branching; they are not affected in a bad way.</p> <p>There would not be an adaptation problem; the students can latch on everybody or interns.</p> <p>It is a bad thing to latch on one teacher.</p>
Guidance	<p>The student is not left unconfined; if he/she sees many teachers, he/she has a family.</p> <p>There may be coaching system.</p> <p>The student is not left unconfined; every class has its own counselor.</p> <p>The primary school teacher can focus on the behaviors.</p>
Being a role model	<p>There is no need to have one model; everybody must be authentic.</p> <p>Every primary school teacher must not be taken as a role model; it is risky.</p> <p>The teacher has the job of being a counselor and not a role model.</p> <p>Every individual is different; it is not good idea to raise a monotype person.</p>
The level of the class	<p>Branching must start at 1st grade.</p> <p>By branching from the 2nd grade, it can continue.</p> <p>At the 3rd and 4th grades, different teachers can attend the class.</p> <p>At the 4th and 5th grade, branch teachers can attend the class.</p>

	For skill lessons, branch teachers can attend class from the 1st Grade.
	In nursery class, different teachers attend the class for lessons of English and religion.
Others	At private schools, branch teachers attend the class, and students and their parents are pleased with this situation.
	With one teacher, everything cuts corners.

As seen on Table 5, the views about the essence of branching out are gathered in 12 topics as “Success”, “Burden”, “Skill Lessons”, “Specialization”, “Teacher’s Having the Goods”, “Diversity”, “Adaptation/ Attachment”, “Guidance”, “Being a Role Model”, “The Level of the Class”, and “Others”.

It is thought that it is essential to branch out with teachers who are well-educated and who can sync to the children’s level; academic success will increase; education will be more effective and permanent with the help of branching; branch teacher can discover the abilities of the students and make the area of their skills appealing to them. A3 expressed his opinions about the subject with these words: *“There are private schools that prefer branching out. For some certain lessons, branch teachers attend the class. The students and their parents are pleased with this situation.”* Meanwhile, Ö1 expressed his opinion with these words: *“It will be more effective to be educated with the branch teachers. The advantage is that specialization occurs in every field and the students decide what to do for their future in primary school and incline to the field they like.”* It is also indicated that the teachers can focus on their own field, the work load will decrease, their job will get easy, and planning will be easier if branching out occurs. It is indicated that it is important to branch out especially in skill lessons; primary school teachers do not have the adequate competencies for skill lessons, so they teach the basic lessons instead of skill lessons. It is expressed that students learn different techniques from different teachers and the lessons with different teachers satisfy the students by means of branching out. It is thought that more than one model will be presented to the students with different teachers; students choose the good characteristics of each teacher, so this will prevent raising monotype individuals. Furthermore, branching out will not affect students’ adaptation negatively; on the contrary, it will prevent the attachment of one teacher. It is indicated that the students will not be confined in such case, and so the primary school teachers can deal with the students personally.

When the findings are examined, it is seen that branching out on the basis of the field will be beneficial for both the teacher and the student. By reducing the burden of teachers by branching on the basis of field, teacher specialization and students will be able to grow better.

The views about the essence of branching out on the basis of class are presented in Table 6:

Table 6: *The views about the essence of branching out on the basis of class*

Categories	Codes
Specialization	The teacher specializes as the learning outcomes do not change every year. To read and write is a profession in itself. Professionalization/Specialization comes true.
Success	If the teacher is not successful, the same teacher for 4 years can be a trouble.
Dependency	Addiction to the teacher decreases.
Burden	The teacher has difficulty and he/she gets tired when he/she returns to the 1st grade from the 4th grade. It simplifies the teacher’s job. The material of the teacher increases, so the teacher does not need to go back to square one.
Level of the class	The 1st grade teacher needs to be in a separate field. The 1st, 2 nd , 3 rd , and 4th grade can be branched out separately.
Others	It is worth to try; we would not know the result without trying. Branching out is essential on the basis of both field and class.

The views about the essence of branching out on the basis of class are gathered in six categories as “Specialization”, “Success”, “Addiction”, “Burden”, “The Level of the Class”, and “Others”.

It is indicated that the teacher can specialize and use again the materials he/she prepared before as the curriculum does not change every year in case of branching out on the basis of class. A3 expressed his opinions with these words: *“The teachers can branch out in themselves or they can branch out on the basis of class. Teaching how to read and write is a profession in itself.”* It is thought the students will not have to see the same teacher whom they do not like for four years and addiction to one teacher will decrease. Ö5 expressed his opinions about this subject by saying: *“Addiction to one teacher decreases if there is a specialization on the basis of class and a different teacher attends the class every year.”*

It is seen from the above findings that branching on the basis of class will benefit the teacher in particular, reduce the burden of the teacher, and enable him/her to specialize. In this context, it can be considered as an alternative to branching out on the basis of the field.

Positive Views on the Current Situation of Primary School Teaching

Positive views of the participants about the current situation of primary school teaching are presented as two headings: “Teachers Can Be Successful in All Areas” and “There Must Be No Branching”.

Teachers Can Be Successful in All Areas

The views about teachers capable of being competent on all fields are given on Table 7:

Table 7: *The views about teachers capable of being competent on all fields*

Categories	Codes
They can be competent	<p>Teacher can be competent on every field; he/she can do all of them very well.</p> <p>He/she can discover all the abilities and expand the student’s horizon.</p> <p>He/she can teach all fields effectively.</p> <p>By having a certain level of intelligence, everybody can achieve this.</p> <p>Every teacher can carry out the things written in the curriculum.</p> <p>Graduating from equal-weight (Turkish, science, and social lessons) department of the school, the teacher is good at both verbal and math course.</p> <p>The teacher took the education he/she needs.</p> <p>A well-educated primary school teacher can teach all competencies and skills.</p> <p>He/she can build skills as competently as a teacher of art, music, and physical education.</p> <p>The primary school teacher does not care about skill lessons; if he/she cares about it, then he/she can achieve.</p>
No need to be competent	<p>It is not necessary to load information; everybody can perform the practice.</p> <p>Every teacher can make the students practice the course book; there is no need to break the routine.</p> <p>Learning outcomes are at a simple level; there is no need for high-level information</p> <p>High school graduate people can do it too.</p> <p>By studying or getting prepared for that field, the teacher can teach it.</p> <p>While the teacher gives more than needed in the fields he/she is good at, he/she gives information needed in other fields.</p> <p>Even if the teacher is not competent in that field, he/she can teach the learning outcomes of the curriculum as the curriculum for primary school is at a simple level.</p>
	<p>The aim must not to train a good athlete or an artist but to train a good person.</p> <p>Primary school teaching is a scanning/preparation period, so there is no need to realize the potential of the student.</p> <p>There is no need to give high-level education; it is enough to know the notes.</p> <p>The number of gifted children in a class is generally 1, so it is not a problem.</p>
	<p>The teacher can teach playing an instrument even if he/she does not play an instrument; it is sufficient to guide the students.</p> <p>Even if the teacher does not write stories, he/she can teach the language to be used.</p> <p>The plays are enough in fields where the teacher is not competent.</p> <p>The teacher can make contact with people or foundations related to the fields where the student is competent.</p> <p>It is important to have not the ability but the knowledge in teaching something.</p>
They can be competent at a certain level	<p>The teacher can be competent at all fields at a certain level.</p> <p>While the teacher is competent at some skills generally, he/she is better at some of them.</p> <p>The teacher can be competent enough to fulfill the students’ needs.</p> <p>The teacher can educate what he/she knows or what he/she is familiar with.</p> <p>On the bases of outcomes of the lessons, he/she can be successful.</p>

It is not a burden for teachers	It is their job to teach all fields. It is not a burden to teach all fields.
They can be competent with a good education	A well-trained qualitative primary school teacher can teach all fields. A well-trained qualitative primary school teacher can discover gifted students. If the programs of the undergraduate education change, the teacher can be competent on everything. At high school, teachers used to teach these skills. The fact that there is no success about this subject does not mean there will not be any success in teaching it.
It depends on the conditions	If the conditions at schools are recovered, the teacher can do these things. If the conditions are satisfied, a student can be educated for four or five years.
The teacher can develop himself/herself	Deficiency of information can be made up. The teacher can conscientiously develop himself/herself to be competent. He/she can teach with personal effort by developing himself/herself. He/she can do it as he/she gains experience.
There are some teachers who achieve this	There are some countries that have achieved this. There are some teachers who are competent on all fields.

As seen in Table 7, the views about teachers capable of being successful at all fields are gathered in categories as “They can be competent”, “They can be competent at a certain level”, “It is not a burden for the teacher”, “No need to be competent”, “They can be competent with a good education”, “It depends on conditions”, “The teacher can develop himself”, and “There are some teachers who achieve this”.

It is thought that the teacher can be competent on every field; he/she can discover all the abilities, build skills as competently as a teacher of art, music, and physical education, and carry out the curriculum. It is thought that a primary school teacher having all these competencies at a certain level can teach the curriculum as the learning outcomes of the field are simple. There is no need for high level education; every teacher can carry out the things written in curriculum. There are some views that by studying or getting prepared and guiding for that field, the teacher can teach it; even a high school graduate is competent enough to do it. ÖA3 expressed his opinions about the subject by saying, “*Even if we don’t know the subject completely, there will be many things that we generally know, as the subjects are shallow. We know how to explain. After being a teacher, there is a preparation time for that subject to be taught.*” It is also indicated that it is possible to have all these competencies if the undergraduate programs change and the teacher has a good education. The teacher can be competent on all fields by developing himself/herself conscientiously, making up all deficiencies, gaining more experiences even if he/she has not yet taken an education required; in fact, there are many teachers who are competent on all fields in other countries. Ö6 expressed his opinions about the subject with these words: “*Till noon, teacher can give basic lessons such as Turkish, math and social science easily by developing himself. He can give this education with the education he had before.*” It is also thought that it is not a burden for a teacher to have all these competencies but he/she sees it as a part of his/her job. A2 has expressed his opinions about this subject with these words: “*Teaching all lessons is not a big burden for a teacher. It is as a part of the job of a teacher.*”

When the findings are examined, it is seen that the idea that the primary school teacher can be successful in all areas is based on the idea that it is sufficient for the primary school teacher to have these qualifications at a certain level and no other requirement is needed; the needs of the students can be met with basic level knowledge.

There Must Be No Branching

The views about no branching are presented as two separate tables: “There Must Be No Branching Out on the Basis of the Field” and “There Must Be No Branching Out on the Basis of Class”.

The views about no branching out on the basis of field are presented on Table 8:

Table 8: *The views about there must be no branching out on the basis of field*

Categories	Codes
Syncing to level	The branch teacher cant sync to the level of the students. Branch teachers cannot make contact with the students. Branch teachers are not educated enough to help the children at that age. Branch teachers do not know the characteristics of the children between seven and 12.
Interest/Adaptation	Branch teachers do not care if the students have learned or not

	<p>Branch teachers do not stake students' claim.</p> <p>Branch teachers' job is to give the lessons; they do not care about other things.</p> <p>Branch teachers do not visit the parents; they say it is not part of their job.</p>
Integrity/ Recognition	<p>Branch teacher cannot recognize the student in a multidimensional or totalitarian way.</p> <p>It is difficult for branch teachers to observe the students.</p> <p>Disciplines must not be taught independently from one another.</p> <p>Primary school teacher can discover and guide children's abilities.</p> <p>It is necessary to have the support of the primary school teacher by knowing students' strengths and blind sizes.</p> <p>The primary school teacher can evaluate individual differences.</p> <p>The primary school teacher observes the development of the students, recognizes the students, and knows their blind sides.</p> <p>The primary school teacher deals with the students entirely and educates them.</p>
Success	<p>Branch teacher does not know how to teach reading and writing.</p> <p>When a different teacher attends the class, basis of the education is not provided.</p>
Adaptation/ Attachment	<p>Branch teacher is not important in the eyes of the students; they are not remembered.</p> <p>Different teachers cause crisis and mental problem for the students.</p> <p>The students do not obey nor recognize the branch teacher.</p> <p>The primary school teacher is like a mother/father, but the branch teacher is not.</p> <p>Having ever-changing teachers brings troubles to the students and the students cannot get used to the teachers.</p> <p>When one teacher attends the class, he/she is the hero of the class in the students' eyes.</p> <p>With one teacher, an emotional bond is involved.</p>
Guidance/ Student's behavior	<p>The branch teacher does not deal with the student behavior.</p> <p>There is behavior disorder with branching out.</p> <p>When many teachers attend the class, the behaviors of the students change.</p> <p>With different teachers, there is trouble about guidance.</p> <p>The reactions of the students to the primary school teachers and branch teachers become different.</p> <p>The primary school teacher follows the problems.</p>
Being a role model	<p>With branching out, a good citizen cannot be educated.</p> <p>The students can't analyze and choose the behavior of different teachers.</p> <p>One primary school teacher can teach human values.</p> <p>The students imitate the teacher; the teacher must be the only role model.</p> <p>The teacher has the duty of preparing the students for life.</p> <p>For that age, the primary school teacher's effect on the student is very big.</p> <p>The characteristics of the primary school teacher are more important than others.</p>
The success of branch teachers	<p>Branch teachers cannot discover the students, thus forming a wrong basis.</p> <p>Branch teachers become a robot as they give the same lessons.</p> <p>The problem with branch teachers is that some of them are good while some of them are bad.</p> <p>It makes no difference if a professor attends the class.</p> <p>It is not a guarantee that all of them will be good even if different teachers attend the class.</p> <p>Every physical education teacher cannot educate a good athlete; every science teacher gives the skill of science.</p> <p>There is no difference between a primary school teacher and a branch teacher.</p> <p>At secondary school, branch teachers give lessons and there is no success too.</p>
Necessity	<p>The primary school teacher wants support when he/she needs it.</p> <p>Having a teacher is not an obligation but a necessity.</p> <p>Branch teacher is not necessary as it is only primary education.</p> <p>There will be an assistant primary school teacher.</p>
Economy	<p>With branching out, the work gets longer and the cost increases.</p> <p>It is not economical.</p> <p>Different branches are extra expense for the government.</p>
Others	<p>There is no work left for a primary school teacher.</p> <p>It can be given a chance.</p> <p>It can be beneficial but not a priority.</p>

Keyword is a good teacher not a branch.
 The teacher is not a problem but a physical condition.
 The problem is not solved with the attendance of branch teachers in class.
 The primary school teaching must not be removed.
 It is nice theoretically but bad in practice; it is utopic.
 The primary school teaching system cannot be given up, that it is so harmful.

As seen on Table 8, the views about no branching out on the basis of field are gathered in categories as “Sinking to level”, “Interest/Adaptation”, “Integrity/Recognition”, “Success”, “Adaptation/Attachment”, “Guidance/Student Behavior”, “Being a Role Model”, The Success of the Branch Teachers”, “Necessity”, “Economy”, and “Others”.

It is thought that the branch teacher cannot know the characteristics of the students at that age, sync to their level, make contact with the students, and embrace the students. Furthermore, they do not care if the students are learning or not, so the basic education of the students will not be strong. Ö2 expressed his opinions about the subject with these words: “Branching out at primary school can be a trouble because the branch teachers do not behave according to the level of the students. It is thought that primary school teacher recognizes the students better, evaluates the individual differences better, discovers their abilities, guide them, and raise them as a whole. It is indicated that students have mental problems and they cannot form an emotional bond between amongst one another when different teachers attend the lessons. Meanwhile, A2 says, “*I think a primary school teacher has the competency of educating a student for four or five years in a good light. I think the students at a young age have difficulty in obeying the teachers; they do not recognize them nor do the homeworks they give.*” Meanwhile, ÖA3 says, “*Students enshrine the primary school teachers in their heart. The same teacher from the 1st grade is good to see. The student recognizes the teacher and knows how he/she gives the lesson. When different teachers attend the class, there will be some time to get used to the teacher.*” It is thought that the branch teachers do not care about the students’ behaviors and they do not guide them, thus there will be behavior disorders. However, only one teacher can be a role model, can teach human values, can raise a good citizen, and can prepare the students for life. A1 expressed his opinions about this subject with these words: “*I do not find branching as a new reorganization acceptable. It can be carried out to support the school education but it seems hard to play the role of the primary school teacher.*” It is indicated that there is no difference between a primary school teacher and a branch teacher in terms of success; the primary school teacher cannot teach all competencies and branch teachers cannot discover the abilities of the students and teach the necessary skills. Branching out is not economical and it is an extra expense for the government. It is thought that the problem cannot be solved by branching out; the physical conditions need to be recovered and branching out is nice theoretically, but it cannot be carried out in practice.

The views that there must be no branching out on the basis of class are presented in Table 9:

Table 9: *The views that there must be no branching out on the basis of class*

Categories	Codes
Student’s adaptation	The student latches on teacher emotionally.
	The student cannot adapt to different teacher every year.
	Every teacher has a different style and personal characteristics, so the adaptation is difficult.
Teacher’s adaptation	The teacher cannot develop himself/herself.
	It is boring for the teacher.
	It is tiring for the teacher.
Integrity	The teacher cannot transfer the information about the student to the new teacher.
	A student is raised in the only discipline systematically for 4 years.
	The student learns the culture of the school with the same teacher for 4 years.
Other	The teacher recognizes the students and their parent on all hands.
	It is not necessary if the teacher is good.

As seen in Table 9, the views about no branching out on the basis of class are gathered in categories as “Student’s Adaptation”, “Teacher’s Adaptation”, “Integrity”, and “Other”.

It is indicated that branching out on the basis of class is tiring and boring for the teacher; the teacher cannot develop himself/herself. The students cannot adapt to a new teacher every year and get used to the different characteristics of the new teacher. It is emphasized that it is important for the students to gain the school culture with one teacher for four years and be raised by one teacher systematically; one teacher can recognize the students and their parents better, and there is no need to branch out if the teacher is good enough. A2 expressed his opinion about the subject with these words: “*Branching out on the basis of class can be tiring and boring for*

the teacher.” Ö8 said, “Branching out on the basis of class is impossible. Only branching out on the basis of one field may be possible.” ÖA2 says, “Not branching out on the basis of class but rather on the basis of lesson may be possible. Branching out on the basis of class will be boring.”

Conclusion and Recommendations

It is seen that the qualifications the primary school teacher should have are world knowledge, class management, guidance, communication, personal/vocational development, personal/moral features, pedagogical information/skill, technological information/skill, and field information/skill.

The job of teaching is a Professional job that has its own principles, methods, and techniques; it requires both personal features, including social, economic, cultural, technological, scientific and modern worldview, and vocational features, including vocational formation, academic study, and specialized knowledge and skill of one's own field (Erden, 2001; High Education Board, 1998). In the study carried out in the scope of the “Education of the Teacher” of Support to Primary Education Project by General Directorate of Teacher Training and Education, general competencies and specific field competencies were determined. In the scope of this project, the competencies a teacher should have are determined in six categories: “Personal and Vocational Values”, “Vocational Development”, “Recognition of the Student”, “The Process of Learning and Teaching”, “Observation and Evaluation of Learning and Development”, “School-Family and Community Relations”, “Program”, and “Content Information” (MEB, 2006). It is seen that the competencies determined adjusted to the ones determined in this study.

The results of the research show that the necessary education cannot be given in terms of training effective primary school teachers in the faculties of education in general.

Akdemir (2013) states that the number of faculties of education has increased in recent years, but quality concerns have been ignored. Özoğlu (2010) states that faculties of education are insufficient both in terms of human resources and physical and technological infrastructure. In addition to the inadequacy of faculty members, their qualifications are also subject to criticism; the shortage of teaching staff is generally being covered by academicians who specialize in different fields. Aydın, Şahin, and Topal (2008) state that the target level of quality cannot be reached in the requirement of the lecturer of the institutions that train primary school teachers for primary school. In the study where pre-service teachers' evaluation about training program of primary school teaching was revealed, Şahin and Kartal (2013) expressed that pre-service teachers find undergraduate education inadequate; some lessons are given in wrong periods and training lessons are inadequate, apart from the competencies of lecturers being inadequate. In her study, Gökçe (2013) expresses that primary school teaching graduate teachers have difficulties in planning, organizing teaching techniques, and relating to students. Baştürk (2015) states that pre-service primary school teachers do not find the physical and environmental facilities provided by the university sufficient; they find the instructors insufficient in terms of numbers. The results of the said research are consistent with the results of this research.

Although there is an opinion that the primary school teachers can be successful in all fields, the results of the research show that primary school teachers and pre-service teachers do not feel successful in all academic courses and that they are inadequate in skill courses.

The view that success can be achieved in all areas may be due to self-perceptions of teachers over their qualifications. There are studies in the literature that teachers' and pre-service teachers' self-perceptions in various subjects are quite high in almost every subject. In the study conducted by Yeşilyurt (2013) to determine the pre-service teachers' self-efficacy perception, it was seen that pre-service teachers' self-efficacy perception levels were “quite sufficient”. Kacaroglu (2008) saw that the teachers feel competent in the fields of vocational information, self-development, field information, and national and international values. The results of Oğuz's research (2009) about self-sufficiency of preservice primary school teachers are high, while Eker's research (2014) about primary school teachers' self-insufficiency is high as well; both studies support the results of this research. However, in the study conducted by Taşdemir (2007), primary school teachers stated that they found themselves high enough in terms of both professional competence and professional excitement and dynamism, while they found that other primary school teachers in their schools were partially sufficient. In this case, it can be said that there is no harmony between self-perceptions of primary school teachers and perceptions of their colleagues' competencies.

Although it is seen that some of them think that they can be successful in every field due to their high self-perception, it is seen that primary school teachers do not feel successful in every field in general. There are many studies supporting this situation in the literature. In their study, Taşkaya and Muşta (2008) found that one quarter of primary school teachers consider themselves inadequate in teaching Turkish. In the study of Kutlu and Gökder (2012), it was observed that the mean of science teaching attitude scores of pre-service primary school teachers was moderate and that they did not consider themselves willing and sufficient while teaching

science subjects. Ültay and Uludüz (2018) concluded that pre-service primary school teachers' self-efficacy levels in science teaching were low. The results of Arseven and Tephan's (2015) research show that pre-service primary school teachers' self-efficacy perceptions about mathematics teaching are not good. In the study of Hacıömeroğlu (2013), it shows that the pre-service teachers' self-efficacy beliefs regarding mathematics teaching are undecided in terms of personal competence. İlhan (2003) states that the art education in primary schools could not be carried out successfully, and one of the main reasons for this was the lack of qualified teachers. In the study carried out by Kılıç (2009), it is indicated that primary school teachers have difficulty in music education because the music education they had is not adequate; they have problems about developing themselves, they cannot give education to the students at early age, and the educational environment is inadequate. In the study where Pehlivan, Dönmez, and Yaşat (2005) analyzed the views of primary school teachers about Physical Education lesson, 48% of primary school teachers find physical education lesson inadequate and 58.2% of them cannot instruct physical education lessons effectively at will. In the study carried out by Yılmaz and Orhan (2020), it is indicated that experienced primary school teachers were more inadequate in terms of teaching and practicing music than the pre-service teachers

Within the scope of the research, it was concluded that there should be branching out on the basis of field (academic courses and especially skill courses) or class basis.

In the research conducted by Boyacı, Kılıç and Şahin (2016), it was concluded that the students whose math abilities were supported in the primary school period turned to math fields and the students whose verbal abilities were supported turned to verbal fields in the choice of profession. Primary school teachers did not direct the students in the field of skill and did not give importance to the lesson; therefore, they had a negative effect on students' achievement in the field of skill. In his study, Kalyoncu (2013) showed that in our country, the level of primary and secondary education art education is much lower than necessary quality of art courses. Parsad and Spiegelman (2012) state that branch teachers entered 91% of music classes, 84% of art classes, 57% of dance classes, and 42% of drum classes in the state-owned primary schools in the United States in 2009-2010. All the said results support the results of this research on branching. It should not be forgotten that teacher is the basic part of education and the quality and competency of the teacher are the most important factors for the activity of education to be successful (Büyükkaragöz, Mustafa, Yılmaz & Piltan, 1998). It is thought that entrusting children in all fields to a primary school teacher, who cannot get the necessary education in the undergraduate education, who does not feel sufficient in some areas especially in the fields of skill, and who does not have the necessary competences in all fields, is quite problematic in terms of revealing their development and potential. For this reason, branching out on the basis of field (academic courses and especially skill courses) or class basis can be a solution.

According to the results of the research, the following suggestions were developed.

1. Areas where current primary school teachers feel better can be identified and branched out.
2. Experimental studies can be carried out to determine whether to branch out on the basis of field or class basis.
3. As a result of experimental studies, primary school teacher training program/system in education faculties can be rearranged.
4. In terms of research results, different studies can be performed by using quantitative measurement tools.
5. The same research can be tested in different schools (private or state), with different participants, and by different researchers.

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International Journal of Contemporary Educational Research (IJCER)

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To cite this article:

Şahin, A. & Gök, R. (2020). The effects of the schools' humor climates on perceived stress levels of the teachers. *International Journal of Contemporary Educational Research*, 7(1), 71-84. DOI: <https://doi.org/10.33200/ijcer.634449>

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The Effects of the Schools' Humor Climates on Perceived Stress Levels of the Teachers

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Abstract

Purpose of the study is to determine the effects of the schools' humor climates on the perceived stress levels of teachers. The sample of the study, which is a predictive correlational study, is made up of 387 teachers. In data collection, the Humor Climate Scale and the Perceived Stress Scale were used. Consequently, constructive humor climates (positive humor and supervisor support) were more dominant in schools than the destructive ones (negative humor and outgroup humor). In addition, the perceived stress levels of teachers were not high; but they seldom experienced inadequate self-efficacy and sometimes stress/distress perception. The results of the study also revealed that negative humor and outgroup humor climates of the schools were significant predictors of the perceived stress/distress levels of teachers. In this case, we can conclude that the presence of negative humor climates and outgroup humor climates in schools, which are negative and destructive, increases the perceived stress/distress levels of teachers.

Key words: Teacher, Humor, Humor climate, Stress, Perceived stress

Introduction

One of the most disputed topics in today's world is stress. It has a direct impact on our quality of life by taking part in all areas of our daily life and business life. So much so that, stress is even described as the plague of our age (Armağan & Kubak, 2013; Balaban, 2000; Crum & Lyddy, 2014; Korkmaz & Ceylan, 2012; Yüksel, 2014). In fact, this is stemming from the negative effects of stress on human health and organizations.

Working life pushes a large part of individuals under stress (Aydın, 2004). However, some professions and jobs are more stressful than others. Teaching profession is one of them (Akpınar, 2008; Balaban, 2000; Greenberg, 2008; Griffith, Steptoe & Cropley, 1999; Harrington, 2012). The work performed in schools often leads to negative feelings such as anxiety and stress in teachers (Hurren, 2008). Harrington (2012) states that human-oriented service professions such as social workers, teachers and health workers are likely to experience high stress. Cemaloğlu and Şahin (2007) state that stress is observed more frequently in occupational groups requiring face-to-face and close communication with people. A study conducted in the United Kingdom (Jones & Hodgson, 1998) shows that among all the professions surveyed, teachers have the second highest rate of depression, anxiety and work stress (as cited in Harrington, 2012). In another report conducted in the United Kingdom which was the continuation of the same study and covering the years 2004-2005, the stress of the teaching profession groups was again found to be significantly higher than the rate of all other professions (Jones, Huxtable & Hodgson, 2006). Akpınar (2008) states that high-level stress is harmful to teachers and their students.

It is important to develop and implement stress prevention methods in order to eliminate the negative effects of stress in organizations (Aydın, 2004). Humor is reported to be one of the mechanisms that can be benefitted for this purpose in coping with stress (Abel, 2002; Cranwell-Ward, 2005; Kuiper, Martin & Olinger, 1993; Lefcourt & Martin, 1986). According to George & Jones (2012), making humor and entertainment a part of the working environment positively affects the mood of the employees.

The positive effect of humor can be explained by its role in the cognitive assessment of individuals in stressful

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situations and the function of coping with stress in general (Abel, 2002). Humor acts as a buffer against the negative effects of stress to protect the individual from the destructive effects (Abel, 2002; Martin & Lefcourt, 1983); and it provides the individual with a cognitive and sensory change that makes the emotion accompanying the perceived threat less destructive and threatening (Abel, 2002). Similarly, in some studies, it is emphasized that humor and laughter have therapeutic properties in relieving tension and anxiety (Abel, 2002; Kuiper, Martin & Olinger, 1993; Martin & Lefcourt, 1983; Moran & Massam, 1999). It is also stated in different studies that positive and constructive humor has negative effects on stress (Blanchard et al., 2014; Cann et al., 2014; Mesmer-Magnus et al., 2012; Şahin, 2016), anxiety (Cann, Holt & Calhoun, 1999; Romero & Pescosolido, 2008) and tension (Blanchard et al., 2014; Mesmer-Magnus et al., 2012; Romero & Cruthirds, 2006).

Overall, it can be claimed that the organizational stress that teachers experience in their schools may cause negative consequences for teachers. The stress experienced by teachers in schools is an issue that needs to be taken into account organizationally and needs to be solved. However, stress does not always have negative effects. It is particularly desirable to have an optimum level of stress. In this respect, the aim of managing the stress levels of the employees in organizations is not to eliminate the work and work stress completely and but to keep the performance levels of the employees at the optimum level (Harrington, 2012). Humor can play a role as a coping mechanism and regulator at this point.

Stress

Almost everyone experiences stress intuitively (Greenberg, 2008; Harrington, 2012). However, when it comes to defining stress, it is not that easy (Gold, 2005; Greenberg, 2008; Harrington, 2012). Stress is described as an undetermined response developed by the body to environmental stimuli (Aydın, 2004; Selye, 1976). Donaldson-Feilder, Yarker, & Lewis (2011) describe stress as “negative reactions of people to extreme pressures or other demands on them”. In short, stress is the individual's response to threatening environmental stimuli (Balci, 2000). Stress is, in fact, an imbalance in the intellectual, emotional and physical state of the individual and it occurs as a result of the individual's perceptions of situations that result in physical and emotional reactions. Depending on the individual's assessment of the situation, stress can be positive or negative (Gold, 2005). Therefore, two types of stress can be mentioned as beneficial stress (eustress) and harmful stress (distress). Beneficial stress can lead to constructive consequences such as easy adaptation to change and improved performance in employees. Harmful stress, on the other hand, can result in loss of effectiveness, deterioration of health and depression as a result of excessive pressure (Selye, 1976; Şanlı, 2017). Based on these explanations, three main features of stress can be mentioned. These are: Stress (1) is caused and maintained by mental or cognitive processes that an individual wants to use, (2) is affected by our feelings and (3) affects our health or physical state (Gold, 2005).

Therefore, stress is not only limited to emotional experiences, but also includes physiological, behavioral and cognitive ones (Harrington, 2012). Thus, stressors, which are environmental or psychological triggers potentially activating the stress responses, cause cognitive, mental, physiological, and behavioral changes that can affect both our psychological and physical health negatively (Harrington, 2012; Harris, 2011). Examples of harmful cognitive changes include anxiety, memory loss, lack of concentration, and other mental changes as well as inability to make decisions. Anxiety, worry, irritation, rage, sorrow, shame, guiltiness and depression may all be emotional changes. Typically, physiological responses to stressors include the immune system, the autonomic nervous system, and the endocrine system as well as the central nervous system. These responses may include high blood pressure, increases in heart rate, muscle tension, dry throat and mouth, chills, grinding of teeth, headaches, fatigue, weakness, cold hands and feet, and common diseases (Harrington, 2012). Changes caused by stressors usually affect our relationships and business performance negatively (Harrington, 2012; Snell & Morris, 2019).

Donaldson-Feilder, Yarker and Lewis (2011) state that stress poses effects on physiological health (increased headaches, migraine, cardiovascular disease risk, digestive system disorders, musculoskeletal pain, fatigue, hypertension), on psychological health (increased risk for common mental health problems such as anxiety, depression, low concentration, forgetfulness, pessimism, loss of sense of humor, loss of tears, reduced self-esteem and confidence), on social interactional health (social interaction that may lead to breaks or problems in relationships with others), on professional health (psychological effects of contracts, the relationship between the employee and the employer, feelings of unfair treatment, morale, loyalty and reduced commitment) and on health-related unwanted behaviors (substance abuse, alcohol habit, eating disorders, sexual disorders, etc.).

In the literature, organizational stress, job stress and work stress are intertwined concepts. While organizational stress expresses how the structure and processes of the organization create stress, job stress is specific to the roles of a particular job, tasks and demands related to that job within an organization. Work stress is affected by organizational stress, but occurs at varying degrees depending on the nature of organizational stress and the jobs which are most affected within the organization. The term work stress is more general and applies to all work-related contexts, including informal work, self-employment, formal work or work stress in an organization (Harrington, 2012). In this study, perceived stress is considered as the stress that employees feel, including work and organizational stress-related work stress.

Stress is one of the inevitable phenomena for people working in organizational life (Aydın, 2004; Balçı, 2000). Work-related stress of employees is a quite challenging situation for organizations (Donaldson-Feilder, Yarker & Lewis, 2011) and also a costly one (Donaldson-Feilder, Yarker & Lewis, 2011; Greenberg, 2008; Harrington, 2012). Its destructive effects are quite high for both organizations and employees (Aydın, 2004). Organizational stress causes a series of hidden costs such as absenteeism, burnout, employees going to work despite health problems (presentism), turnover, stress-related accidents and injuries, loss of corporate reputation, poor decision-making, loss of work due to alcohol and substance dependence, difficulty in finding qualified employees and replacement of them, weakening investor relations, increased insurance costs, increased education costs and reduced productivity (Donaldson-Feilder, Yarker & Lewis, 2011; Greenberg, 2008; Harrington, 2012). Therefore, work stress can negatively affect our health and well-being (Harrington, 2012), and can create important organizational problems (Cemaloğlu & Şahin, 2007). However, the level of stress experienced by the employees is very important. It is stated that a certain amount of stress motivates employees and increases their performance levels; however, excessive stress can completely eliminate personal productivity (Aydın, 2002).

Humor and Humor Climate

Humor is an important part of our daily life as well as our business life and simply refers to positive attitudes towards daily events (Şahin, 2018). Laughing, which is an instinctive behavior, is a universal body language that shows the level of satisfaction of individuals about events. In short, humor is all situations that mediate humorous laugh and making others laugh (Altinkurt & Yılmaz, 2011; Kara, 2014; Oruç, 2010). Humor undertakes the task of making people think, entertain or laugh by highlighting the ridiculous, unusual and contradictory aspects of events (Akkaya, 2011; Güler & Güler, 2010; Kara, 2014; Yardımcı, 2010).

In organizational terms, humor includes fun and humorous communication which causes positive cognitions and emotions in employees (Romero & Cruthirds, 2006). However, humor may have positive or negative consequences for organizations by playing constructive or destructive roles at times between the parties (Cann, Watson & Bridgewater, 2014; Lyttle, 2007; Malone, 1980; Meyer, 2000). Therefore, the important thing for organizational sense is to maximize the positive effects of humor by using constructive humor instead of destructive humor. This makes the use of effective and conscious humor inevitable.

Humor affects the communication process with psychological, cognitive and emotional reactions. This shows that humor can shape the working environment climate as well (Decker & Rotonda, 2001). Therefore, it can be said that humor, which activates positive emotions in individuals, will also have a positive effect in the organizational atmosphere. In this context, we come across the concept of humor climate that emerges with the use of humor in organizations.

Humor climate in organizations is the effect of humor that employees do or live on the air of the organization. The emotions resulting from the ways that employees use, experience and perceive humor constitute the focus of humor climate in the workplace. In fact, humor climate refers to the atmosphere and situation created by the use of humor in the organizational climate. In this respect, humor climate in organizations can reflect both positive and negative aspects of humor. Humor climate is considered in four basic dimensions, such as positive humor, supervisor support, negative humor and outgroup humor. Positive humor and supervisor support indicate the presence of positive humor and negative humor and outgroup humor indicate the presence of a negative humor climate (Cann, Watson & Bridgewater, 2014).

Positive Humor

Positive humor is a form of humor that evokes constructive emotions and has and socializing effects on people

(Şahin, 2018). Employees of organizations where positive humor climate prevails have a positive humor point of view about life. While positive emotions are often emphasized in their humor, it is seen that they try to avoid negative emotions and improve social interaction within the group. The aim is to make humor without hurting anyone and to enable all parties to enjoy humor. Humor made in organizations where positive humor climates prevail is endorsed by the employees and they enjoy making humor. Since the use of aggressive and threatening language targeting the opposite side is avoided in jokes and humors. It is emphasized that positive humor is used to develop positive relationships between individuals, reduces stress, gives joy and makes work more cheerful (Cann, Watson & Bridgewater, 2014; Duncan, 2006; Şahin, 2018). Therefore, in a positive humor climate, participatory humor, which aims to socialize without excluding individuals and self-enhancing humor, which helps to cope with and stress, are predominantly used (Blanchard et al., 2014).

Supervisor Support

In a climate of humor dominated by supervisor support, humor made by employees is approved by managers and the use of humor in the organization is encouraged. Therefore, how humor made by employees is perceived by managers and how managers react to humor shape their level of support for humor (Şahin, 2018). In humor climates with supervisor support, it is not inconvenient for employees to make humor among them and that does not create a problem between employees and school administrators. It is stated that humor in such organizations will have a positive effect on a number of variables such as organizational commitment, satisfaction and job satisfaction of employees (Cann, Watson & Bridgewater, 2014).

Negative Humor

Negative humor is a form of humor that evokes destructive emotions on the opposite side. The humor includes aggressive, threatening, humiliating, deceiving, and disparaging elements (Şahin, 2018). Therefore, negative humor causes some employees to feel bad in organizations. In organizations where negative humor climate is dominant, humor is often used to intimidate, ridicule and despise each other. Hence, the presence of a negative climate in the work environment reduces the job satisfaction of employees (Cann, Watson & Bridgewater, 2014; Duncan, 2006) and induces stress (Blanchard et al., 2014; Cann et al., 2014; Mesmer-Magnus et al., 2012; Şahin, 2016) and anxiety (Cann, Holt & Calhoun, 1999; Romero & Pescosolido, 2008).

Outgroup Humor

Outgroup humor is humorous sharing in which employees target individuals or parties other than themselves. In these humorous shares, negative humor is predominant (Şahin, 2018). The humor targeting administrators is frequently made in organizations where the outgroup humor climate is dominant. Employees often mock managerial policies and practices. Therefore, outgroup humor targeting parties in the organization is considered as a negative type of humor because of its destructive effects. It is emphasized that the dominance of this humor climate in organizations may have negative effects on job satisfaction, organizational commitment and fairness (Cann, Watson & Bridgewater, 2014). However, outgroup humor targeting parties who are out of the organization can sometimes have a positive effect on the organization's employees (Şahin, 2018).

In fact, the use of humor in organizations and the humor climate that emerges in the working environment as a result of this use of humor may either take its place among the organizational stressors (which indicates the presence of a negative and destructive humor climate) or act as a coping mechanism for stress by relieving it or reducing its effects with its therapeutic effect. Therefore, the study is important in terms of creating a positive humor climate in schools, thus managing the stress levels of employees, and having a positive effect on organizational outcomes such as organizational health and organizational effectiveness. The aim of this study is to determine the effects of the humor climate of schools on the perceived stress levels of teachers.

For this general purpose, answers to the following questions were sought. According to teachers' opinions:

1. What is the humor climate of schools; do the teachers' opinions differ according to gender, educational background and type of school?
2. What are the perceived stress levels of teachers; do the teachers' opinions differ according to gender, educational background and type of school?
3. What are the effects of the schools' humor climates on the perceived stress levels of teachers?

Method

Research Design

In the study conducted with the aim of determining the effects of the humor climate of schools on the perceived stress levels of teachers, a predictive correlational study design (Büyüköztürk et al., 2010) was used.

Population and Sample

The population of the study consists of 11216 teachers working in state schools in the central districts of Antalya metropolitan city (Muratpaşa, Kepez, Konyaaltı, Aksu and Döşemealtı). In determining the sample size, using the formulas to determine the sample size for continuous variables (Büyüköztürk et al., 2010), a group of 372 teachers was found sufficient for the sample size according to 95% confidence level. However, as a measure against the risks of low and invalid surveys, the questionnaires were applied to a group of 406 teachers. In the determination of the sample, firstly by using the stratified sampling, one of the random sampling methods, the number of teachers to be included in the sample group according to the rate of representing the population in all central districts was determined. We first used the stratified sampling method since the districts in the metropolitan central area of Antalya has different socio-economic demographics which may affect the teachers differently. Then, by using simple random sampling method, one of the random sampling methods, final teacher group was determined randomly (Büyüköztürk et al., 2010). After invalid questionnaires were excluded, 387 questionnaire data were evaluated.

Table 1. Demographic Information of the Participants

		Teacher (n=387)			
		n	%		
Gender	Female	225	58.1	Kindergarten	24 6.2
	Male	162	41.9	School	Primary School 100 25.8
Education Status	Associate Degree	18	4.7	Type	Secondary School 158 40.8
	Bachelor's Degree	344	88.9		High School 105 27.1
	Graduate	25	6.5		

In this study, 387 teacher questionnaires were evaluated. Of the teachers that participated in the study, 225 (58.1%) of them were female and 162 (41.9%) were male. According to the school types, 24 (6.2%) of them were kindergarten, 100 (25.8%) of them were primary school, 158 (40.8%) of them were secondary and 105 (27.1%) of them were high school teachers. According to their educational status, 18 (4.7%) teachers were with an associate degree (two-year degree), 344 (88.9%) teachers were with bachelor's degree (undergraduate) and 25 (6.5%) teachers were graduates.

Data Collection Tools

Humor Climate Scale

In order to collect data concerning the humor climate of schools the Humor Climate Scale (HCS), which was developed by Cann, Watson and Bridgewater (2014) and adapted to Turkish by Şahin (2016), was used. In the Turkish version of the measurement tool, a 5-point Likert-type rating scale ranging from "Never (1)" to "Always (5)" was used (Şahin, 2016).

In order to determine whether HCS's factor structure is a valid model, confirmatory factor analysis was carried out with 387 pieces of questionnaire data. When the unity indexes that were acquired from the confirmatory factor analysis analyzed, it was observed that X^2/df (2.41), GFI (.93), AGFI (.90), IFI (.96), CFI (.96), NFI (.93), NNFI (.95), RMSEA (.061), RMR (.061) and standardized RMR (.063) values were in unity at a perfect level while RFI (.91) value was at a favorable level of unity. In this context, Humor Climate Scale's structure of 16 items and 4 dimensions can be claimed to have been confirmed (Çokluk, Şekercioğlu & Büyüköztürk, 2010; Hair, Anderson, Tahtam & Black, 1998; Seçer, 2015).

In reliability studies, internal reliabilities (Cronbach's Alpha) were as follows: For the positive humor dimension (four items) 0.71; for the negative humor dimension (four items) 0.78; for the outgroup humor dimension (four items) .77; and for supervisor support dimension (four items) .68. The internal reliability (Cronbach's Alpha) for the overall scale was 0.78.

The high score in the positive humor climate dimension indicates that there is more positive humor in schools and that in the outgroup humor dimension refers to the humor in the working environment is supported by the administrator. The high score in negative humor climate dimension indicates that there is more negative humor in schools and that in the outgroup humor dimension, the administrators and the supervisors outside the organization are targeted more often with negative humor by the employees. Examples of different items on humor at different dimensions are as follows: at the positive humor climate dimension, *"The humor that is done among the personnel at school makes the work more cheerful."*, at the supervisor support dimension *"Our administrators place emphasis on creating a serious working atmosphere at school."*, at the negative humor climate dimension *"The personnel at school sometimes use humor to intimidate each other in the group."* and at the outgroup humor climate dimension *"The policies and practices of the school administrations can often be a target for jokes or ridicule among my coworkers."*. The items at the supervisor support dimension are reverse scored.

Perceived Stress Scale

At this study, the 14-item long form of the Perceived Stress Scale (PSS), developed by Cohen, Kamarck and Mermelstein (1983), was used to define to what level of stress the teachers perceive the events and situations in their lives.

In order to determine whether PSS's factor structure is a valid model, confirmatory factor analysis was carried out with 387 pieces of questionnaire data. When the unity indexes that were acquired from the confirmatory factor analysis analyzed, it was observed that GFI (.92), IFI (.95) and CFI (.95) values were at an excellent level; χ^2/df (3.32), AGFI (.88), RMSEA (.078), RFI (.91), NFI (.93), NNFI (.94), RMR (.060) and standardized RMR (.082) values were in unity at a favorable level. In this context, Perceived Stress Scale's structure of 14 items and 2 dimensions can be claimed to have been confirmed (Çokluk, Şekercioğlu & Büyüköztürk, 2010; Hair, Anderson, Tahtam & Black, 1998; Seçer, 2015).

In the reliability studies, internal reliabilities (Cronbach's Alpha) were as follows: for the stress/discomfort perception dimension (seven items) 0.85; and for inadequate self-efficacy perception (7 items) 0.83. The internal reliability (Cronbach's Alpha) for the overall scale was 0.79.

A high score stands for the excess of a person's stress/distress or inadequate self-efficacy perception. In the perceived stress/distress dimension *"How often have you felt tense and stressed for the last month?"*, and in the perceived inadequate self-efficacy *"How often have you felt that you cannot control the important things in your life for the last month?"* and such questions are included. The items that are in the perceived inadequate self-efficacy dimension are reverse scored.

Data Analysis

In the analysis of the data concerning the first and second sub-problems, descriptive analyses such as percentage, frequency and arithmetic means were used. We also used independent samples t-test, one-way ANOVA for the first two sub-problems. After it was seen that the assumptions of parametric tests were met, the analysis was started. Moreover, Büyüköztürk (2001) states that regarding the analysis of the dependent variable, it is difficult to meet the assumption that subgroups exhibit normal distribution in their populations, in education and behavioral sciences. Therefore, neglecting this assumption will not have a significant effect on the results if each data number of the subgroups of the variable is 15 or more (p.34-35). However, in the independent samples t-test, if the Levene test was greater than the determined level of significance, the "equal variance assumed" approach was used, if it was less than the significance level, the "equal variance not assumed" approach (The situation in which the assumption of homogeneity of variance couldn't be achieved) was used to compare the two groups (Akgül & Çevik, 2003; Büyüköztürk, 2003; Cohen, Manion & Morrison, 2007). Significance levels of $p < .05$ and $p < .01$ were taken as basis. In the analysis of the data concerning the third sub-problem, multiple linear regression analysis was applied. Since there was no prior idea on the relationship between independent

variables and dependent variables, the standard approach was used as a base in the analysis of multiple linear regression analysis (Leech, Barrett & Morgan, 2005).

In multiple linear regression analyzes, the analysis was continued when it was seen that the relationship between predictor variables was below .80, D-W coefficient was around 2, tolerance values were greater than .10 and VIF values were below 2 (Akgül & Çevik, 2003; Büyüköztürk, 2003; Gordon, 2015; Hair, Anderson, Tahtam & Black, 1998; Muijs, 2004; Secer, 2015). Since the aim of the multiple linear regression analysis models, which were used in the study, was not an estimation but explanation, all the significant models were interpreted.

Findings

The Humor Climate of Schools and the Perceived Stress Levels of Teachers

The frequency, arithmetic mean and standard deviation values concerning the humor climate of schools and the perceived stress levels of teachers are presented in Table 2.

Table 2. The Humor Climate of Schools and the Perceived Stress Levels of Teachers

Dimensions	N	\bar{X}	sd
Positive Humor	387	3.8540	.65653
Supervisor Support	387	2.7287	.70460
Negative Humor	387	2.4735	.78653
Outgroup Humor	387	2.6273	.80263
Perceived Inadequate Self-Efficacy	387	2.4182	.57823
Perceived Stress /Distress	387	3.0491	.66361

According to teachers' views, the most dominant humor climate in schools was positive humor climate ($\bar{X}=3.85$). Positive humor was followed by supervisor support ($\bar{X}=2.72$), outgroup humor ($\bar{X}=2.62$), and finally negative humor ($\bar{X}=2.47$) respectively. This result shows that constructive humor climate types (positive humor and supervisor support) are more dominant in schools than destructive humor climate types (negative humor and outgroup humor).

It has been observed that the stress perceptions of teachers regarding perceived stress levels ($\bar{X}=3.04$) were higher compared to their perceptions regarding inadequate self-efficacy ($\bar{X}=2.41$). The teachers stated that they rarely experienced inadequate self-efficacy perception and sometimes stress/distress perception

Table 3. Teachers' Views According to Gender

Dimensions	Gender	N	\bar{X}	sd	t	df	p
Positive Humor	A- Female	225	3.7933	.68061	-2.153	385	.032
	B- Male	162	3.9383	.61368			
Supervisor Support	A- Female	225	2.6856	.67378	-1.421	385	.156
	B- Male	162	2.7886	.74328			
Negative Humor	A- Female	225	2.4422	.73192	-.899	312.533	.369
	B- Male	162	2.5170	.85707			
Outgroup Humor	A- Female	225	2.4989	.79321	-3.771	385	.000
	B- Male	162	2.8056	.78366			
Perceived Inadequate Self-Efficacy	A- Female	225	2.4743	.59294	2.259	385	.024
	B- Male	162	2.3404	.54952			
Perceived Stress /Distress	A- Female	225	3.0908	.64738	1.459	385	.145
	B- Male	162	2.9912	.68330			

According to the findings seen in Table 3, according to gender variable the views of teachers have presented significant differences at positive humor dimension [$t_{(385)}=-2.153$; $p<.05$], outgroup humor dimension [$t_{(358)}=-3.771$; $p<.01$], and perceived inadequate self-efficacy dimension [$t_{(385)}=-2.259$; $p<.05$].

The scores of male teachers regarding both positive humor and outgroup humor climates were significantly higher than those of female teachers. According to views of male teachers, positive humor and outgroup humor climates in their schools were significantly higher compared to those of female teachers.

As for the outgroup humor it can be said that while the female teachers ($\bar{X}=2.49$) and male teachers ($\bar{X}=2.80$) were observed to be indecisive, male teachers have positive views at a significant level according to independent samples t-test results.

The scores of female teachers were significantly higher than the scores of male teachers regarding perceived inadequate self-efficacy. This aspect shows that female teachers had significantly higher inadequate self-efficacy perception compared to male teachers.

Significant differences cannot be observed at two of the humor climate dimensions which are supervisor support [$t_{(385)}=-1.421$; $p>.05$] and negative humor [$t_{(312.533)}=-.899$; $p>.05$]. In addition, there was no significant difference in the perceived stress/distress dimension [$t_{(385)}=1.459$; $p>.05$].

Table 4. Teachers' Views According to Education Status

Dimensions	Education Status	N	\bar{X}	sd	F	p	Significant Difference*
Positive Humor	A- Associate Degree	18	3.6944	.63336	.558	.573	-
	B- Bachelor's Degree	344	3.8612	.66391			
	C- Graduate	25	3.8700	.57337			
Supervisor Support	A- Associate Degree	18	2.6528	.86661	1.449	.236	-
	B- Bachelor's Degree	344	2.7485	.69724			
	C- Graduate	25	2.5100	.66724			
Negative Humor	A- Associate Degree	18	1.9583	.69266	4.200	.016	A-B A-C
	B- Bachelor's Degree	344	2.4942	.77753			
	C- Graduate	25	2.5600	.86987			
Outgroup Humor	A- Associate Degree	18	2.0972	.67595	4.942	.008	A-B A-C
	B- Bachelor's Degree	344	2.6395	.79274			
	C- Graduate	25	2.8400	.89233			
Perceived Inadequate Self-Efficacy	A- Associate Degree	18	2.3095	.69339	1.299	.274	-
	B- Bachelor's Degree	344	2.4348	.57529			
	C- Graduate	25	2.2686	.52053			
Perceived Stress /Distress	A- Associate Degree	18	2.4762	.65190	7.264	.001	A-B A-C
	B- Bachelor's Degree	344	3.0768	.66002			
	C- Graduate	25	3.0800	.54567			

* Scheffe test was conducted to determine which group/s caused the significant difference.

In Table 4 the views of teachers concerning the humor climate at schools show no significant differences according to school type variable at positive humor [$F_{(2-384)}=.558$; $p>.05$] and supervisor support [$F_{(2-384)}=1.449$; $p>.05$] dimensions. They present significant differences as for negative humor [$F_{(2-384)}=4.200$; $p<.05$] and outgroup humor [$F_{(2-384)}=4.942$; $p<.01$] dimensions.

Scheffe test was conducted to determine the significant difference among the groups related to negative humor climate. The scores of teachers with an associate degree, concerning negative humor dimension, were observed to be significantly lower compared to the views of teachers with bachelor's and graduate degrees.

As for the outgroup humor dimension, the scores of teachers with an associate degree, concerning out-group humor, were observed to be significantly lower compared to the views of teachers with bachelor's and graduate degrees.

The perceived stress levels of teachers did not present a significant difference at perceived inadequate self-efficacy dimension [$F_{(2-384)}=.274$; $p>.05$] according to educational status. As for perceived stress/distress [$F_{(2-384)}=7.264$; $p<.01$] dimension, a significant difference was observed.

For the perceived stress/distress dimension, Scheffe test was conducted to determine the significant difference among the groups. The scores of teachers with associate degree, concerning the perceived stress/distress, were observed to be lower compared to the views of teachers with bachelor's and graduate degrees.

Table 5. Teachers' Views According to School Type

Dimensions	Education Status	N	\bar{X}	sd	F	p	Significant Difference*
Positive Humor	A- Kindergarten	24	3.7083	.64127	4.641	.003	D-B D-C
	B- Primary School	100	3.9650	.61445			
	C- Secondary School	158	3.9241	.65430			
	D- Anatolian High School	105	3.6762	.66860			
Supervisor Support	A- Kindergarten	24	2.1563	.75474	11.212	.000	A-C A-D B-C B-D
	B- Primary School	100	2.5400	.68601			
	C- Secondary School	158	2.8560	.70727			
	D- Anatolian High School	105	2.8476	.60397			
Negative Humor	A- Kindergarten	24	2.0833	.77202	8.648	.000	A-C A-D B-C B-D
	B- Primary School	100	2.2150	.69178			
	C- Secondary School	158	2.5918	.78214			
	D- Anatolian High School	105	2.6310	.79971			
Outgroup Humor	A- Kindergarten	24	2.1979	.91182	5.810	.001	A-C A-D B-D
	B- Primary School	100	2.4550	.74737			
	C- Secondary School	158	2.6946	.78887			
	D- Anatolian High School	105	2.7881	.79495			
Perceived Inadequate Self-Efficacy	A- Kindergarten	24	2.4762	.72191	.237	.871	-
	B- Primary School	100	2.4300	.66589			
	C- Secondary School	158	2.4259	.55116			
	D- Anatolian High School	105	2.3823	.49268			
Perceived Stress /Distress	A- Kindergarten	24	3.0179	.47719	1.619	.184	-
	B- Primary School	100	2.9300	.76285			
	C- Secondary School	158	3.1112	.66021			
	D- Anatolian High School	105	3.0762	.59302			

* Scheffe test was conducted to determine which group/s caused the significant difference.

In Table 5, the views of teachers show significant differences concerning humor climate according to school type at all dimensions as positive humor [$F_{(2-383)}=4.641$; $p<.01$], supervisor support [$F_{(2-383)}=11.212$; $p<.01$], negative humor [$F_{(2-383)}=8.648$; $p<.01$], and outgroup humor [$F_{(2-383)}=5.810$; $p<.01$] dimensions.

Scheffe test was conducted to determine the significant difference among the groups related to positive humor climate. The scores of teachers working in Anatolian High Schools, concerning positive humor climate dimension, were observed to be significantly lower compared to the views of teachers working in primary and secondary schools.

The significant differences observed between the groups regarding the dimension of supervisor support were due to the difference between the views of the kindergarten teachers and secondary school teachers, and the difference between the views of the kindergarten teachers and Anatolian high school teachers. The scores of teachers working in Kindergartens, concerning supervisor support, were observed to be lower compared to the views of teachers working in secondary schools and Anatolian High Schools. What's more, there were significant differences between the views of teachers working in primary schools and the ones working in secondary schools, and between the views of teachers working in primary schools and Anatolian High Schools. The scores of teachers working in primary schools, concerning supervisor support, were observed to be lower compared to the views of teachers working in secondary schools and Anatolian High Schools.

According to Scheffe test results, the significant differences observed between the groups regarding the dimension of negative humor were due to the difference between the views of the kindergarten teachers and secondary school teachers, and the difference between the views of the kindergarten teachers and Anatolian school teachers. The scores of teachers working in Kindergartens, concerning negative humor dimension, were observed to be lower compared to the views of teachers working in secondary schools and Anatolian High Schools. Moreover, there were significant differences between the views of teachers working in primary schools and the ones working in secondary schools, and between the views of teachers working in primary schools and Anatolian High Schools. The scores of teachers working in primary schools, concerning negative humor, were observed to be lower compared to the views of teachers working in secondary schools and Anatolian High Schools.

Regarding the outgroup humor, Scheffe test was conducted to determine from which group/s caused the significant difference. There were significant differences between the views of the kindergarten teachers and secondary school teachers, and between the views of the kindergarten teachers and Anatolian high school teachers. The scores of teachers working in Kindergartens, concerning outgroup humor, were observed to be lower compared to the views of teachers working in secondary schools and Anatolian High Schools. Besides, there was a significant difference between the views of teachers working in primary schools and Anatolian High Schools. The scores of teachers working in primary schools, concerning outgroup humor, were observed to be lower compared to the views of teachers working in Anatolian High Schools.

The perceived stress levels of teachers did not present a significant difference in both dimensions as perceived inadequate self-efficacy [$F_{(2-383)}=.237$; $p>.05$] and perceived stress/distress [$F_{(2-383)}=1.619$; $p>.05$] with regards to the school type variable.

The Effects of the Schools' Humor Climates on Perceived Stresses of the Teachers

The findings related to the prediction of the perceived stress levels of teachers, according to the humor climate of schools (positive humor, negative humor, outgroup humor and supervisor support) are presented in Table 6 and Table 7.

Table 6. Regression Analysis Results for Predicting the Perceived Inadequate Self-Efficacy

Variable	B	Standard Error _B	β	t	p	Correlations	
						Zero-order	Partial
Constant	2.736	.232		11.781	.000		
Positive Humor	-.091	.046	-.103	-1.958	.051	-.092	-.100
Supervisor Support	-.059	.048	-.072	-1.232	.219	-.013	-.063
Negative Humor	.039	.047	.053	.820	.413	.060	.042
Outgroup Humor	.037	.046	.052	.816	.415	.043	.042
$F_{(4-382)}= 1.530$ $p=.193$ $R=.126$ $R^2=.016$							

According to multiple linear regression analysis results in Table 6, the scores of teachers belonging to positive humor, supervisor support, negative humor, outgroup humor and their perceived inadequate self-efficacy were not interpreted significantly ($R=.126$; $R^2=.016$; $F_{(4-382)}= 1.530$; $p>.05$).

Table 7. Regression Analysis Results for Predicting the Perceived Stress/Distress

Variable	B	Standard Error _B	β	t	p	Correlations	
						Zero-order	Partial
Constant	2.263	.255		8.868	.000		
Positive Humor	-.012	.051	-.011	-.226	.822	-.029	-.012
Supervisor Support	.063	.053	.067	1.201	.230	.197	.061
Negative Humor	.156	.052	.185	3.010	.003	.284	.152
Outgroup Humor	.104	.050	.125	2.072	.039	.251	.105
$F_{(4-382)}= 10.307$ $p=.000$ $R=.312$ $R^2=.097$							

According to multiple linear regression analysis results in Table 7, the relations among positive humor, supervisor support, negative humor, outgroup humor and perceived stress/distress were analyzed. The model of positive humor, supervisor support, negative humor and outgroup humor climates, gave a low but significant relationship in relation to the perceived stress/distress of teachers ($R=.312$; $R^2=.097$; $F=10.307$; $p<.01$). Positive humor, supervisor support, negative humor and outgroup humor climates collectively explained 9.7% of the total variance of the perceived stress/distress of teachers.

According to the standardized regression coefficient (β), the relative significance order of the interpretive variables on the perceived stress/distress was as follows: Negative humor, outgroup humor, supervisor support, and positive humor. It was found that negative humor and outgroup humor seem to be important interpreters of perceived stress/distress each according to the results of the t-test regarding the significance of the regression coefficients. As for positive humor and supervisor support, they had no significant impact.

Discussion and Conclusion

This study is an important step in understanding how the humor climate affects perceived stress levels of teachers in state schools. As a matter of fact, in the literature, there are no studies that directly investigate the humor climate and perceived stress levels of teachers. In the study, the humor climate of the schools and perceived stress levels of the teachers were determined according to the variables of gender, education status and school type of teachers; then, the relationship between the humor climate of schools and the perceived stress levels of teachers was examined.

In schools, the constructive humor climates (positive humor and supervisor support) were more dominant than the destructive humor climates (negative humor and outgroup humor). In another study conducted in primary schools by Şahin (2016), it was determined that negative humor and outgroup humor, from negative humor climate types, were felt at a lower level compared to positive humor climate types. This case may point out that, there is an appropriate and convenient working atmosphere in order to increase joy and interpersonal relations in schools. In the study it was observed that the perceived stress levels of teachers were not high. The teachers stated that they experienced rarely perceived inadequate self-efficacy and sometimes perceived stress/distress. Nevertheless, their feeling of perceived stress/distress at a higher level compared to perceived inadequate self-efficacy is an attention-grabbing situation.

When the opinions of teachers were examined in terms of gender, there was a significant difference only in positive humor and outgroup humor dimensions. It can be stated that male teachers have more positive opinions about the presence of both positive humor and outgroup humor compared to female teachers.

The difference in the outgroup humor climate can be attributed to the fact that male teachers' being more critical of political and current issues, their questioning systems and administrations more, and making these situations a subject of humor (Şahin, 2016). A significant difference among the perceived stress/distress scores of teachers according to gender variable has not been observed. The perceived inadequate self-efficacy scores of female teachers were significantly higher compared to those of male teachers. This aspect shows that female teachers experience significantly higher perceived inadequate self-efficacy compared to male teachers. In Turkish society feminine roles being more severe than masculine roles; occupational workload and workload in private life may be a cause of this result. As a matter of fact, women have to struggle more than men to get a place and carry on in working life; and in our society, it is thought that women cannot be as productive as men because of their physical characteristics (Yılmaz, 2018). All these aspects may cause female teachers to experience more inadequate self-efficacy perception.

When the opinions of teachers were examined in terms of educational status variable, there was a significant difference only in negative humor and outgroup humor dimensions with regards to the opinions about humor climate. Scores of the teachers with associate degrees concerning both the negative humor and outgroup humor climate were defined lower compared to the ones with graduate and postgraduate degrees. This fact shows that teachers with associate degree education avoid using destructive humor styles compared to other teachers. The fact that teachers with associate degree education are older and have more experience compared to other teachers can be explained by their making more humor and taking care not to create destructive and negative atmosphere in the organizational climate. When the opinions regarding perceived stress are scrutinized, only the perceived stress/distress levels of the teachers show a significant difference according to the educational status variable. The stress/distress scores of associate degree teachers were lower compared to the ones with graduate and post graduate educational background. It can be said that the teachers with associate degree education experience the perceived stress/distress at a lower level. This case can be associated with their being older and having more occupational experience. Having more experience may lead to their coping with the problems easier and thus feeling less stress/distress. Şanlı (2017) in his study, in which he analyzed the perceived stress levels of teachers, similarly found that the teachers with 21-30 years of occupational experience have less stress/distress perception compared to the teachers with 1-10 years of occupational experience, as well.

The opinions of teachers about humor climate differed significantly in all humor climate dimensions according to school type variable. The scores of the teachers working in Anatolian high schools regarding the positive humor climate dimension were lower compared to the opinions of teachers working in primary and secondary schools. This shows that the positive humor climate in Anatolian high schools is lower compared to the one in primary and secondary schools.

It has been determined that the scores of the teachers working in kindergartens regarding the supervisor support dimension were lower compared to the opinions of teachers working in secondary and Anatolian high schools.

Besides, it has been observed that the scores of the teachers working in primary schools concerning the supervisor support dimension are lower compared to the opinions of teachers working in secondary and Anatolian high schools.

It has been observed that the scores of the teachers working in kindergartens regarding the outgroup humor climate were lower compared to the opinions of teachers working in secondary and Anatolian high schools. What's more, the scores of outgroup humor of the teachers working in primary schools were lower compared to the opinions of teachers working in Anatolian high schools. Perceived inadequate self-efficacy and perceived stress/distress levels of the teachers did not differ significantly according to the school type variable.

In the context of the relationship between humor climate of schools and the perceived stress levels of teachers, while the research results showed that positive humor, supervisor support, negative humor and outgroup humor climate together were important predictors of perceived stress/distress of teachers; it has been concluded that they were not important predictors of the perceived inadequate self-efficacy. Negative humor and outgroup humor climate were important predictors of perceived stress/distress. As for the climates of positive humor and supervisor support, they did not have a significant effect on perceived stress/distress.

In this case, it can be concluded that the presence of negative humor and outgroup humor climates as negative and destructive humor climates in schools increases the perceived stress/distress of teachers. Negative humor climate may be leading to negative assessment, emotional pressure, and weakening of coping strategies for teachers concerning the situations in which they are. Thus, the teachers may be mostly experiencing perceived stress/distress. Griffith, Steptoe and Cropley (1999) state in their studies that, the demand and pressure in the working conditions may cause stress for the teachers. In one of his studies, Abel (2002) found that those with a high sense of humor experienced less stress than those with a low sense of humor although they had similar number of problems within two-month-period. This result indicates that, those with a high sense of humor are more likely to use positive re-evaluation, more problem-solving and coping strategies than those with a low sense of humor. Therefore, the teachers' experiencing high levels of stress/distress perception in negative humor and outgroup climates where the sense of humor is negative and destructive, may stem from negative evaluation, emotional pressure, and efforts to cope with weaker problems concerning the situations in which they are.

The Limitations of the Research

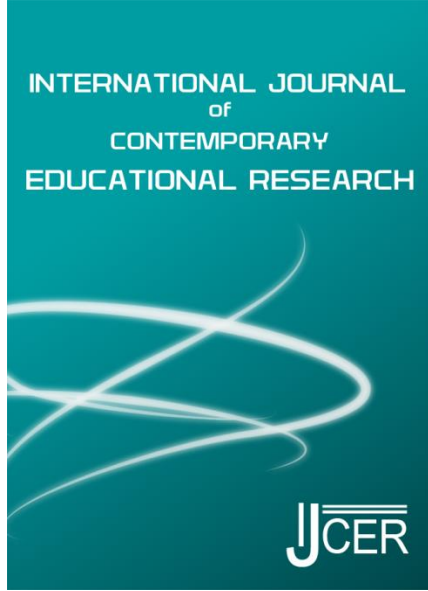
First of all, the results of the research reflect the views of 387 teachers working in Muratpaşa, Kepez, Konyaltı, Döşemealtı and Aksu central districts of Antalya. Secondly, the research data were collected in 2018 and the results are limited only to this period. Thirdly, since there was no relevant data in our study, the mediating effect of the humor climate of schools on the perceived stresses of teachers could not be evaluated. In addition to these, since there are no direct studies about the humor climate and the perceived stress levels of teachers, the results could not be fully discussed. However, this study will serve as a reference for the future studies that will be done on this subject.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Göçen, A., Eral S.H., & Bücüğ, M.H. (2020). Teacher Perceptions of a 21st Century Classroom. *International Journal of Contemporary Educational Research*, 7(1), 85-98. DOI: <https://doi.org/10.33200/ijcer.638110>

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Teacher Perceptions of a 21st Century Classroom

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Abstract

Despite the uncertainty in the rapidly changing world, many countries expect their educational institutions to be ready for the future. To meet these expectations, educational policymakers bring in new changes. One of these transformational changes is the “Future Classroom Lab (FCL),” coordinated by the European Schoolnet with 15 countries, including the Turkish Ministry of National Education. These classrooms reconsider the changing roles of teachers and students, the traditional classroom layout, and propose solutions for more effective learning experiences for the 21st century. This study, based on the qualitative method, aims to introduce the opinions of teachers from different levels of education about future classrooms to determine what is expected regarding the new educational environments in terms of teachers, schools, students and classrooms. A case study design is used within the research, and criterion sampling is employed. The data is collected via semi-structured interviews. This study presents educational stakeholders with the desired framework concerning future classrooms in line with 21st century schools. The results imply that there is a need for new classrooms along with technology integration and pedagogy to keep up with the developing world. To achieve sustained growth, policymakers should focus more on technology-assisted, flexible learning zones and the technology competent leaders and teachers.

Key words: Educational Technology, School Management, Flexible Learning Zones, Future Classroom Lab, Classroom Design

Introduction

Each century brings in different paradigms of education and teaching strategies, which sometimes extend into the schools’ and classes’ design, along with renewed teacher qualities. Today’s schools were shaped for the Industrial Age, but the classrooms of tomorrow will be shaped for the digital age (Arstorp, 2018). Before the 2000s, education was about teaching people something or solely a transfer of knowledge. In more recent years, it has become about making sure that individuals develop a reliable compass and evolved navigation skills in times of uncertainty (OECD, 2015). Therefore, it is not enough for educational institutions to only stay up to date since it cannot be anticipated how necessary the required skills for today’s educational systems will be in 20 years (Barber & Mourshed, 2009). In line with this fact, a literature genre has begun to be formed around learning space design and educational methods for future classrooms (Pedro, Baeta, Paio, Pedro, & Matos, 2017; Sardinha, Almeida, & Barbas, 2017; Santally, Cooshna-Naik, & Conruyt, 2014). Additionally, OECD (2006) shared samples of modern designs and good practices for better learning facilities. However, there are not so many studies about uncovering future classes in terms of the teachers’ perspective on future learning environments. Therefore, the researchers in this study wanted to focus on teachers’ opinions to see a 21st-century classroom from their unique perspectives.

Educational systems need to innovate themselves to help teachers and students gain 21st-century skills and be actively prepared for the new century. To realize this effectively, policymakers reinterpret modern educational methods and implementations based on the current data. From there, they can introduce new teaching concepts with strengths attained from recent technological developments and pedagogical findings. Today, due to these reinterpretations, educational systems have been incorporating technology leadership, STEM education, flipped classrooms, digital literacy, distance learning, flexible learning environments, learning zones, and such. New understandings or changes in education like above will surely continue to surface, as it is essential for the educational priorities of schools to catch up with those of the developing world. These priorities actually cover

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even larger domains, such as revised teacher education, to newly designed classroom layouts. Keeping this in mind, this study examines teachers' perceptions on new classrooms along with technology integration and intended pedagogy to uncover what educators desire in future learning environments to keep up with the developing world.

Future Classroom Lab (FCL)

Based on the expectations from educational organizations for the future, policymakers need to find answers for questions such as, "What does society desire to attain, and with what kind of education? How will it be reached with what sort of human resources, physical status, and curriculum?" The Future Classroom Lab (FCL) initiative, jointly coordinated by 15 countries in the European Schoolnet, is a network structured to seek answers to these questions in the educational field. Thus, the FCL is based on the reinterpretation of modern educational methods and their implementation, but with more focus on classroom designs and layouts. The concept of FCL promises a broad range of features, from course plans and leader qualifications to classroom design for the effective use of technology in education in the future. The FCL is formed as a living lab to support the changing styles in education and rearrange the traditional classrooms and other learning spaces, incorporating 21st-century skills into learning and teaching environments. Santally et al. (2014) mention living labs, like FCL, as an emerging model to support co-creative, human-centric, and user-driven research, along with development and innovation, to better cater to learners' needs.

According to the OECD Innovative Learning Systems Report (2015, p.4), two-thirds of teachers participating in TALIS consider current teaching spaces to work against innovation. According to the European Schoolnet report (Ayre, 2017), schools begin to realize that they do not produce versatile students in traditional classrooms, where teachers are to be placed in the front. Such classrooms do not provide innovative pedagogical approaches and outcomes. The report also states that traditional classrooms do not give students the chance to work in groups, carry out projects, and collaborate with those outside the classroom. On the other hand, the FCL allows students to take up various roles and manage project-based activities in collaboration within a flexible learning environment and supports students' innovation and creativity skills within the learning spaces.

The FCL is based on "the design of learning spaces" that allows students to gain and improve 21st-century skills by dividing the classroom into six different learning zones: create, investigate, develop, interact, exchange, and present (Ayre, 2017). These six zones are structured explicitly in a classroom environment, and teachers guide the process of learning in the zones suitable for students' learning experiences. In these classrooms, "pedagogy" and "technology integration" are the other main components of FCL. Any kind of technological tool and educational activity that is not supported by the appropriate pedagogy can be a waste of time. Therefore, it is a must to build consistency among "the learning spaces, pedagogy and the integration of technology" for active learning in the future classroom (YEGITEK, 2018), as shown in Figure 1.



Figure 1. The main components of new classrooms (Adapted from Steelcase Education, 2014)

According to the European Schoolnet Report by Ayre (2017) and Teacher Guidelines for Designing Future Classrooms issued by YEGITEK (2018), the six learning zones shown in Figure 2 could be summarized as follows:

1. Investigate: The Investigate zone is designed to encourage students to explore and be active participants rather than passive listeners. Teachers can use this zone to improve their students' skills in investigation, project-based learning, and creative thinking. It is important to incorporate appropriate furniture for flexible learning, data recorder, robots, microscope, online labs, 3D models, etc. to support students and their curiosity.
2. Create: Students need to be encouraged to internalize the content and resources created by others or do more than only recording information. In the Create zone, students are in a space where they can use their creativity to plan, design, and produce their own work. Students experience a sense of creating by using digital cameras, microphones, and video editing software for podcasts, animation, and media production.
3. Present: What students search and produce should be presented and submitted at the school. The Present zone encourages sharing results, interactive presentations, effective learning, and giving feedback. The students are encouraged to present via interactive boards, blogs, VLE, online websites, projectors, etc.
4. Interact: One of the challenges of the traditional classroom setting is getting all of the students actively involved in learning. In the Interact zone, teachers use different technological tools (interactive boards and screens, response systems, mobile devices, classroom management software, etc.) in different classroom layouts (students working in small groups) to improve creativity and student engagement.
5. Exchange: Student collaboration or peer-to-peer collaboration is one of the critical skills for the 21st century. This zone highlights the ownership and decision-making processes within groups, as well as responsibility. Peer-to-peer collaboration, teamwork for better inclusion, learning by playing, collaborating online, and brainstorming are the key points for the zone.
6. Develop: The Develop zone is a space for informal learning and self-reflection. Students can carry out schoolwork independently at their own pace. The zone could be used by teachers to support individualized learning approaches that allow students' self-directed learning and self-reflection.



Figure 2. The design of the Future Classroom Lab, incorporating six learning zones (Ayre, 2017, p.12)

The FCL, which resonates with inquiry and project-based learning strategies to a great extent, stands out with six zones in the classroom design. It offers a flexible learning environment, including innovative learning approaches, thereby creating an open culture and inspiring other learning environments (Ayre, 2017). Similar to the FCL model, various approaches and metaphors began to be incorporated into school designs (See, Thornburg, 2004). For instance, the Federation University in Australia metaphorically defines the learning zones

as “campfire, watering hole, cave and mountain top” (PCW, 2017). Campfire: A space where teachers and students are together and share stories, opinions, and knowledge. Watering Hole: An informal space where students discuss and collaborate. Cave: A space where independent and reflective activities take place. Mountain Top: The space where the results of the activities are presented to the audience. In fact, the spaces offered by FCL or Thornburg (2004) offer concrete ways to achieve student-centered multi-dimensionality, rather than teacher-centered uniformity in the classroom.

Educational Leaders for the Future Classrooms

In the modern world, new innovative implementations’ success can be ensured with a good management profile and well-planned pilot studies by school leaders. By creating innovation groups, schools can make a difference in adapting innovation in themselves and then leading other schools. If the school personnel and management adopt an innovation culture, deeper learning will be possible. Such change starts from scratch and systematically expands to the rest of the school (Freeman, Becker, Cummins, Davis, & Giesinger, 2017). Establishing a team under the leadership of a good management team that aims to achieve change and innovation in such schools plays an important role. It creates a common responsibility and culture of belonging to the change, and it supports the staff for innovating, risk-taking, and exhibiting an open mind that achieves more robust learning (Vecchia & Saltidou, 2018).

Today’s leaders are increasingly expected to undertake leadership responsibilities in fields in which they are not well-informed (Flanagan & Jacobsen, 2003). FCL is an emerging example of innovation in education where classical leaders who are used to a classical classroom are supposed to introduce and welcome new educational environments. In these cases, the attitudes expected from school leaders are supporting innovation, changing the atmosphere for the new digital age, and increasing the staff’s professional qualities. To do so, professional development opportunities should be provided. School leaders and teachers, supported by professional development opportunities, could create opportunities for students to take more responsibility, collaborate, participate in authentic learning experiences, and improve their 21st-century skills by adopting digital pedagogy (Assche, Anido, Griffiths, & Lewin, 2015). In this aspect, schools could become more equitable, productive, autonomous, and collaboration-centered institutions.

When school administrators care about professional training, use of technology tools in school, learning spaces, and scenario-based learning in classrooms, the intended achievement can be easily attained. The main goal is to foster high-quality student learning by these means at the school. Future classrooms, as in FCL, are not composed of merely technology, flexible furniture, and learning zones. In fact, the focus should be a thorough examination of how students learn so that they can better students’ learning curves (Assche et al., 2015) using new contextual developments.

In many studies, “the quality of teaching” is accepted as the main factor in student output; however, the evidence also shows that “redesigned classrooms and innovative learning environments” have an important impact on learning programs as well (Wall, 2016). It means that the use of current approaches and implementations, like learning spaces, can foster a leveraged effect combined with quality teaching. Therefore, school leaders and educational policymakers have an essential role in establishing proper educational awareness. The macro-leaders and education planners should direct future classrooms in parallel with the current findings and appropriate pedagogy that support the quality of teaching.

Educational leaders emphasize that schools should move out of the Industrial Age with new learning spaces and evolve into a more student-centered structure (Freeman et al., 2017). Classrooms should be restructured into flexible learning spaces where multiple students can work together with more than one goal at the same time. Therefore, there is surely a need for effective leadership for future classrooms to maximize the benefits of such an environment. This will be achieved through the arrangement and professional development of teachers and school leaders, as well as knowledge sharing among schools (PWC, 2017) along with changes in classroom setting. The following questions were asked in this study regarding these considerations:

- a) What are the teacher views and expectations regarding future classrooms?
- b) What could be the needs of the teachers who will work in future classrooms?

Method

Research Design

This study is in the form of a case study, a design within the qualitative research method. The case study is used for the examination of programs, events, groups, etc. within a real-life context, with little control of the researcher over the case in question and context (Yin, 2002). Case studies search answers for “how-, why-, and what-” related questions. In this study, “future classroom” or “new learning environment” is taken as the case, and the opinions of the teachers are taken to build or present a 21st century-based classroom model. The participants’ views about these future classrooms are investigated within the teachers’ expectations about future learning environments. The goal is to inform the policymakers and leaders about possible future classroom settings desired or envisioned by the teachers in line with 21st-century skills expected of the students. The reason that a case study is chosen as the method is that such an approach can better analyze the future classroom in depth from teachers’ perspectives upon the arrival of classes like FCL or Smart Classes into educational discussions. The researchers in this study followed a comparative analysis upon two questions. They tried to present a possible framework for the future classrooms at the end of the study, where policymakers can find the participating teachers’ expectations and their views of the desired class outlook, features, and student/teacher qualities they will need within these classrooms.

Participants

The study was conducted with 11 participants who completed training on the FCL during the 2018-2019 academic year. Criterion sampling is used. Criterion sampling means determining the criteria to include the most relevant sample in the study. It helps researchers select the sampling in line with research questions and intended measures and plans. The researchers determined the criteria according to the expertise in the target topic and thus assumed that the FCL Turkey Local Ambassadors and teachers who completed FCL trainings or participated in face-to-face FCL sessions in the regions as the most appropriate participants for this study.

FCL Local Ambassadors is the group of teachers from different cities in Turkey who completed training given by the European Schoolnet and Ministry of National Education. Teachers in this group are officially assigned as FCL Local Ambassadors. At the time of this study, there were 18 FCL Local Ambassadors, nine accredited FCL Schools, and 15,000 teachers from all over the country who were trained for at least six hours on the FCL approach through online sessions or introductory webinars. The researchers, one of them being the FCL Lead Ambassador in Turkey, mailed all FCL Local Ambassadors and teachers with solid experience in the FCL in their region or schools. Therefore, the interviews were carried out with eight FCL Local Ambassadors and three teachers who agreed to participate voluntarily in the study. Two of them were men; nine of them were women. Six of them were teaching in a secondary school; two of them were teaching in high school, and three of them were elementary school teachers. The participants were teaching courses in English (n=6), Turkish(n=2), Class(n=2), and History (n=1). There was no ethical conflict since the study was carried out within an international project (FCL) that was approved by the ministries of education in all the related countries, and research questions were based on the project’s prioritized research areas. The participants were first asked if they would volunteer in the study.

All data collection was done in Turkey after the consent of each volunteering teacher was obtained. They were already involved in the FCL initiative, so the participants were willing to be part of the study. The researchers explained how long these interviews could last, their rights to withdraw and quit any time, and they were given tag names in interviews (Halise, Nesrin, Ayse, Hasan, Melisa, Meryem, Semra, Neriman, Duygu, Necmiye, and Mustafa) so that their anonymity can be maintained. The participants were informed about all these details in the consent-taking process by mail, phone, or in person. They gave their final consent as well before this study was sent for review.

Data Collection

The two questions given above were turned into a semi-structured interview format and presented to the participants. For the determination of the questions, the researchers made use of the existing literature and the questions out of project studies related to the FCL in Turkey. The teachers were asked in detail:

- a) What type of future classes do you expect regarding the teachers, students, schools, contents, etc.?
- b) What type of teacher qualities/needs in the future do you foresee?

These questions were accompanied by supportive questions similar to the main questions above for more clarification. The teachers were also asked to tell the difference between today’s schools and future learning environments.

Data Analysis and Interpretation

The data is analyzed utilizing content analysis. Holsti (1969) defines content analysis as a technique used for deduction by identifying the designated features of the messages and texts objectively and systematically. While there are various definitions for content analysis, two important points that are emphasized by other researchers signify its “systematic” and “objective” aspects (Kocak & Arun, 2006). The answers to two questions were collected around two main topics according to the themes and patterns set out systematically. The researchers followed content analysis method to find similarities or differences in teacher opinions to form the most suitable framework for future classes. They analyzed all the answers and were faced with concurring codes under two main topics: Table 1) Teachers’ views regarding future classrooms, Table 2) Teacher qualifications and needs for future classrooms.

Research Trustworthiness

In qualitative research, the researchers’ ability to transfer the case or event in an objective, direct, and realistic way bears paramount importance (Yildirim & Simsek, 2016, p.269). Guba & Lincoln (1982) mentions four criteria for trustworthiness in qualitative studies: credibility, dependability, confirmability, and transferability. The researchers tried to tackle the possible validity and reliability issues by following strategies such as participant confirmation, showing distorted points, showing the limits of the research, quoting participant views in detail, etc.

Specifically, credibility was taken into account by member checking since direct quotations, interpretations, and conclusions are shared with the participants to take their ideas and consent. For transferability, a full/thick description was paid attention to since all the context for teachers, and their supplementing ideas were given. For dependability and confirmability, auditing the research data analysis was the main focus to provide consistency and neutrality (Korstjens & Moser, 2018). Since the research includes three researchers, they evaluated each section and wrote in company with the first author. There was a high consistency between the researchers’ analyses, which was followed by mutual agreement about the non-consistent parts by integrating or replacing the code names for better data presentation. Besides, an expert opinion in qualitative data analyses was consulted for the evaluation of the themes and views; the whole research was presented, and feedback was taken for the final version from both the expert and participants.

Results and Discussion

Regarding the two research problems that form the focus of this study, the teachers’ views on the future classroom, and the qualifications and needs foreseen are analyzed. The related findings are presented in two tables. In Table 1, the teachers’ perceptions of future classrooms are listed, and the qualifications that teachers might need in the future classrooms are given in Table 2. The most highlighted codes are placed from first to the last row under each theme.

Table 1. Teachers’ views regarding future classrooms*

Theme	Code	f
Technology	Technological Equipment	7
	Accessible Technology	3
Innovative Teaching Approaches	Learning Spaces	5
	STEM Approach	3
	21 st Century-Based Pedagogy	1
	Peripheral Learning	1
	Flipped Learning	1
	Individualized Education	1

Learning Environment	Flexible Learning Environment	6
	Classroom Size	4
	Student-Centered	3
	Classrooms in line with Age, Psychology, etc.	1
	21 st Century Pedagogical Classroom	1
	Blackboard	1
	Outdoor Classes	1

*Since the table is long, it is divided into two tables to assure easier reading. The second part is below.

Within the context of teacher perceptions and expectations regarding future classrooms, the teachers' views are collected under six themes. Participating teachers defined their perceptions about future classes on the subthemes: *“Technology, Innovative Teaching Approaches, Learning Environment, School Administration and Function, Teacher Qualifications, and Student Qualifications.”*

Regarding the views of the teachers on the theme of *Technology*, it is seen that *“Technological Equipment and Accessible Technology”* are mentioned by teacher participants as they foresee future classes fully equipped with technology and assets. The participants claimed that the presence of fully equipped technological equipment is a necessity in future classrooms. The intended equipment from the teacher perspectives varies from an Internet connection and interactive board to robotics education tools. Nesrin stated her opinion: *“A classroom where there are sufficient technological devices for each student and a strong Internet infrastructure; STEM, robotics and coding education could be delivered; there are virtual reality tools and a 3D printer.”*

About the theme of *Accessible Technology*, the participants stated that they would like to have technology in classrooms that is accessible to everyone. Semra stated that *“there should be classrooms with assets which make the integration of the technology possible for every student,”* and Duygu stated that the technology and technological tools should be accessible by each student and that disabled students should be taken into consideration, as well.

When the theme of *Innovative Teaching Approaches* was considered, the codes of *“Learning Spaces, STEM Approach, 21st Century Based Pedagogy, Peripheral Learning, Flipped Learning, and Individualized Education”* are seen to emerge. The participants highlighted that *“Learning Spaces”* should be efficiently used in future classrooms. Melisa stated that a future classroom is *“a modern educational understanding where students are in the center; flexible learning spaces are included; group work and collaboration are easily fostered, and peer learning is supported.”* Meryem listed the features of the new classrooms under learning spaces: *“We will need classrooms where there is sufficient room for different learning spaces.”*

For the *STEM Approach* category, the participants highlighted the importance of the integration of a STEM approach into the courses. Neriman expects *“teachers from multiple and different subjects to deliver integrated courses in a single lecture/course”* in future classrooms.

Regarding the *21st Century Pedagogy* item, Melisa has stated her opinion: *“I would like to see a pedagogy in which the teacher is the guide; the students are more responsible for their learning, and which is prepared with the content supporting the development of 21st-century skills and allows the integration of technology.”* For *Peripheral Learning*, Hasan highlighted that peripheral learning should be given a place in future classrooms by *“designing the classroom walls or the ceiling according to the subjects.”* Regarding the *Flipped Learning* item, Semra suggested that it should have a more significant place in the future educational system: *“Trends, such as flipped learning, should be integrated into education by the teachers.”* About *Individualized Education*, Mehmet emphasized individualized learning: *“The subject delivered will be more individualized in future classrooms.”*

For the theme of *Learning Environment*, the participants' views are coded as *Flexible Learning Environment, Class Size, Student-Centered, Classroom in line with Age, Psychology, etc., 21st Century-Based Pedagogical Classroom, Blackboard, and Outdoor Classes*. Regarding *Flexible Learning*, Nesrin stated, *“A classroom supported with flexible learning zones where flexible furniture is supporting both individual and group work of students.”* Halise stated her opinion: *“Students should be free in choosing which station they want to work in groups, and classroom design should be like the design of FCL (flexible learning environment) rather than a classical cinema layout.”*

Regarding *Class Size*, the teachers pointed out that there should be fewer students in the future classroom compared to today. Mustafa talked about both equipping classrooms with flexible furniture and the maximum number of the students: *“Within the premise of a flexible learning environment... student seating should be suitable for seen hours.... I would like to see class sizes that do not exceed 25 students.”*

The statements of all the participants about the *Student-Centered* aspect of future classrooms are similar and general; only two participants mentioned the subject directly. Hasan stated, “*It should be completely student-centered, unlike teacher-centered classes today.*” About the classrooms in line with the Age, Psychology, etc., Melisa would like to see the classes which need to consider modern educational understanding, students’ age, level, and psychology.

Nesrin emphasized the *21st Century Based Pedagogical Classroom* by defining the future classroom as “*a classroom where students feel pedagogically free, and have the opportunity to investigate, inquire, present, and share knowledge.*” Regarding the *Blackboard* and *Outdoor Classes*, one of the participants (Neriman) stated that “*future schools should also have a blackboard in the class and outdoor education in the school garden,*” which implies that teachers want some existing educational features not to be lost for the sake of technology in the future.

Table 1. Teachers’ views regarding future classrooms – continued.

Theme	Code	f
School Administration and Function	Productivity-Based Schools	2
	Equity-Based Schools	1
	Autonomous Schools	1
	Motivating Schools	1
	Collaboration- and Support-Based Schools	1
Teacher Qualifications	Guiding Teacher	4
	Technological and Innovative Teacher	1
Student Qualities	Productive Student	2
	Active Student	1
	Students with 21 st -Century Skills	1

Within their expectations about future classrooms, teachers addressed some school features, the role of school administrations, and their functions in the light of technological developments. According to the teachers’ views, the roles and functions expected from the future schools are *Productivity, Equity, Autonomy, Motivation, and Collaboration/Support* within the theme of “*School Administration and Function.*”

Regarding the *Productivity-Based School*, Necmiye said that in the future, “*schools will become productivity-based centers, and every school will be themed according to their skills and be more integrated into real life.*” For *Equity-Based Schools*, Mustafa emphasized that in future classrooms, “*there shouldn’t be disadvantaged classrooms and discrimination among student types.*” Regarding *Autonomous Schools*, Necmiye said: “*Schools will reach a more autonomous structure where they can determine their own rules independent from today’s system.*” Free information and free space concepts within the autonomy code are highlighted by three participants as well. Regarding *Motivating Schools*, Semra said, “*Students should go to school not because they have to but because they want to. Classrooms can be equipped in a way that will appeal to students.*” Regarding *Collaboration- and Support-Based Schools*, Nesrin mentioned that she expects sharing among teachers and support in future schools: “*In future schools, there should be collaboration and sharing among teachers; administrators should be informed about the innovative developments and inform the teachers.*”

For the theme of *Teacher Qualifications*, the participants emphasized teachers’ qualifications of the future schools: *Guiding Teacher, Technological/Innovative Teacher*. Regarding the *Guiding Teachers*, Necmiye stated, “*The teacher profile will be based on a guiding role, and it will be one of the authorities to give feedback to students,*” and Hasan supported teachers as guides: “*Teachers will undertake the responsibility of guiding.*” Melisa highlighted their guiding role: “*Some of the biggest changes I would like to see in the teachers in future classrooms are contributing to the learning process of more students as a guide and preparing students for a learning environment where they are responsible for their own learning and which helps them investigate, collaborate, interact, produce, and be more confident.*”

For *Technological/Innovative Teacher*, Nesrin mentioned, “*A teacher should be improving himself or herself with innovative approaches away from traditional teaching methods, have a command of the technology use, and be in collaboration with colleagues and other education stakeholders.*”

Regarding *Student Qualities*, teachers summarized the student profile that they foresee in future classrooms as follows: Productive Student, Active Student, 21st-Century Skilled Student. Hasan also contributed to this code, saying, “*Students will become individuals who produce and realize projects for their own interests and skills.*”

About *Active Student*, Duygu drew attention to the active learning roles of students: “*The students who are equipped with information technologies and raised according to the modern system won’t hesitate to undertake an active role in the classroom.*”

Regarding the *21st Century Skilled Student*, Melisa expressed that she would like to see students with 21st-century skills in the future classrooms: “*The most important aspects that I would like to see in the students in future classrooms are the skills of investigating, thinking, producing, not hesitating to communicate and express themselves, being able to cope with the problems encountered, finding out how and where to get support when necessary, improving themselves with science and scientific methods, and having confidence and vision.*” Actually, 21st-century skills also include being active and productive. Therefore, the researchers placed them under different codes to draw attention to specific skills, which are mentioned by participants separately from 21st-century skills and gave them extra importance.

Table 2. Teacher qualifications and needs for future classrooms

Code	f
Learning of technological contents and applications in education	2
Knowledge of how to integrate technology into classes	2
Knowledge of the use of technological tools	2
Knowledge of innovative teaching methods	2
Knowledge of being able to guide students in the technological age	1
Being able to follow up on the trends (flexible content)	1
Knowledge of delivering a scenario-based course	1

When the participants’ needs in future classrooms were questioned, they pointed out that the aspects in Table 2, which they will need most in the future as teachers: *Learning of Technological Contents and Applications in Education*, *Knowledge of the Integration of Technology into Classes*, *Knowledge of the Use of Technological Tools/Methods*, *Knowledge on the Innovative Teaching Methods*, etc.

Regarding *Learning of Technological Contents and Applications in Education*, Semra stated: “*All teachers should learn the terms such as Scratch, Arduino, mBot. They serve as a guide for teachers in the output-based teaching design.*” For the term *Knowledge of the Integration of Technology into Classes*, Halise said, “*First, we need to have sufficient pedagogical knowledge. In addition to the knowledge of the use of technological tools, we also need to know how to integrate them into the course.*” For the *Knowledge of the Use of Technological Tools* item, Neriman stated her opinion: “*I, as a teacher, need to have a command of each technological tool and know how to introduce and use them in advance.*”

Some participants highlighted the necessity of *Knowledge on the Innovative Teaching Methods*. Semra said, “*The teacher who doesn’t have adequate knowledge of appropriate teaching methods won’t get any benefit, even if he or she has all equipment [and can use it] efficiently. Therefore, teachers should be trained about the new approaches in education and given in-service training.*” Meryem and Hasan stated their opinions that classrooms should be fully equipped as well. Other than these needs, the participants mentioned *Knowledge of Guiding Students in the Technology Age*, *Being Able to Follow the Trends*, and *Knowledge of Delivering a Scenario-Based Course*. Halise emphasized that scenario-based education will be prioritized in future classrooms. Duygu stated that the main point in the technological era is the skill of guiding learners to gather information, and Semra expressed that it is of the utmost importance that teachers should first know about the new trends in education. On trends and flexible content, Necmiye addressed the future course content: “*There will be flexible content that can be equivalent to today’s needs, rather than standard content.*”

Conclusion

Considering the changing needs of the changing world, modern educational institutions should support the acquisition of skills required in the 21st century with innovative applications instead of traditional methods. Schools face an increasing demand for preparing their students for the rapid economic, environmental, and social changes, for jobs yet to exist, technologies yet to be invented, and social issues yet to arise (OECD,

2018). In parallel with the changing student and teacher profile, school and classroom designs must change as well (YEGITEK, 2018). Therefore, it is important to determine teacher perceptions about future classrooms and their design with other related factors, which this study has intended to uncover.

According to the study's findings, teachers' perceptions and expectations about future schools and classrooms are collected under six themes: "Technology, Innovative Teaching Approaches, Learning Environment, School Administration and Function, Teacher Qualifications, and Student Qualities." When the teachers' qualifications and the needs for the future classrooms were analyzed, it is seen that teachers will need the following: "learning technological content and its applications in education, the knowledge of technology and education integration, the knowledge of being able to use the technological tools and methods, the knowledge of the innovative teaching methods, the knowledge of trends in education, (such as flexible content), and scenario-based learning."

Instructional technologies and computerized tools have been an integral part of our learning and communication activities (Sahin, Celik, Akturk, & Aydin, 2013, p.110). Likewise, the teachers in the study expect future schools to have technological equipment and all technological tools accessible by students and teachers. Chan (2010) argues that the adoption of technology will be proportional to how much technology is incorporated in the environment and how much it is present. In this context, although the budget plays an essential role in new school designs and structures, technology is expected to be an important component. The study does not present readers with the participants who consider technology solely in relation to the Internet, but also 3D printing, robotics, etc. – the technologies that need to be a part of future classrooms.

When innovative teaching approaches are considered, the teachers in the study foresee an approach that highlights interdisciplinarity and includes the learning zones in future classrooms. When the literature is considered, the concept of learning spaces is brought to the school setting both physically and methodologically. For instance, the six zones in FCL (Ayre, 2017; YEGITEK, 2018) and the learning spaces proposed by Thornburg (2004) have potential. The learning spaces should be supported by an interdisciplinary approach. That is why the participants highlighted the STEM education in this context. What is important in the STEM mentality is to deliver different disciplines in an integrated way (Yildirim, 2018; Yildirim, Basaran, Cucuk, & Yokus, 2018). Modern pedagogy, peripheral learning, flipped learning, and individualized education are presented as possible innovative teaching approaches for the future. The mentioned approaches should be effectively applied in learning zones, as well as in STEM education in future schools.

Students' perceptions of learning spaces vary according to classroom designs and arrangements (Yang, Becerik-Gerber, & Mino, 2013). The most-emphasized point about the learning environment in this study is the flexibility in the future classrooms. Several other studies emphasize that classrooms need to have a flexible furniture system for better education. Pedro et al. (2017) found that schools' heads, teachers, and students all desire more flexible, reconfigurable, and modern classroom layouts, in which technology and active pedagogical practices can be easily incorporated. Kuuskorpi and Gonzalez (2011) define the new dynamic learning spaces: a dynamic space with flexible furniture and context-based methods and supports both individual and group work. According to Neill and Etheridge (2008), contrary to the traditional system, flexible learning spaces provide convenience in the application of innovative teaching methods. Long and Ehrmann (2005) argue that flexibility is the main feature; future classrooms will be flexible in line with the changing educational requirements.

In addition to a flexible learning environment, the participants expect smaller class sizes in the future. In fact, Yildirim (2018) has found class size to be one of the problems faced in the current STEM application, and he highlighted that the number of the students in each classroom should be a minimum of 12 and a maximum of 20 students. While statements include the student-centered aspect of future classrooms and the importance of key factors, such as age, psychology, and seniority, one of the participants emphasized that the chalkboard should be kept, and there should be schoolyard courses. In fact, in his study Lackney (2000) defined the principles of the educational design as being cost-efficient, learner-centered, progressive, and age-appropriate, reliable, comfortable, accessible, flexible, and equity-based. All the conclusions show that participants' perceptions of future school design and a school's learning environment are consistent with the studies in different countries.

One of the study's significant conclusions is that the participants emphasized the school administration and function in future classrooms. The participants observed that future schools should have a productivity- and equality-based, autonomous, and motivating structure. School leaders have important responsibilities in this regard. School leaders can collaboratively establish the structure that will provide both equity and production while exhibiting an autonomous administrative approach in the school. In the new century of information and

digitalization, the production, equity, autonomous systems, and collaborative school structures will manifest themselves in the investments in the teachers and administrators.

Considering the themes of teacher and student characteristics, expectations about the future teacher and students are not actually different from today's expectations. Sheffield, Blackley and Moro (2018) mention the obligation to support and guide students' learning in digital technologies in authentic contexts by contemporary teachers. While constructivism-based education programs have long defined the teacher as a constructor within a guiding role, students are expected to be active learners and producers. Active learning is an approach fostered by constructivism, where students link the old and new information firsthand. As the guide of the process, a teacher guides the students to reach knowledge rather than presenting the knowledge directly (Turksoy & Taslidere, 2016).

Lastly, when teacher qualifications and needs for future classrooms are investigated, it is seen that the participants consider the knowledge of technology and the skill of using technological tools in education as essential for future schools. In fact, today's opinions on the use of digital technologies in teaching show that teachers and students find the use of digital technologies beneficial in education (Sezgin, Erdogan, & Erdogan, 2017).

Although research emphasizes the importance of technology for education, one of the issues that have been discussed is the failure to sufficiently adopt technologies into educational settings, as well as the problems faced in teacher competency for the use of technology (Durak & Seferoglu, 2017). In this regard, participants consider the knowledge of technology integration into courses and the knowledge of technological tools' use as important requirements for teachers as the environments for education change and new educational software are developed, and the main focus shifts to mobile devices, social media, and online learning environments. In this way, teachers need to use technological elements more effectively and gain knowledge in guiding students to become technological leaders in the future.

The participants emphasized two teacher qualifications in future schools as well: being able to follow the trends and delivering scenario-based courses. In fact, the ITEC and FCL projects, of which the Turkish Ministry of National Education is a partner, touched upon these topics with the company of expert educators from European partner countries and included these two topics in their educational transformation plans. For the teachers and leaders who carried out work to enable the class transformation in schools, YEGITEK and the European Schoolnet emphasize the scenario training and the trends within the FCL toolkits (see, <http://fcl.eun.org/toolkit>).

Lastly, this study has certain limitations, such as a lack of diversity in the data collection tool, which is confined to semi-structured interviews. Furthermore, since the FCL concept and the flexible learning zone approach by the Ministry of Education are new in Turkey, with a few FCL ambassadors and teachers competent on the concept, just a limited number of participants from several cities could be included in the research process. In this regard, a more comprehensive study can make a significant contribution to the literature as the FCL concept and flexible learning zones approach get more recognition in all regions.

A Framework for Future Classroom According to the Conclusions

The themes in Tables 1 and 2 appear when the codes are systematically compared upon the analysis of the foreseen future classes and teacher characteristics expressed by the participants. To sum up the conclusions, in line with the literature, the participants foresee the future classroom or school as *"a system which is equipped with technological equipment, provides the new teaching methods required by the age, is created according to the flexible learning environment design, has the production, equity, autonomy, motivation, and collaboration in the school management approach, has teachers as guide and students as active and productive individuals."*

When the teacher needs and qualifications about future classrooms were investigated within their guiding role, the skills, knowledge, and qualifications that teachers will need most in the future classrooms are listed as follows: *"learning of technological contents and applications in education, the knowledge of the integration of technology in classes, the knowledge of using technological tools, the knowledge of the innovative teaching methods, and the knowledge of trend and scenario-based learning."* Teachers will be guides — informed with technology and innovative qualities and will be able to follow flexible content and modern teaching tools. Based on these codes, as seen in Figure 3, the relationship between the teachers, school, and students in the future can be seen. This observation explains the expected context for future classes.

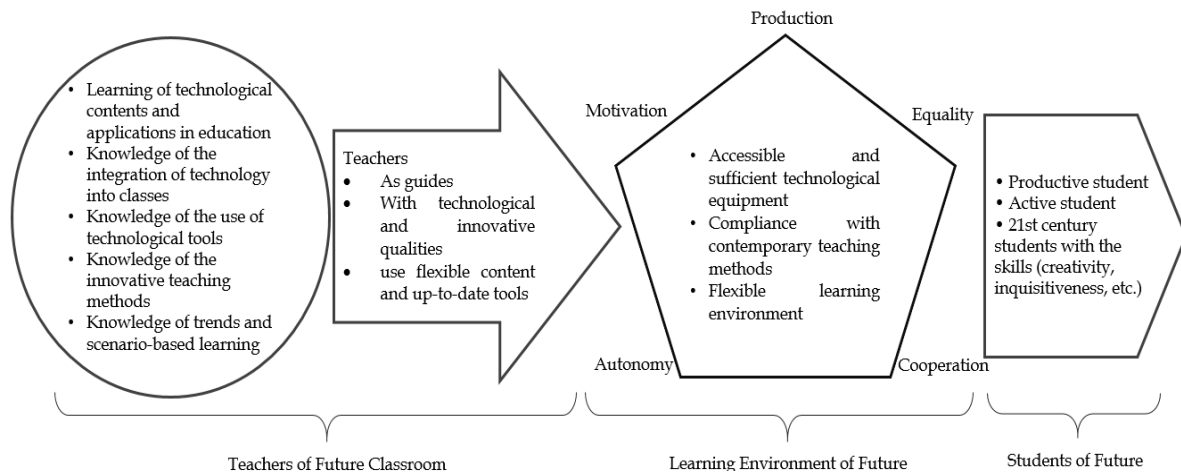


Figure 3. The future classroom and its precursors based on teacher opinions

In this study, the future classroom expresses the innovative educational and learning environment that schools need to build in the near future. The model, on the other hand, refers to a multidimensional structure that will serve future classes in a broader framework. That is why, it is not enough to equip classes with only technology and flexible learning areas to support the development of future classes. Instead, in an ideal future school system, the logic of production, equality, and innovation should be established. Students should be educated within current trends, including scenario-based learning, and teachers should be empowered with technological education and flexible lesson processing skills through undergraduate education or professional development training. A class with these features is certainly needed in future schools. When Figure 3 is interpreted, the desired teachers and characteristics of the learning environment are seen to reinforce the structure and functions of schools. These features, in turn, will lead to the formation of the target student profile needed to meet the needs of students in the 21st century and beyond.

In conclusion, these findings suggest that the new century's schools – in line with technological developments – need (a) technologically competent school managers and teachers (i.e., technology leaders), (b) flexible classroom designs with complementary technological and physical infrastructure to give students a more effective way to learn, and (c) a more cooperative, autonomous, motivating, egalitarian, and productive educational atmosphere. In this regard, researchers are recommended to focus on studies that investigate the integration of modern educational environments, approaches and leadership qualities (such as FCL, project-based, or flipped learning, technology leadership, etc.), and programs that make use of the tools and opportunities this century presents. Policy makers, on the other hand, should drive change in the traditional school with contemporary education paradigms to better equip the world's next generations of students under flexible, technological and innovative school leadership.

Acknowledgements or Notes

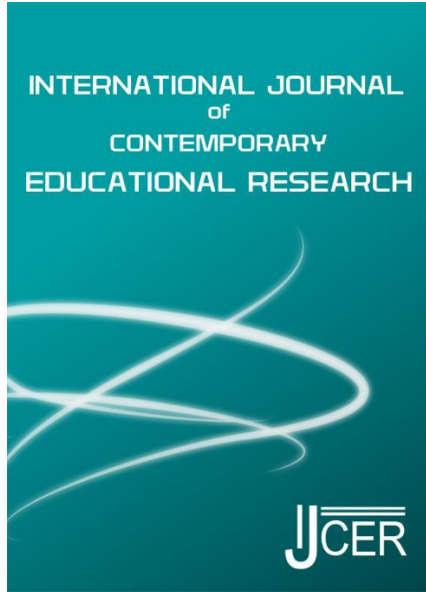
This study has been carried in conjunction with the Ministry of National Education's (MoNE) FCL initiative in Turkey, managed by FCL Turkey Team in YEGITEK [General Directorate of Innovation and Educational Technologies].

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Özen, H. & Yıldırım, R. (2020). Teacher perspectives on classroom management. *International Journal of Contemporary Educational Research*, 7(1), 99-113. DOI: <https://doi.org/10.33200/ijcer.645818>

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Teacher Perspectives on Classroom Management

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Abstract

This study aims to evaluate classroom management from teachers' perspectives. The research was conducted using phenomenology design. We employed maximum variation sampling to determine the study group of the research. The study included 15 teachers from different branches teaching in several public schools. The data were collected in the 2018-2019 academic year using the interview technique and thematized using content analysis. The findings of the study suggested that teachers defined the classroom management as a skill to form effective learning environment. Lack of professional experience and knowledge, and academic shortcomings were found as poor skills. The ability of teachers to increase the effective and cognitive skills of their students was taken as evidence that teachers' classroom management skills were strong. Teachers regarded the use of an effective teaching method as a prerequisite to cope with inappropriate behaviors while managing their classes. Finally, it was recommended that beginning teachers recognize that each class has its characteristics and different classroom management dynamics.

Keywords: Classroom management, Teacher training, Learning environment, Communication, Qualitative research

Introduction

Teachers encounter countless regular events in their classes every day: providing appropriate responses to their demands, performing ordinary and periodic activities, and handling special events are only a few of them. Instruction as a constant routine in the classroom also is also one of the daily activities for teachers (Darling-Hammond, Holtzman, Gatlin, & Heilig, 2005). Classroom management, as a relatively new concept in educational settings, points out especially teacher's role in the process of teaching and learning. Recent researches find that classroom management is a challenging issue at schools (Gündüz, 2013; Sezer, 2017). According to these researches, teachers expressed some important preconditions of effective classroom management, as well as relation between different classroom management styles and quality of classroom climate and effective learning.

Before conducting an analysis on classroom management, first the concept should be defined. Accordingly, classroom management constitutes the procedures used by teachers for helping students develop and maintain appropriate behaviors in the classroom environment and managing these behaviors like a conductor (Woolfolk, 1995; Erden, 2008). In addition, classroom management predicates various skills, techniques, and strategies that teachers employ for keeping their students organized, focused, attentive, and academically productive during lessons. The purpose of practicing classroom management strategies is to develop social behavior and increase students' academic participation and success (Simonsen, Myers, & DeLuca, 2010).

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One of the most prominent features of successful schools is effective teachers and the successful classroom management strategies (Marzano, Marzano, & Pickering, 2003; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008). Recently, the effective strategies used by teachers with successful classroom management skills have increasingly attracted the interest of education policymakers and researchers (Hulac & Briesch, 2017). The increased emphasis on classroom management is based on effective instruction requiring effective classroom management and strong management skills, which are the foundation of robust instruction (Brophy, 2006).

It could be claimed that teacher and student efficiency increase if successful classroom management techniques such as project based, hands on learning, and collaborative projects are used with school-wide support (Evertson & Weinstein, 2006). Properties of effectivity of learning in the classroom are a rehabilitated phenomenon in educational settings. When planning and guiding students' activities, teachers must reflect on different ways that students learn, and then emulate these practices in their classrooms. A student own learning characteristic should decide the style they respond to teaching and learning in the classroom. Some of the characteristics of effective teaching and learning could be claimed as, (i) students investigate and experience things, (ii) students concentrate and keep on trying if they encounter problems, (iii), and students own and improve their ideas, make connections between opinions, develop strategies for solving problems (Mohammed, 2015).

When classroom management strategies are practiced well, teachers minimize the actions in the classroom that hinder learning while they maximize the behavior that facilitates and improves learning which yields the effectivity in all educational settings like effectivity in all educational settings (Allen & Blackston, 2003). Effective schools recently are not only an educational development but a stream of research that examines school-based factors which directly influence learning outcomes in schools (Lezotte, 1991).

The concept of discipline is the first thing to come to mind when classroom management is considered in schools. However, classroom management is an important process that cannot be limited to discipline only (Duck, 2007). In practice, classroom management techniques might seem deceptively simple; however, integrating these into the education of students successfully and uneventfully typically requires complex techniques and considerable skills and experience (Hersh & Walker, 1983). Although the specific techniques used for managing classrooms and facilitating learning vary concerning the terminology, purpose, and practice, some models, in principle, could guide practitioners in both theory and practice.

Many researches lately focus on classroom management. In a review of the literature, Beaman, Wheldal & Kemp (2007) researched the students' behaviors and concluded that most of the misbehavior in classroom was inculpable. For instance, students were talking out of turn in the class during the lesson. It was found to be a disturbing student behavior reported by almost half of the teachers. This was followed by hindering other students, and idleness and slowness. Some studies conducted to find the distinct characteristics of concept of classroom management. Harden & Crosby (2000) dealt with the teacher's role and competences effecting the classroom management. They differentiated the roles of teachers such as teacher's role, motivational role, evaluator role, and cognitive role. It was concluded that teachers should have some special competences representing personality, ability, knowledge and skill. More recently, Wiseman & Hunt (2008) showed that classroom management problems are an important in educational settings. Teachers revealed that they lost more than four hours of teaching per week because of disruptive students. Many teachers indicated that they managed students with discipline problems. Students were so aggressive and disruptive that they nearly stopped teaching time, disrupted the learning of all students, threatened the safety, and challenged the teachers violating their classroom management skills.

As for Turkey, classroom management studies concentrated on problematic classrooms dealing with the role of the teachers. Demirden (1994) researched the topic together with different school groups including teachers, psychological school counsellors, misbehaving students, and school principals. The researcher revealed the inadequate emphasis on classroom management in education faculty programs. Can & Baksi (2014) investigated the effect of the attitudes and behaviors of students in classroom to teachers' classroom management success, and to develop recommendations for the issue. Researcher found that teachers faced lack of attention and interest, argumentations and unauthorized conversations as undesirable student behaviors. Teachers usually tried to resolve unwanted behaviors by verbal warning. In the research, teachers expressed that exhibition of negative student behaviors in classroom yielded teachers to exert negative attitudes to the class. In summary, over a period of two decades, researches on classroom management focused on misbehavior of students, teacher's role and attitudes in classroom management, teacher competence. Korkmaz, Saban & Akbaşlı (2004) searched for the challenges faced by the teachers in the classrooms. They found that those challenges were inappropriate management environments, unfair task sharing, undisciplined teaching environments, bad relationships with students and their families, lack of collegiality, and negative school culture managing student behaviors in the classroom,

Classroom management is of utmost importance to ensure that the students learn in an uninterrupted environment, and it is a vital component for enabling students to attain their academic potential to the fullest (Sugai, Horner, & Gresham, 2002). If teachers can control the classroom efficiently, the students can have better academic outcomes. Teachers with strong classroom management skills such as modeling ideal behavior, encouraging initiative, building positive relationships, and establishing excitement for content prevent students from disrupting the learning climate in the classroom and hindering the learning potential of their peers. One of the significant dynamics that would carry the countries into the future is an appropriate learning environment, skillful teachers in a successful education system because teachers are among the most important partners in such a rapid changing educational system. Considering the issues mentioned above encountered in classroom management, it could be argued that these issues arise due to the discrepancies between the speed of the change in educational settings and the instruction and management techniques that form the basis of our education system and shape classroom management practices. These all mentioned issues could be accepted as the main problem of this research.

The main purpose of this study is to reveal the perceptions of teachers regarding classroom management as they engage in the teaching profession, educating their students in their classes and teaching vital knowledge and skills to them. This perception is expected to ascertain what alterations the changes in educational structure and developing technologies cause in classroom management. Thus, it is aimed, considering these findings, to identify the internal and external dynamics that increase and decrease teacher efficiency. Based on this study, teachers could determine the characteristics of well-managed classrooms regarding learning aims and objectives, the cognitive and affective skills of the students in their classrooms, and the characteristics and skills of teachers managing their classrooms well. In well-managed classrooms, regarding the students, teachers, and other partners, a sense of trust, which is a basic need of students, would be provided, and a classroom environment based on love and respect could be established. This pattern would facilitate increased positive behavior in the classroom and thus increased quality of education and student performance. This study aimed to determine how classroom management skills and practices of teachers working in schools are realized based on their opinions and experiences. In accordance with this main aim, answers to the following questions were sought:

1. What is classroom management according to teachers?
 - a. Can you find any correlation with learning environment when you describe classroom management?
 - b. Can effectivity help you when you describe the classroom management?
 - c. What do you think about communication when you describe classroom management?
2. What are the poor classroom management skills of teachers?
 - a. What characteristics do you think that teachers have as strong management skills?
 - b. What is the most important problems that teachers have? Do you think that those problems damage classroom management of teachers?
3. What are the strong classroom management skills of teachers?
 - a. What characteristics do you think that teachers have as strong management skills?
4. What disrupts the learning environment in the classroom?
 - a. How can you classify the disturbances faced in the classroom?
5. What recommendations should be made to beginning teachers?

Method

Research Design

Phenomenology design has been employed in this study because this research seeks to determine the perceptions of teachers on classroom management from different school and branches in Turkey based on their experiences. Phenomenology design focus on how people interpret their perceptions and experiences. In another saying, it is attempted to explain the perspectives of people who share a common experience on any issue by interviews on the pattern (Bogdan & Biklen, 1992; Patton, 2014).

Validity and Reliability of the Study

Validity in qualitative research means the impartial presentation of the phenomenon at hand by the researcher (Creswell, 2012). The flexibility of the researcher, knowledge of the field studied, thorough collection of data, the inclusive context for the examination of the phenomenon, and creation of data collection opportunities are all factors that provide validity (Creswell, 2012). In this study, the researcher exhibited the required flexibility

during the interviews in both content and duration. Also, the existence of previous studies by the researcher in the field and the researcher's inclusion in educational environments such as the schools and classrooms, with the directors and teachers of schools in which trainee teachers also work, are important factors for the validity of this study. The confirmation of the research data by various studies and by different expert reviews and the collection of data with deeply focused reviews based on long-term interaction with the participating groups could be considered as characteristics providing internal validity (Creswell, 2012). The use of purposeful sampling in the study and the formation of opinions via detailed descriptions are elements that enable transmissibility (Creswell, 2012). Qualitative research is not in a search for reliability as in quantitative research. However, an interrater reliability method was used to ensure reliability. According to this method, if similar results are obtained when different raters encode the same dataset, then it is acknowledged that there is reliability (Stemler, 2001). A high percentage of the interrater agreement indicates that the measurement reliability is high. To calculate this, Miles and Huberman's (1994) reliability formula was used. At the end of these calculations, reliability was found as 90% and the research was considered reliable.

Study Group

While determining the study group for this research, the maximum variation sampling was used to illuminate different aspects of research problem. Often, researchers desire to see how a phenomenon is perceived and understood among different people, in different settings and at different times. For that reason, a researcher selects a small number of units or cases that maximize the diversity relevant to the research question (Creswell, 2012). The logic of sample size is related to the purpose, research problem, and the availability of information-rich cases. We cut the interviews upon reaching 15 teachers because it was seen that data replicated and saturated. The detailed description of the participants was given as follows: nine (60%) of the teachers were female and 6 (40%) were male. Four of the teachers had graduated from the Faculty of Arts and Sciences (26.67%), 1 from the Faculty of Theology (6.67%), 9 from the Faculty of Education (60%), and 1 from an education institute (6.67%). 1 teacher is from pre-primary school, 2 teachers are from elementary school, 4 teachers are from middle school, and 7 teachers are from high school. The professional experience of the teachers participating in the study varied between 11 and 45 years. This could imply that these teachers were experienced in classroom management. Besides, for the fields of Chemistry, English, and primary school, there were two teachers of each, and for religious culture and moral knowledge, Philosophy, History, Physics with a master degree, and Mathematics, preschool education, Geography, Turkish Language and Literature, and Biology with a PhD degree, there was one teacher of each. The names of the participants were kept confidential due to ethical concerns and the participants are referred to using codes such as P1, P2, etc. in the study.

Data Collection

Data was collected by semi- structure interview technique. A semi-structured interview form was used to determine the attitudes of teachers towards classroom management. To probe the content validity of the draft form, expert opinions were taken from six experts and necessary revisions were made to the form regarding their feedback. The experts were academics who had PhD on educational sciences, and studies on classroom management. Two pilot interviews were conducted to see the comprehensibility of the research questions. After pilot interviews, minor corrections were held. Data was collected through interviews with participants, and all the teachers were face to face interviewed. Interviews nearly lasted 20-55 minutes. We recorded the participants' voice. Then, the voice recordings were transcribed in real time using an application.

Data Analysis

The content analysis technique was employed because the aim of the research was to investigate the assumptions of teachers on classroom management based on their perceptions (McMillan & Schumacher, 2001). The interviews were analyzed via process of coding to develop categories and themes. We used the type of coding which is based on the concept extracted from the data of the research because there was no conceptual structure on the phenomena. Later, the data was divided into categories extracted from codes. The categories, last, were thematized. The Turkish transcribed materials were 26 pages. Researchers coded the data, and generated the categories and themes. As the process of sorting, the number of themes were made clear. In the final step, they were translated to English by researcher. The English form was sent to an academic proofreading service.

Findings and Remarks

Based on the findings obtained from the perceptions of the teachers, five main themes were held. The first of these themes was teachers' opinions about the meaning of classroom management. It was about what classroom management meant to teachers. The second theme's name was opinions of teachers on poor classroom management skills, which was about the characteristics of teachers who were thought to have poor classroom management skills. The third theme's name was characteristics of teachers with strong classroom management skills. It was researched the characteristics of teachers who were thought to have strong classroom management skills. As the fourth theme, its name was behaviors disrupting the learning environment, and it was about the teachers explained what behaviors disrupt the learning environment in the classroom. The name of the fifth theme was recommendations for beginning teachers, and it was about what their recommendations to beginning or prospective teachers would be.

The Meaning of Classroom Management

The opinions of teachers about the meaning of "classroom management" surfaced within the subdimensions of creating effective and transformative learning environment, effective instruction, and open communication. Quotations and comments are presented in the following sections.

Creating Effective and Transformative Learning Environment

The questions intended to learn the meaning of the classroom management according to the teachers' perceptions. The first subdimension appeared to be effectivity and transformationalism in learning environment. For example, P2 stated that having classroom management skills means creating democratic, affectionate, and effective learning environments with a peaceful atmosphere, in which rules are made together. Also, P2 emphasized the transformative function of classroom management and the discipline that learning is not a process performed by the individual only in school; it is a life-long process. It is understood that teachers are aware that schools of the future will not be limited by the physical structure of the schools.

"It means creating a peaceful atmosphere in the classroom. It means learning by exploring, thinking critically in an active manner of students; learning environment full of love, in which the students could express their sincere thoughts easily; together with a discipline because classroom means more than four walls. Classroom management for me is to reform the mind of students" (P2).

P15 approached the question from psychological perspective and defined classroom management skills as the capacity to free students from the feeling of learned helplessness. P15 confessed that he/she employed different teaching methods.

"This, in a sense, is the skill to rescue the student from the despair of 'I cannot do it' and transform them into the motivation of 'I will do it' when needed, I would take the student out of the classroom environment; at the very least, I would have him search [for solutions] as a coach" (P15).

Effective Instruction

Teachers continued to express their perceptions on the meaning of classroom management. This subdimension mainly reflected the teachers' effectivity when managing the classroom. P1 here defined the meaning as using the time in the classroom appropriately, and wanted the students to be active during the process.

"[...] using the time appropriately, and maintaining the active participation of the students" (P1).

P3 emphasized another important issue on being prepared for the lesson and using different techniques while considering each student's level.

"First, the teacher should be prepared for the lesson. Using different techniques could be considered successful according to the level of the students" (P3).

What is more, P6 added the importance of lesson planning, which was a critical component of effective teaching. Teachers knew that planning the lesson structured the lesson step-by-step to provide the effectivity and boost student performance and achievement.

"Of course [...] before the class, I think what I teach, how I teach, who I teach, and do they carve the topic I give. Their success is vital" (P6).

P9 showed himself/herself as an example, and denoted the importance of being a guide who could teach students how to access information, find and filter it. P9 recognized that internet contributed much to the person establishing a tremendous knowledge base.

"I adopt a classroom management approach in which the teacher provides more guidance to reach, and to filter the right knowledge over the internet because it is a huge base of knowledge" (P9).

Open Communication

Classroom management was commented by the teachers as something which was more than mere exchanging information opening the channels. I mean, it is nothing but the presentation of ideas by the teacher/student in a way best understood by the teacher/student. P4 considered necessary to show kind manner, and a bit to be authoritative in communicating with their students. However, they added that authority should not be confused with being rude, intolerant, or threatening. Here is the script from P4:

"[...] teaching the lesson in a kind but firm manner, without boring the students. In my opinion, the teacher should be authoritative in the classroom but this firmness should not be rude, intolerant, and threatening; they should always let the communication channels open" (P4).

The meaning of the classroom management was also perceived by P9 from the psychological aspect such as emotional well-being of the classroom environment to understand the students better. Teachers noticed that psychology helped people to understand themselves and the concepts better.

"I think we should understand their emotions and their intentions behind information. I mean we make the students hear, feel heard, understood, and interrogate the concepts" (P9).

According to P7, effective communication was defined as establishing empathy with the students and soliciting their academic success. Teacher thinks that empathy is a key to form a link between self and students enhancing the academic success, and remarks as such:

"In my opinion, classroom management is establishing empathy. Also, it increases success" (P7).

Opinions of Teachers on Poor Classroom Management Skills

Teachers were asked questions to learn their poor sides during their classroom activities. They stated the problematic characteristics of their colleagues like relationship-establishing problems, ignoring the students' sense of self, unfair manner, lack of professional competency, psychological and economic problems, and shortcomings in professional experience.

Relationship-Establishing Problems

P1 stated that one of the problematic characteristics negatively affecting classroom management skills was the weakness in establishing relationships. P1 also remarked that teachers were unable to form good relationship with the students and the other partners. A relevant quotation was presented below:

"In my opinion, the biggest deficiency of a teacher during the classroom management is that they cannot establish good communication with the student and their families" (P1).

Ignoring the Students' Sense of Self

Another poor skill was that unsuccessful teachers ignored individual students' needs such as demands, interests, and aptitudes and only allow the formation of behaviors in line with their thoughts according to the perceptions of P8. We could infer from the answers that teachers sometimes were far away from understanding students and blinkered not to realize students.

"We force the students to behave ignoring their expectations, inclinations. We force the curriculum that they do not want" (P8).

Unfair Manner

P2 said that poor classroom management deficit was being unfair, unequal, and having discriminatory in-class practices. Not only that, teachers paid more attention to the students whose families were high society. Here is the script below:

“Teachers talk out of both sides of their mouths. If the student is hardworking, they behave differently, and if the student’s father is rich or an important person such as a prosecutor, judge, etc., those students are given certificates of honor many times” (P2).

Lack of Professional Competency

Some participants explained teachers were lack of professional skills. To illustrate, P8 denoted that teachers stayed stuck with the outdated methods. P8, keeping going on his/her statement, said that unsuccessful teachers could not efficiently use punishment and rewards instruments to increase desirable behavior and reduce undesirable behavior.

“Learning environments and techniques are outdated. Teachers are unskillful in showing how to be an information-seeker. Besides, they do not know how to use punishment and rewards to encourage the ones who already know to learn more, and the ones who do not know to search” (P8).

P11 and P14 enunciated the inability of teachers to think quantitatively. Besides, the lack of skills to observe and understand phenomena better emerged as important elements weakening classroom management skills.

“Teachers could not think to establish cause and effect relationships” (P11).

“Teachers do not make observations, neither in the classroom nor outside” (P14).

Some teachers asserted that their poor classroom management skills were because of insufficient professional and academic background. P7 states that falling behind in changing and developing methods was an important factor weakening classroom management skills. The findings showed that teachers had little knowledge of using teaching methods and they preferred a teacher-centered approach, which was the easiest one for themselves. Script is given below:

“[...] staying constantly in a uniform order [or] using a single methodology and standard materials indicates that they do not follow what’s up-to-date” (P7).

Psychological and Economic Problems

The participants stated that unsuccessful teachers had some individual problems and these problems negatively affected the teachers’ behavior in the classroom. P2 revealed that some teachers had psychological problems. The mood disorders of the teachers caused them to have an aggressive temper, and being unmarried or divorced also affected their class activities. Here is the script:

“Some teachers have an aggressive temper due to psychological problems they experience. Also, being unmarried or divorced causes some sexist attitudes. I think it is the most important cause of sexual abuse” (P2).

P8 addressed an important issue faced in Turkish education system. It was the decrease of respect towards teachers in society and their low incomes. This, in turn, negatively affected teachers’ classroom management skills.

“Economic conditions are insufficient. The salary we get is spent on food and rent only. Would there be a teacher who cannot buy books?” (P8).

Shortcomings in Professional Experience

We wanted to learn the poor sides of teachers on their classroom management skills. It was seen that experience was an important gap, and it was faced mostly by beginning teachers. P9 quoted this;

“Teachers with poor classroom management skills could be beginning teachers because classroom management is a skill that is acquired, in addition to knowledge, with experience and time” (P9).

Characteristics of Teachers with Strong Classroom Management Skills

This section investigated strong classroom management skills of teachers. From the statements of the participants, characteristics such as being open to innovation, being an intellectual, affective personality and cognitive skills, and good appearance were found.

Being Open to Innovation

Some of the teachers stated that innovative personality was a strong classroom management skill. P1 admitted that rapidly changing society required from teachers that they were able and willing to cope with the many challenges of change. P1 also confirmed that teachers should be a real change agent being open to innovations. Therefore, it could be assumed that following current developments in education were important for staying current with the requirements of the time and ensuring efficient classroom management. The script of P1 was given below:

"[...] I receive game therapy training. I have friends receiving drama education, STEM and STEAM to develop strategies for creating better learning contents. They are all striving to follow the new approaches. If I change, everything can change" (P1).

Being an Intellectual

P4 pointed out a distinguished characteristic of a teacher who was accepted as an intellectual, which was someone who made a living out of the production and distribution of ideas.

"An intellectual teacher is a person who employ critical thinking, make research, exert sensitive reflection about society, offer solutions for problems at school and gains authority as a respected figure" (p4).

Affective Personality and Cognitive Skills

P3 emphasized the affective side of the teachers as strong classroom management skill. Teachers thought that they must be concerned with the beliefs and attitudes of students, and must direct their focus on individual development of students because students must have a sound in mind. Here is the script from P3:

"I think that teachers with strong classroom management skills are those who love and care about the students especially for lifting their self-esteem for example" (P3).

P4 and P2 mentioned about cognitive skills as the strong side of a teacher for classroom management. P2 complained about students' unidimensional thinking style. It prevents students to think analytically and establishing cause-effect relationship on phenomena so teachers, who are having cognitive skills, should encourage students to teach logic and reasoning.

"Unidimensional thinking is, in fact, the rejection of the self. This can be overcome by teachers who feel that every child can be successful" (P2).

P4 stressed that a teacher must make his students to find answers to their ontological questions. Here is the excerpt:

"[A strong teacher] is one who can make the students ask questions like 'who are we, what's our purpose, where are we headed?'" (P4).

Good Appearance

One teacher participating in the study stated that appearance was a factor influencing strong classroom management skills. Being attentive to clothing and appearance could be considered as a concrete expression of respect for both the profession of teaching and the group of students. In this context, it could be argued that teachers who felt respect for the job and the audience would reflect this in their appearance. Here was the quotation;

"... [being] distinguished with their clothing, neat, tidy, [having] an appearance that fits a teacher, this is very important because appearance is of great importance regarding its effect" (P4).

Behaviors Disrupting the Learning Environment

Two subdimensions were found about negative behaviors disrupting the learning environment. The first one was related to students and the physical environment, and the second one was teacher-related issues. Findings and comments about both subdimensions were presented below.

Students and the Physical Environment

Teachers were asked about the issues that disrupts the climate of the classroom. They put forward to some ideas. Then, first, students were claimed to be engaged in disrespectful behaviors, such as using their smartphones or swearing in the classroom. It was stated that using smartphones during class both prevented the student from focusing on the lesson and disrupted the general flow of the lesson. Besides, students' use of slang and obscenities were other disruptive factors. Here is the script below from P1:

"In the school where I am working now, students are constantly hot for their smartphones, nonparticipation in the lesson. They excessively use slang, and swear in the classroom negatively affecting the flow of the lesson" (P1).

Most of the participating teachers stated that student behaviors disrupted the learning environment. P9 denoted that students had a disinterested attitude towards the lessons in crowded classrooms. He/she complained especially about the crowded classrooms.

"Crowded classes, in which there are students uninterested in the lesson and unwilling to learn, they harm learning environments" (P9).

P12 also explicated that learning ambience did not attract the curiosity of the students.

"Students considering the lesson boring and breaking each other's concentration are among the most important reasons for the learning ambience of the class to be disrupted" (P12).

Teacher-Related Behaviors

Some teachers participating in this study pointed to teacher behaviors. P8 first mentioned instantaneous emotional responses of teachers, such as instant anger. They also intimidated students and employed harsh interventions, and could not stop insulting the students. The quotation was below:

"Constant intimidation, criticizing, not smiling, insulting, constant anger, shouting, and creating an intense atmosphere" (P8).

P8 again stated the ill-being of the teachers' psychology. He/she noted that teachers have absence of perception, reflect quick temper during the classroom activities.

"Incomprehension of the teacher, having a quick temper, not letting students speak and explain themselves [...] Exhibiting behaviors that they don't accept from the students" (P8).

Recommendations for Beginning Teachers

One of the dimensions of this study was the recommendations that could guide beginning or prospective teachers in terms of classroom management skills and practices. In line with the findings of the study, self-improvement, being a role model, developing a unique classroom management style. Sub-dimensions were presented below.

Self-Improvement

Five of the participating teachers gave recommendations to beginning teachers about improving themselves. First, P2 recommended that teachers promote appropriate behavior in the classroom. He gave examples such as encouraging students to set high vision, establishing good friendship for active learning, and adopting an attitude of being reachable by students.

"Teachers should encourage high expectation, good cooperation among students. They must know that their teachers can be reachable" (P2).

P7 thought that when the student engaged in an appropriate behavior, teachers could increase it by praising. If a teacher used a praise to acknowledge him in his positive attitude, He/she could make it more effective. P7 also denoted the humorous side of the teacher. Here is the script:

"They should always be humorous with their students because humor is a trait of intelligent people. Praise your students" (P7).

P9 found important that a teacher should have at least one artistic ability such as playing an instrument. Next, he should teach his students how to do it.

"They should play an instrument. For instance, they should have an artistic ability. They should teach this to their students" (P9).

Being a Role Model

Two of the teachers participating in the study recommended that beginning teachers be role models. The teachers in this group recommended that teachers could make rules together with their students and be role models by obeying those rules themselves. This might suggest that being a role model in every regard would be more effective for students.

"They can be efficient if they make the rules together and be a role model in obeying these rules" (P8).

"You should behave as an example for the students, and you shouldn't exhibit behaviors that you don't want the students to have" (P11).

Developing a Unique Classroom Management Style

Most of the participating teachers recommended that beginning teachers develop unique classroom management styles. P3 stated that classroom management directly affected the relationships between the students and the teacher; therefore, the attitude of the teacher at the beginning of the semester would be very important. They suggested that teachers be consistent in the classroom, could make the rules together with the students, not compromise with them, and be in contact with other teachers in the school.

"Your attitude at the beginning of the year is very important. The student will observe you for some time and discover your management skills. Therefore, it is of the utmost importance that you don't compromise your principles" (P3).

P4 stated the importance of being authentic, and he recommended that new teachers be authentic in their profession. Here is an excerpt:

"Developing a genuine style would make you distinguished" (P4).

P10 said that constant criticism and tiring admonition for the students would damage teachers' connections with the students. Teachers were also recommended to listen to their students and to be good observers, understanding, and patient. Finally, it was emphasized that creating their classroom management styles would help make teachers more distinguished. Considering these statements, it could be argued that teachers should have multi-faceted characteristics to apply successful classroom management.

"Constant criticism and admonition would severe our relationship with them. They should be good observers. They should listen to the students and be understanding and patient" (P10).

Conclusion and Discussion

Perceptions of teachers about classroom management were investigated in this study and the conclusion and discussion of the research were given below according to the themes to facilitate traceability.

The Meaning of Classroom Management

Teachers defined classroom management as organizing study environments to ensure that the students develop in an effective manner, the skill to rescue students from a sense of learned helplessness, and the capacity to develop a guiding vision. Besides, it was stated that classroom management means effective instruction and communication. In effective instruction, being a guide, offering direction, and being a center of control are

considered as the basic responsibilities of the teacher. Having empathy and emotional intelligence in establishing communication is considered as an important element that should be mentioned in the definition of classroom management. Doyle (1985) defined classroom management as the performance of educational activities collaboratively by a group of students in a given time frame. Also, classroom management involves the minimization of the obstacles before studying for both students and teachers, the proper use of instruction time, and the ensuring of the active participation of students (Başar, 2004). Brophy (2006), on the other hand, defined classroom management as organizing the class to manage behavioral problems. However, in our study, teachers, in line with the changing time and paradigms, suggested that other concepts be added to the definition, such as rescuing students from a sense of learned helplessness, orienting students with good guidance practices, and controlling both the behaviors and academic development of students with good observation skills. These skills could also be considered as an instrument of positive psychology enabling students to be freed from irresponsibility and self-defeating attitudes and oriented towards self-responsibility. Thus, effective classroom management would prevent and remove inappropriate behaviors in the classroom, and as an internal control locus, it creates a sense of acceptance and attachment (Dika & Singh, 2002; Marzano, Marzano, & Pickering, 2003; Murray & Malmgren, 2005; Rovai, Ponton, Wighting, & Baker, 2007).

Opinions of Teachers on Poor Classroom Management Skills

One of the important problem areas in the education system is that teachers have poor classroom management skills. Teachers with poor classroom management skills are inefficient in establishing relationships. These teachers do not make efforts to understand students; they ignore the aptitudes and needs of the students, and they perform unjust actions due to poor communication skills. Besides, they have problems in transferring the knowledge they have. They also have problems in creating modern learning environments. This finding from our study coincides with those of Evertson & Randolph (1999), who argued that teachers with poor classroom management skills could not make a transition to learning-oriented classes since they could not create effective learning environments. Another problem, according to the perceptions of the interviewed teachers, is that teachers lack psychological well-being. The unmarried or divorced statuses of teachers might cause sexist attitudes. In addition, the loss of respect for the teaching profession in society and decreased economic income cause teachers' self-esteem to suffer and lead them to exhibit disturbing behavior. Another problem area is that administrators do not commence the necessary legal processes when required and leave teachers on their own. In such cases, administrators sweep events under the rug and focus on concerns about the reputation of the school. This situation emerges as an important classroom management weakness that hurts the self-esteem of both teachers and students. The first broken window, the first behaviors disrupting the order in the classroom, or the first graffiti polluting the school environment should not be tolerated and administrators should immediately start the required procedures to address these problems. Otherwise, the unaddressed problems will get bigger, according to the broken window theory (Zimbardo, 1969). According to Akturan, Uzuner, Yalçın, Yavuzer, Kaya & Akman (2015), teachers are under great stress due to having a profession that requires great responsibilities, having concerns about the safety of their workplaces, and experiencing social pressure. Also, it is a significant problem that teachers are not supported by the administration in their postgraduate studies. Göker & Gündüz (2015) reported that although teachers in Turkey are third among 21 countries concerning respect for teachers, they are 19th about PISA scores (Program for International Student Assessment) and average salaries. Economic inadequacies could be considered as a factor negatively affecting the socio-economic and socio-psychological conditions of teachers in Turkey. The two studies referenced above support the findings of our study. Researchers concluded that the psychological capital levels of teachers in Turkey are at an average level about self-efficacy, hope, and optimism dimensions.

Characteristics of Teachers with Strong Classroom Management Skills

An important variable for effective education is that the teachers have successful classroom management skills. Among the main points revealed in this study were the characteristics of teachers with strong classroom management skills. The teachers who participated in the study defined professional support as one of the characteristics of strong classroom management skills. Also, it was emphasized that teachers should be constantly open to change. Thus, it is recommended that teachers follow new methods and techniques to increase their capacities. Teachers should teach their students to think, question, and establish cause-and-effect relations and should use scientific methodology and humanitarian values in doing so. Establishing cause-and-effect relations is required for understanding and making sense of phenomena. The problem of understanding in this modern age is very important for humanity. Understanding and adding meaning should be among the fundamental aims of education. Thus, the concept of professional support for teachers should include knowing the obstacles blocking students' understanding, removing these obstacles, and equipping them with both professional and humanitarian skills. In this way, students of the future will not be egocentric and ethnocentric

individuals who place themselves at the center of the world and who see everything besides themselves as secondary (Morin, 2001). Our study, arguing that education should serve to develop individuals who understand the situation of humanity in a new era, is supported by Morin (2001). Another point noted in our study is that for teachers to have strong classroom management skills they should have strong communication skills. The efficient use of body language and the establishing of good dialogues with students could be acknowledged as efficient classroom management skills. In a study of prospective teachers by Selanik Ay (2015), proficient speaking skills, tone of voice, and the use of pleasant expressions, eye contact, distance, and physical contact were considered as elements of efficient communication. It was also concluded that teachers with strong classroom management skills have advanced affective and cognitive skills and they could be role models even in terms of their appearance. Equipping students with strong learning skills could be considered as a cognitive skill. Also, it is argued that a teacher who makes students understand that there is a different field in which each student could be successful should have affective skills. There is a false-mentalist attitude in today's education system, which wishes for human minds to think technocratically. This system is far from understanding humans, humanity, values, and morale (Morin, 2001). Our finding that teachers could prepare world citizens of the future by increasing their cognitive and affective skills via efficient classroom management is supported by Morin (2001).

Behaviors Disrupting the Learning Environment

Another problem facing effective education is behavior disrupting the learning environment. In our study, it was found that the disruption of the learning environment can be student-related, environment-related, or teacher-related. The use of smartphones in classes and the use of slang are important problems. Students who have no interest in the lesson are important factors disrupting learning environments, especially in crowded classrooms. It was also found that some teachers transfer knowledge in a boring and monotonous manner, and they do not include students in the lessons. Recent studies revealed that students have a fear of being without their smartphones, and this disorder can cause social phobias (Uysal, Özen, & Madenoğlu, 2016). There is a consensus that social media and smartphone addictions are not only factors disrupting learning environments but also dysfunctional psychological disorders (Bragazzi & Del Puente, 2014). In this study, teacher-related causes of disruption were found to be shouting at, insulting, or intimidating students to restore discipline; not having field mastery, and the lack of skills to use technological teaching devices. According to Demirtaş (2015), the classroom is not a place for absolute and unchanging order and rules. A collective and sensible classroom ambiance should be dominant. In classes with positive learning environments, the teacher is the most active and transformative member of the class (Bauman & Del Rio, 2006). These statements support the findings of our study.

Recommendations for Beginning Teachers

A great majority of the teachers in this study recommended that beginning teachers understand and practice effective classroom management. They could particularly have trouble in classroom management and lose control of the class. Purposeful instruction and attainment of the objectives are only possible with efficient classroom management. The success of teachers in creating a good classroom climate in schools, the creation of learning environments, and the management of student behaviors in the classroom affect the outcomes of education and therefore are of great importance (Oliver & Reschly, 2007; Freiberg, 2002; Kirkpatrick, Lincoln & Morrow, 2006). Some of the participants suggested that teachers develop themselves, have positive attitudes, foster artistic abilities and teach them to their students, envision the technical and humanitarian capacities required for professions of the future, believe that every student can succeed, prepare educational and instructional materials with their students, and work in collaboration with other teachers in their schools. Teachers must keep themselves updated in their fields. When they keep themselves updated, they can keep pace with changes, follow the developments in their profession, and meet their students' demands. The success of an educational system is positively related to the success of teachers, and a teacher's success is possible by keeping pace with the changes of the time, which are advancing at an unprecedented pace. Ertürk & Memişoğlu (2018) asserted that the quality of education would increase if teachers develop themselves in their profession. Some of the participating teachers in this study recommended that beginning teachers use various approaches depending on the class. The class structure could vary about students, environment, lesson, topic, etc. It might not be possible to practice the same style of classroom management in every class. According to Bilir (2014), different management models are selected and practiced depending on the teacher's understanding of management, the topic, the lesson, the objectives, the students, and the environment. A great majority of the participating teachers recommended that teachers be role models. Being a role model for students could be considered as one of the most efficient management methods. Students might be more likely to follow the behaviors of their teachers than their admonitions. Kılıç, Kaya, Yıldırım & Genç (2004) argued that teachers consider themselves as role models for the students and keeping this in mind has an important place in attaining the objectives of education

and democratic values. Demir & Köse (2016) also argued that teachers consider themselves as role models in many ways, especially in behavior and attitude.

Suggestions

The conclusions of this research ascertained that the concept of the classroom management has been changing day-by-day together with the developing technology. Notably, education faculties should expose their prospective teachers to the new educational concepts in theory and practice regulating their curriculum and physical conditions. This study showed that a great change is necessary when educating new teachers. The ontological being of a teacher is changing from knowledge furnishing to an intellectual and emotional guide. The most important feature of teachers is to guide and coach their students through the learning process, giving special attention to nurturing a student's inclinations and self-confidence. As newly developing technology provides much more effective curricula, teachers can spend less time lecturing and donating class with a bunch of dangling knowledge and more time mentoring students as individuals and instructing them in areas in which they want support or look for additional challenges. Another offer is for the schools. Schools and school principals should adopt high-technology, the use of which intelligently will transform and improve almost every aspect of school, modernizing the nature of curriculum, student assignments, parental connections, and administration. Lastly, this study can be repeated under different quantitative and mix method strategies.

Limitations

A limitation for this research is to scrutinize the problem form qualitative research paradigm. As such, the sample explains teachers' view from hermeneutics perspectives. It is important to note that future researchers could employ mix methods to study the problem. Another limitation associated with this study is that we studied the public school. It is also main point that future researchers would encapsulate the private schools.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

The Effect of School Transparency on Attitude Towards Supervision

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To cite this article:

Ergün, H. (2020). The effect of school transparency on attitude towards supervision. *International Journal of Contemporary Educational Research*, 7(1), 114-126. DOI: <https://doi.org/10.33200/ijcer.652497>

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The Effect of School Transparency on Attitude Towards Supervision

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Abstract

The research was planned to measure the impact of transparency of schools on attitude towards supervision. The research was conducted in state schools in Pamukkale and Merkezefendi district in Denizli. In the study, School Transparency Scale and the Attitude Scale towards Supervision in Education were used. "School transparency scale" was developed by Bozbayındır (2016). "Attitude Scale towards Supervision in Education" was developed by Uğurlu and Usta (2016). The questions in the scales were transferred to the forms prepared e-form and the data were collected with the help of these online forms. In this study, the analyses were made with multiple regression analysis. Only the courtesy dimension was predicted by the transparency dimension in practice. Implications for Research and Practice: Information transparency, evaluation transparency and the transparency in practice variables do not predict the willingness and knowledge dimensions significantly. The courtesy dimension is predicted by the transparency in practice. As the implementation transparency increases, it can be said that the inspectors are seen more kindly. School administrators should demonstrate transparency in particular.

Key words: School, Supervision, Transparency, Attitude towards supervision, School transparency.

Introduction

Supervision is an important factor of management. It is expected from the supervision what to find the missing or incorrect functioning aspects of the organization and indicate what needs to be done to remedy them. However, supervision may not always work as expected. During the supervision process, employees may want to hide information about themselves because of not trusting their organizations, fear of losing their jobs or other reasons. However, the supervision can identify the lacking aspects of the employee and provide them with an opportunity to improve themselves. Thus, the organization, which will be as strong as its weakest personnel, may lose the chance to strengthen its weak personnel. Failure of the personnel to hide information about him will mean that he is transparent about himself. Personnel can request the transparency of their organization before it becomes transparent. Even the process of layoffs in transparent organizations will be carried out transparently. The personnel know how to react from the organization in response to his behavior in transparent organizations. In transparent organizations, rules work and arbitrary behavior decreases. (Cassano, 2017; Geçkil & Tikici, 2015; Karaevli & Levent, 2014). The personnel who know this will be able to take a less negative attitude towards the supervision.

Education is a collection of purposeful activities and these activities are conducted systematically and in a planned way. It can be stated that there should be a positive difference between the condition of the individual before and after the educational process (Baykul, 1992). Planned educational environments are ensured by the school organizations. In these organizations, principals, deputy principals, teachers and auxiliary staff work mostly. As long as the principals improve and strengthen the cooperation among them, the organization will reach its goals. Management is the most important element of the organization. None of the organizations can achieve its aims without a proper management. Therefore, management can be described as the heart of the organization (Nadrifar, Bandani & Shahryari; 2015). In other words, it can be asserted that the new role of the administrator is to be a facilitator for his/her employees (Tengblad, 2006).

In an organization defined as a coalition created by its member (Bursalıoğlu, 2002), the duties of each employee are determined. When each employee conducts his/her duties in a harmony, the organization can run like the hour wheels and each of the wheel support the operation of the other one. As a result of the failure in one of the

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wheels, the harmony in the process of the organization is disturbed. Inspection is carried out in order to prevent the organization be damaged by determining the malfunction in the process of the organization. In order to see the level of reaching its goals, to determine whether the resources are used effectively and to specify the methods improving the quality of the services provided, it is necessary to supervise and assess the educational process (Demirkasımoğlu, 2011). Supervision in educational organizations has impacts on improving the organization and the educational process together with its personnel (Gündüz, 2012). School employees also want to improve themselves, but they do not want to see any harm while doing this. They do not want to be harmed by the supervision, so they may not want to put the cards on the table. School workers want to know that they are transparent from their school and what they will encounter in the way the school works. School workers want to know what they will encounter in the running of the school. For this reason, the level of transparency of the schools was thought to have an effect on the attitude towards the supervision and this issue was investigated.

Problem

In order to the system to renew or replace itself, the power loses should be established. These power losses can be specified by the sub-systems of supervision (Uğurlu, 2015). In educational process, determining and fixing the lateness in reaching the goals and improving the level of attaining the targets can be ensured by a healthy supervision process. In a sense, supervision performs the function of a compass (Erdem, 2006). Supervision can be defined as a process of comprehension of the organizational activities' being in accordance with pre-determined targets, the principles and the rules determined in line with the targets (Aydın, 2000). If each member of the organization performs in tune with the organizational goals, there will be no disruption in the process. The elements of supervision in education are a cycle of actions comprising of determining the situation, evaluation, correcting and improving. While the situation is determined and presented in the element 'situation determination', the determined situation is compared with the criteria and a judgement is made in the element 'evaluation'. In the elements 'correcting and improving', those that turn into decisions from the options ensued with evaluation process are put into effect (Başar, 2000). Supervision is a kind of leadership role. The teacher needs are established through the supervision role, then the teacher is counselled, guided, supported, and given suggestions (Knoll, 1987). Teachers in Turkey find the course supervisions useful and state that the most useful part of the supervision process is to determine the teachers' deficiencies (Yeşil & Kış, 2015). Teachers' sense of organizational trust will decrease if the supervision is carried out to determine the shortage of teachers. It would be appropriate to save the supervision from the teacher center and focus on improving the learning process.

If the educational inspection is conducted with the notion that the teacher is in the center and the principal is the only decision maker, there will be of no use for today's educational organization. It is inevitable for the educational supervision paradigm to change due to the inclusion of the students in the center of learning, the inversion of teacher's responsibilities towards providing guidance for students and the comprehension of the data based decision making (Aseltine, Faryniarz & Rigazio-DiGilio, 2006). The prominent features in the countries which are successful in educational process are the concepts such as trust in teachers, quality enhancement, improving, close supervision, accountability, transparency, peer review and self-evaluation (Gönülaçar, 2018). School principals should pay attention to the fine line between supervision and assessment.

Theoretical Background

The aim of the supervision is to improve teacher performance. In evaluation, on the other hand, there are differences between supervision and assessment since teacher performance is aimed to grade. Because assessment requires judgement, it may cause the person to defend himself/herself. However, the employee will be able to look for solutions in order to make up for his/her deficiencies as supervision focuses on improving. When the supervision process concentrates on the notion of improving, there will be no need for the individual to protect himself/herself from the external threats. Supervision is expected to increase teacher motivation, teacher's desire for professional development and the confidence in the inspector (Knoll, 1987). Ethical conducts such as using human relations and communication skills, supervising according to the condition of the environment, supervising depending upon a certain norm, giving suggestion to the teachers for improving themselves, not accepting meals and catering at school, not using the principal's room as their own rooms, allocating sufficient time for the inspection and following the developments are expected from the inspectors (Kayıkçı & Uygur, 2012). When the inspectors do not follow these ethical conducts, negative emotions may occur in the teachers. The teacher expressed that the reasons why they have negative perceptions are the pressure and fear they have experienced and their seeing the supervision process as nitpicking (Özan, & Şener, 2015). Being aware of the objectives of the educational process increases the effectiveness of the supervision.

The realization of the educational goals can be achieved by the realization of the goals of supervision process in ensuring the effectiveness of the organizations. The realization of the goals in supervision can be enabled taking into consideration the principles of supervision such as purposefulness, planning, contingency, obviousness, being democratic, integrity, continuity and taking into account individual differences and establishing human relations healthily will be possible by observing the principles of control (Gökçe, 1994).

For many years, supervision in Turkey is considered generally with the notion of controlling (Memduhoğlu & Zengin, 2012). With the legal regulation made in 2016, Turkish educational supervision was designed to conduct almost exclusively in order to investigate; the investigation was continued to be used as a weapon; the system was organized to supervise tens thousands of educational institutions with just 500 inspectors effectively and to guide one million teachers (Gönülaçar, 2018). However, the expected role of inspectors is not to investigate and control, it is instructional leadership and guidance roles (Memduhoğlu & Zengin, 2012). In such an understanding, the educational supervision can't be expected to detect, evaluate and correct the disruptions. While it can be thought that this shows the system is constructed centrally, it can be interpreted that the increase in the authority of conducting supervision given to the principals in Turkey in recent years means that there is a tendency towards school-centered supervision (Özen & Hendekçi, 2016).

In the studies, it is clear that the inspectors duly perform his duties in school based management (Kapusuzoğlu, 2008) and that primary school administrators do not perform teacher supervision adequately (Akan & Zengin, 2015) although there are findings concerning the fact that primary school inspectors are perceived with negatives feelings compared to the ministry inspectors (Yıldırım, 2012). Moreover, according to the data collected from teachers and administrators, it was found out that course supervision is necessary and this supervision should be performed by inspectors (Köse, 2017). It is obvious that there are differences in the opinion of the supervisors and administrators (Memişoğlu & Ekinçi, 2013), and teachers have expectations such as professional development, getting feedback and increasing their motivation in the process of supervision (Köybaşı, Uğurlu & Demir, 2017). On the other hand, it is apparent that there were concerns that the partiality can take place if course supervision is conducted by the school principals, that the current competencies of the principals can't contribute sufficiently to the quality of education and that the teacher find the course supervisions ineffective as the administrators don't have any trainings on in this field (Tonbul & Baysülen, 2017). The supervision sub-system of the education system has changed frequently in recent years; first, the two-headed supervision sub-system structure was merged and then separated. As a result of this, depression (the lack of morale) and different negative emotions showed up causing to concerns such as lack of supervision, professional burnout, financial expectation, loss of status and partial supervision (Kurum & Çinkır, 2017; Ergün & Çelik, 2018).

Supervision in education is a complex art that involves feedback through effective communication (Nwaokugha & Danladi, 2016). According to the Johari window, firstly, it is mentioned that one has to understand himself / herself, his / her beliefs that she/he wants to explain and to conceal, his / her view of life and these situations affect human communication (Ryan & Gottfried, 2012). It will be easier to use communication effectively in supervision and to act in favor of the organization if effective feedback is obtained. One of the most effective ways of receiving and giving feedback is the Johari window (Beganu & Nițan, -). The Johari window is a communication model and this mode was developed in 1950 by American psychologists Joseph Luft and Harry Ingham. This special tool allows us to understand how we see ourselves and how others see us (Saxena, 2015). Johari Window examines the known and shared or unknown and non-shared communication between individuals (Kılıç & Önen, 2011). The Johari window consists of open/free area, blind area, hidden area and unknown area windows (Nofriza, 2017; Osterlund & Mack, 2014; Saxena, 2015).

The Johari Window Model

Open area (Information about you that both you and others know)	Blind area (Information about you that you don't know but others do know)
Hidden area (Information about you that you know but others don't know)	Unknown area (Information about you that neither you nor others know)

Reference: Nofriza, 2017; Osterlund & Mack, 2014; Saxena, 2015

The open area is essentially our conscious self which includes our behavior, attitudes, motivation, values and way of life that we know and are known to others. In this area, one does not mind that the information s/he knows about oneself is known by the others. The hidden area is the information about ourselves that is unknown to others unless we allow. The blind area is the area in which what is known by others about a person is not

known by the person himself. The unknown area is not known by the individual or by the other group members. The unknown information may include skills and attitudes that the individual can be useful to the organization (Saxena, 2015). The purpose of the Johari window is to increase the open/free area (Osterlund & Mack; 2014; Yıldız, 2014). This depends on trust in others (Beganu & Nițan; Luft, 1982). The fact that the open area is large means that self-disclosure and feedback works well (Uysal, 2003).

One of the ways to expand the open area in the Johari window is transparency. Transparency is the fact that all the decisions made concerning the works and operations in the organization are known by everyone affected in the institution (Geçkil & Tikici, 2015). "Transparent schools" can be defined as educational institutions where information is shared in a clear, understandable and accessible manner in a way that is in a line with the requirements of the era and does not harm the security (Karaevli & Levent, 2014). There are some research findings that transparency positively affects employee performance (Kesen, 2015), organizational performance (Berggren & Bernshteyn, 2007), financial performance (Bijalwan & Madan, 2013) and the perception of organizational support (Bakan, Güler & Kara, 2017). However, researches show that transparency nourishes trust (Karaevli & Levent, 2014; Norman, Avolio & Luthans, 2010), that transparency is one of the descriptors of organizational trust (Schnackenberg, 2010), that transparency is a tool to increase trust (Bandsuch, Pate & Thies, 2008), that positive relationship between financial performance and financial performance (Bijalwan & Madan, 2013), transparency in the structure of the organization prevents irregularity and illegal behavior (Gürbüz & Dikmenli, 2009: 232), the importance of transparency for corporate success (Şişman, Yozgat, Abunaz & Özarslan), transparency will negatively affect organizational learning and operational control (Bernstein, 2012), and excessive privacy may cause inefficiency (Crowley, 2012). Of course, there are limits to the transparency. It is of great importance to be transparent about the function of the institution, rather than to share information that will affect privacy, individual or institutional security. In the world, which has become a big village as a result of globalization, enterprise information may not be hidden from employees for a long time. Perhaps transparency has become an imperative of management. As management increases the degree of transparency, it can begin to reduce the hidden area in the employee. It can be said that democratic features weakened and arbitrary behaviors increased in non-transparent organizations. Supervision is vital for organizations to determine whether employees are doing business that is fit for purpose and whether they are acting arbitrarily. Looking at the researches about transparency are concerned, there are no studies investigating the relationship between supervision and transparency. The study fills this gap in the field.

Aim of the Study

The aim of this study is to find out how school transparency affects attitudes towards supervision. For this purpose the research questions are formed accordingly is as follows: "1- What are the descriptive statistics of school transparency and attitude towards supervision? 2- What is the impact of school transparency on attitude towards supervision?" The answers to the questions were sought. The attitude towards the supervision will affect the size of the areas in the Johari window. Whether the open area is large or small will be important for the school to achieve its goals. A teacher who has a negative attitude towards the supervision process may not want to expand the open area. Hence, the organization's human resources and other elements will not be able to be improved. If the institutional functioning of the school is transparent, there may not be much information that the teacher would like to hide. In such a case, the teacher will not refrain from the supervision process and will have a positive attitude towards it. The positive attitude of the teachers towards the supervision process will enable the supervision process to function/realize. Knowing the relationship between these two variables will guide administrators to reach effective schools. The lack of studies investigating the relationship between these two variables also increases the importance of this research.

Method

In this section, it is mentioned that sample and data collection, data collection tools and analyzing of data. In this study, relational screening method was used. In the research, multiple regression analysis was employed with the enter method. The variables investigated are school transparency and attitude towards supervision. School transparency is an independent variable, School transparency is an independent variable, while attitude towards supervision is dependent variable.

The research was conducted in Pamukkale and Merkezefendi state schools in Denizli. There are 3629 teachers and administrators in state schools in Pamukkale and 4104 teachers and administrators in Merkezefendi. In the universe of the research, there are 7733 teachers in total. 367 people are included in the study's samples (Bartlett, Kotrlik & Higgins, 2001). The sample was determined by random sampling method. The opinions of 415 teachers and administrators who completed the scale from the teachers determined through random

sampling method were included in the evaluation. 51.4% of the participants were female and 48.6% were male; 71.7% are union members, 2.2% have associate degree, 86.2% have bachelor degree and 11.6% have graduate education. 32.4% of the participants work in primary school, 44% in secondary school, 19.8% in high school and 3.9% in kindergarten.

The questions in the scales were transferred to the forms prepared electronically and the data were collected with the help of these online forms. Schools were visited, school principals were met, a copy of the form was sent electronically to the school principal's mobile phone or e-mail, and the scale was sent to the teachers via the school principal. Teachers were asked to fill in the electronic form at the times in which they are free from their duties.

Instruments

In the study, School Transparency Scale and the Attitude Scale towards Supervision in Education were used. The item pool for the "school transparency scale" developed by Bozbayındır (2016) was created first, followed by content validity, validity and reliability studies, and criterion validity. After the field scanning and teacher interviews, a pool of 35 items was created. The content validity was ensured by the experts in the field and the number of items became 27. In order to evaluate whether the data were suitable for factor analysis, Barlett Sphericity (5088.495; $P = .00$) and Kaiser-Meyer-Olkin ($KMO = .95$) tests were performed and exploratory and confirmatory factor analyzes were also performed. In the exploratory factor analysis, one item was removed from "the transparency dimension", and the item load values of this dimension varied between .80 and .62. The value of Cronbach Alpha was found to be .95. The item load values of the second dimension "evaluation transparency" ranged from .51 to .80. Cronbach's alpha value was found to be .83. The item load value of the third dimension, "information transparency" is varied between .64 and .75. Cronbach's alpha value was found to be .83. The first factor explained 34.35% of the total variance of the scale, the second factor explained 14.80% and the third factor explained 12.98%. The scale explains 62.14% of the total variance related to school transparency. The Cronbach's alpha value for the overall scale was found to be .95. Correlation matrices were found to be significant between .33 and .76 for the first factor, between .35 and .77 for the second factor, and between .35 and .73 for the third factor. After confirmatory factor analysis, the Chi-square value ($\chi^2 = 757.38$, $df = 296$, $p = 0.00$) was significant, while the fit indices were calculated as follows $RMSEA = 0.080$, $RMR = 0.077$, $NFI = 0.96$, $CFI = 0.97$, $IFI = 0.97$, and $RFI = 0.95$. Factor load values were found to be between .23 and .76. The correlations between the sub-dimensions were found to be significant. Item discrimination was evaluated and the values were evaluated as significant.

A 48-item item pool was made up by searching the literature for "the Attitude Scale of Supervision in Education" developed by Uğurlu and Usta (2016). As a result of the opinions of the experts in the field, the number of items was reduced to 32. According to the preliminary data, KMO value was .91; Barlett sphericity test results ($X^2 (120) = 3296.009$; $p < .01$) were found to be significant. Exploratory factor analysis was performed and items with less than .30 factor load values and items with less than .10 factor load value considered as overlapping factor, were excluded from the scale. As a result, the number of items in the scale changed to 16. In the second step of the study, the scale was applied to 270 teachers for exploratory factor. Depending on the obtained data, exploratory factor analysis was performed and according to the exploratory factor analysis results, another group of teachers ($n = 350$) was reapplied in order to perform confirmatory factor analysis. The total variance explained by the three-dimensional structure is 73.05%. It was established that 29.06% of the first factor, 23.79% of the second factor, 19.75% of the third factor contributed to the common variance in the analysis made for three factors; it was seen that factor load values for the first factor was between .57 and .87; the second factor between .67 and .89; the third factor was between .65 and .84. After the confirmatory factor analysis, Chi-square value ($\chi^2 = 282.07$, $df = 98$) was found to be significant, while fit indexes were calculated as $RMSEA = 0.080$, $NFI = 0.97$, $CFI = 0.98$, $RFI = 0.96$ and $IFI = 0.98$ and $AGFI = 0.86$. The Cronbach Alpha value of the information dimension was found to be .93. The Cronbach's Alpha value of the kindness dimension was .91. The Cronbach's Alpha value of the willingness dimension was found to be .87. The overall Cronbach's alpha value of the scale was found to be .93.

Data Analysis

The reliability and validity studies of the scales were examined and then it was decided to use them in the study since the values were considered appropriate. Since the data were collected with the help of electronic forms, it was thought that the participants were not affected by the researcher's bias. A sufficient number of samples were taken to represent the population in the study. Care has been taken to collect data from different school types. In order to determine whether the data show normal distribution, the skewness and kurtosis coefficients were

examined. VIF values were examined to determine whether there are multiple connection problems between variables.

The arithmetic mean of the dimensions of the scales was taken in order to find out whether the data showed normal distribution, and the skewness and kurtosis coefficients of the data consisting of these mean values were examined. It is seen that the skewness values of School Transparency Scale were between -.785 and -.933, kurtosis values were between .188 and .338; the Attitude Scale towards Supervision in Education had skewness values between -.112 and .154, and kurtosis values between -.994 and .140. On one hand, Bayram (2010) states that as a rule of practicality, the distribution can be considered as normal distribution when discrete data (categorical and sorting data) have low asymmetry and kurtosis (within +/- 1.5 range) values on the other hand, Kunnan (1998) and Karagöz (2016) express that it can be considered as normal distribution when skewness and kurtosis values between + -2 values (Bayram, 2010; Kunnan, 1998; Karagöz, 2016). Therefore, it was accepted that the data showed normal distribution.

VIF values were examined to see if there was a multiple linear connection between the data. To find the VIF value, the attitude towards supervision dimensions, which are dependent variables, were made dependent variables, respectively, the regression model was estimated with other variables and VIF values were found. These values were calculated to be between 3.89 and 6.96 and all VIF values were found to be less than 10 which is the problematic critical value (Kleinbaum et al. 1988 quoted in; Gujarati and Porter, 2009, p.340; Chatterjee and Price, 1991 quoted in; Stine, 1995, p.54). It is found with the formula $VIF = 1 / (1 - r^2)$. If we write the VIF value as 10, it has a value of about 0.94. In the formula when the value of r^2 is 1, VIF value is expressed as an infinite (Gujarati and Porter, 2009). It can be said that as VIF value exceeds 10 value, the problematic area is approached. Multidimensional regression analysis was used to determine the extent to which teachers' scores on the Attitude Scale of Supervision in Education were predicted by school transparency.

Results and Discussion

Before starting Multiple Regression Analysis, relationships between variables were examined. Correlation coefficients were considered in order to examine the relationships between variables. The relationships between the study variables and descriptive statistics are shown in Table 1. In the interpretation of the mean scores obtained from the scales, the points between 5.00-4.20 5.0 were taken as "high", the points between 4.19-3.40 "above average", the points between 3.39-2.60 "medium", the points between 2.59-1.80 "below medium", and the points between 1.79-1.00 "low".

As seen in Table 1, the arithmetic mean values of the variables discussed in the study ranged from 2.90 to 4.03. Given the arithmetic means of the dimensions of teachers' perceptions regarding school transparency; it is seen that the transparency dimension is above the medium ($\bar{x} = 4.03$) level in practice, the evaluation transparency dimension is above the medium level ($\bar{x} = 3.91$), and the information transparency dimension is above the medium level ($\bar{x} = 3.97$). In other words, it can be said that teachers' perceptions about school transparency are not low and they find their schools transparent even if there are deficiencies. Given the arithmetic means including the dimensions of teachers' attitudes towards supervision, it was found that the willingness dimension to be in medium level ($\bar{x} = 2.94$), the information dimension to be in medium level ($\bar{x} = 2.90$), and the kindness dimension to be in medium level ($\bar{x} = 3.05$). In other words, it can be said that teachers' attitudes towards supervision are moderate and there are areas that can be hidden in the Johari window. The need for teachers to hide information about themselves; may be due to their desire not to lose prestige among parents, school management and other teachers.

When correlation coefficients are taken into consideration, it is clear that there is a significant relationship between all variables. Correlation coefficients, which are found significant at the 01 level, for the dimensions of school transparency scale vary between ($r = .81$ and $r = .90$). Correlation coefficients related to the dimensions of the Attitude Scale towards Supervision in Education, which is seen significant at the .01 level vary between ($r = .56$ and $r = .71$). Correlation coefficients between the two scales' dimensions, which were found to be significant at the .01 level, ranged from ($r = .24$ to $r = .43$).

Table 1. Descriptive statistics of the research and the relationships between variables (n = 414)

Variables	\bar{x}	Sd	The transparency in Practice	The transparency in evaluation	The transparency in Knowledge	Willingness	Knowledge	Kindness
The transparency in Practice	4.0314	.873	1	.855**	.903**	.360**	.248**	.439**
The transparency in evaluation	3.9130	1.080	.855**	1	.819**	.345**	.260**	.402**
The transparency in Knowledge	3.9729	.9232	.903**	.819**	1	.362**	.243**	.429**
Willingness	2.9438	.7599	.360**	.345**	.362**	1	.713**	.564**
Knowledge	2.9037	1.219	.248**	.260**	.243**	.713**	1	.666**
Kindness	3.056	1.088	.439**	.402**	.429**	.564**	.666**	1

** p=.01

For multiple regression analysis, the arithmetic mean of the dimensions in the scales was taken and it was examined whether they predicted the willingness, knowledge and courtesy dimensions of the Scale of Attitude towards Supervision in Education (See Table 2 and Table 3).

Table 2. The Level of variables' predictivity power for the dimensions of the Scale of Attitude towards Supervision in Education

	R	R ²	Corrected R ²	The standart error in predictivity
Willingness	.374	.140	.134	.70
Knowledge	.266	.071	.064	1.18
Kindness	.447	.200	.194	.97

By applying linear multiple regression, in what level the willingness dimension predicts the dimensions; information transparency, evaluation transparency and the transparency in practice was determined and R = .374; R² = .134, was calculated. It is seen that 14% of the total variance in the willingness dimension was

explained by these variables. However, it is seen that these variables do not predict the willingness dimension significantly.

Applying linear multiple regression, the extent information dimension predicts evaluation transparency, application transparency and the information transparency was determined. $R^2 = .064$, 7% of the total variance in the willingness dimension was explained by these variables. However, it is seen that these variables do not predict the knowledge dimension in a meaningful way.

Table 3. The level of Transparency in practice dimension predict the level of Kindness Dimension

	R	R^2	Corrected R^2	The standart error in predicitivity
Kindness	.439	.193	.191	.97

By applying linear multiple regression, the extent the kindness dimension predicted information transparency, evaluation transparency and transparency in practice was determined and as a result of this process, $R = .447$; $R^2 = .194$ was calculated; 19.4% of the total variance in the willingness dimension was explained by these variables. However, it is seen that evaluation and information transparency dimensions of these variables do not predict the courtesy dimension significantly while predicting the dimension of transparency in practice significantly. As can be seen in Table 3, the extent to which transparency dimension predicts the kindness dimension was determined and $R = .43$; $R^2 = .191$ was calculated; 19.1% of the total variance in the willingness dimension was explained by this variable.

Table 4. B and Beta Correlation Coefficients and Significance Levels of the Variables

	Predictors	B	Std. error	B	t	p
Willingness	Fixed (a)	1.689	.167		10.138	.000
	Transparency in practice	.099	.105	.114	.944	.346
	Evaluation transparency	.075	.064	.106	1.178	.240
	Information transparency	.141	.090	.172	1.572	.117
Knowledge	Fixed (a)	1.563	.278		5.622	.000
	Transparency in practice	.073	.176	.053	.419	.676
	Evaluation transparency	.189	.106	.167	1.779	.076
	Information transparency	.077	.150	.058	.515	.607
Kindness	Fixed (a)	.853	.230		3.703	.000
	Transparency in practice	.296	.145	.237	2.033	.043
	Evaluation transparency	.072	.088	.071	.817	.415
	Information transparency	.184	.124	.156	1.480	.140

As it is clear in Table 4, the positive (+) direction of the Beta value, which affects the transparency dimension in the kindness dimension in practice, indicates that there is a direct relationship between these two variables; It can be said that increasing transparency in practice has a positive effect on the kindness dimension.

Table 5. The level the Transparency in practice predict the attitude towards Supervision in Education

Transparency in practice	R	R^2	Corrected R^2	The standart error in predicitivity
	.370	.137	.135	.88

By applying linear multiple regression, the level to which the transparency dimension of school transparency predicts the attitude towards supervision in education was determined and as a result of this process $R = .370$; $R^2 = .135$ was calculated; 13% of the total variance of the attitude towards supervision was explained by the transparency dimension in practice.

Table 6. B and Beta Correlation Coefficients and Significance Levels of the Variables

Supervision in education	Predictors		B	Std. error	β	t	p
	Fixed	(a)	1.344	.205		6.570	.000
	Transparency in practice	in	.401	.050	.370	8.089	.000

As it is seen in Table 6, the positive (+) direction of Beta value which the transparency dimension of school transparency in practice affect the attitude towards supervision in education indicates that there is a direct relationship between these two variables; it can be said that increasing transparency in practice positively affects the attitude towards supervision. In general, in order to find out how the attitude of supervision in education affects school transparency, a regression process was performed on total scores (See Table 7 and Table 8).

Table 7. The level the school transparency predicts the attitude towards Supervision in Education

School transparency	R	R ²	Corrected R ²	The standard error in predictivity
	.381	.145	.143	.87

By applying linear multiple regression, the extent to which school transparency predicted the attitude towards supervision in education was determined and as a result of this process, R = .381; R² = .143 was calculated; 14% of the total variance of the attitude towards supervision accounted for school transparency.

Table 8. B and Beta Correlation Coefficients and Significance Levels of the Variables

Supervision in education	Predictors		B	Std. Error	β	t	p
	Fixed	(a)	1.329	.200		6.638	.000
	School transparency		.408	.049	.381	8.352	.000

As it is clearly seen in Table 8, the positive (+) direction of Beta value which school transparency affects the attitude towards supervision in education indicates that there is a direct relationship between these two variables; it can be asserted that increasing school transparency positively affects the attitude towards supervision.

Conclusion

The first question to be answered in the research; what are the descriptive statistics of school transparency and attitude towards supervision? According to the findings obtained from the research, it can be said that school employees see their schools transparently, although there are deficiencies, and their attitudes towards supervision are at a moderate level. In the research conducted by Serhan (2016), it was found that information transparency and administrative transparency are at moderate level in secondary schools in Jordan. Moderate level attitudes towards supervision may also indicate that school employees have negative feelings towards supervision. It can be asserted that the reasons for the teachers' negative perceptions are that teachers perceive the supervision process as nitpicking and experience it as a source of pressure and fear (Özan, & Şener, 2015); that supervision in Turkey recognize prevalently as a way of disciplining process (Memduhoğlu & Zengin, 2012); that the system restructure depending on the mindset of investigation/interrogation in 2016 (Gönülaçar, 2018); that inspectors expect to conduct their instructional and guidance roles (Memduhoğlu & Zengin, 2012); that inspectors fail to fulfill their roles regarding school based management (Kapusuzoğlu, 2008); that the teachers and administrators expect the inspectors to perform course supervision (Köse, 2017); and moreover that the teachers have some expectations regarding to the process such as contributing to their professional development, increasing their motivation and getting feedbacks (Köybaşı, Uğurlu & Demir, 2017).

The second question to be answered in the research; what is the impact of school transparency on attitude towards supervision? Relationships between variables were examined before performing regression analysis to

find answers to the second question of the research. As a result of the correlation analysis, since there was a significant relationship between the dimensions of the two variables, the predictive level between these two variables was wondered and multiple regression analysis was performed. For multiple regression analysis, the arithmetic mean of the dimensions in the scales was calculated and whether they predicted the willingness, knowledge and kindness dimensions of the Scale of Attitude towards Supervision in Education is searched. By applying linear multiple regression, it is seen that the dimension of willingness is not predicted through the dimensions of information transparency willingness, evaluation transparency and transparency in application significantly. Increased school transparency does not make school personnel to be more eager to supervision process. The information dimension is not significantly predicted by the variables. It can be said that there is no information about supervision process among practices related to school transparency. The courtesy dimension was only predicted by the dimension of transparency in practice.

As a result of the regression analysis, it is seen that willingness and knowledge dimensions were not significantly predicted by the dimensions of information transparency, evaluation transparency and transparency in practice. It is also seen that kindness dimension is not predicted by information transparency and evaluation transparency. However it has been seen that kindness dimension is predicted by transparency in practice. It can be said that transparency in practice is perceived by employees as a kind behavior. In addition, it can be said that school transparency has a positive effect on the attitude towards supervision. In schools, which are the institutions in which countries shape their future, conducting private affairs is not included in the expectations of states from schools. In non-transparent schools, it can be said that administrators want to avoid accountability. Transparency is related to accountability in these terms. The one of the concepts with which accountability is associated is “transparency” (Serhan, 2016; Himmetoğlu, Ayduğ & Bayrak, 2017; Suharyono, 2019). Institutions that are open to accountability will have a positive attitude towards supervision process. The school’s being transparent in practice can be considered as the acceptance of accountability by the administrators. In the study conducted by Kalman and Gedikoğlu (2014), it was found that the accountability of administrators/principals positively affected organizational justice. School employees who have a positive attitude towards organizational justice will not hesitate to be supervised and they will not fear that their deficiencies will come out when they are being supervised. However, in a study conducted in Turkey, while teachers and school administrators feel the necessity of accountability concerning students’ successes in a low level to the school stakeholders, they feel the necessity of accountability in a high level to the bureaucracy (Erdağ & Karadağ; 2018). Since school employees consider supervision as an obligation, they may consider transparency in practice as transparency in bureaucratic practices. Due to the fact that the supervision is performed within the bureaucratic process, it can be said that when the school employees hear the word “supervision”, they occur to their mind the bureaucratic procedures. For this reason, school staff may not want to expand their open area hierarchically against those in the upper position.

One of the ways to improve the open area in the Johari window is “transparency”. Transparent schools can be defined as educational institutions where information is shared in a clear, understandable and accessible manner in a way that does not harm the requirements of the era and does not harm the security (Karaevli & Levent, 2014). When the individual feels that there is no danger or any harm for himself or when he has trust in the school, he will not hesitate to be supervised and will perceive the supervision process as an opportunity to develop. There is evidence concerning the fact that the transparency of the organization fosters organizational trust (Bandsuch, Pate & Thies, 2008; Norman, Avolio & Luthans, 2010; Schnackenberg, 2010; Karaevli & Levent, 2014). When the school principal shares information about the functioning of the school with the employees and increases the transparency of the school, the employee will also have confidence in the school. Therefore, the school worker will not want to hide the information about him from the school principal. The open area in the Johari window will expand. As the open area in the Johari window expands, the knowledge of the school employee will increase and the information he / she would like to hide in the supervision process will decrease. Thus, the guidance activity will be performed in a right way since the accurate data will be inferred from the supervision process and the employees’ development will be ensured by orienting them into the right conditions. At the same time, the school principal will benefit from this information in human resources planning by seeing the superior aspects of his employee. For his development in the weak areas of the employee, the school principal will be able to make efforts and provide trainings.

Recommendations

The fact that school transparency will improve the open area in the Johari window will help the supervision process fulfill its improving function. School employees want transparency especially in practice. Transparency in application affects the kindness dimension of the attitude towards the supervision. As the transparency in application increases, it can be said that the inspectors are seen gentler. School administrators should increase

transparency, particularly transparency in practice. Thus, especially the guidance/orienteering function of the supervision will work properly. Employees' hiding information from the supervisor/inspector will cause the supervisor to guide the employee depending on the inaccurate data, and the contribution of the supervision process to the proper function of the system will be limited. The paper is based on the authors' research and learning from working in this field. Further research in the field of school transparency as a means to drive attitude towards supervision is suggested. The research is limited to transparency, which is one of the variables thought to affect the attitude towards the supervision. It is also possible to work on different variables that can cause negative attitudes towards the supervision. The research is limited to data from pre-school, primary, secondary and high school schools. Different studies should be conducted for higher education institutions.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Yelgeç, N. & Dağyar, M. (2020). A structural equation modelling of middle school students' metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety. *International Journal of Contemporary Educational Research*, 7(1), 127-148. DOI: <https://doi.org/10.33200/ijcer.657172>

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A Structural Equation Modelling of Middle School Students' Metacognitive Awareness, Self-efficacy Beliefs and Foreign Language Learning Anxiety*

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Abstract

This study aims to investigate the impact of metacognitive awareness and self-efficacy beliefs of middle school students on their level of foreign language learning anxiety by using structural equation modelling. A total of 285 7th and 8th grade students from a middle school in Turkey during the 2018-2019 academic year were included in the study. In the study, Personal Information Form, Foreign Language Anxiety Scale, The Self-Efficacy Questionnaire for Children, and The Junior Metacognitive Awareness Inventory were used as data collection tools. As a result of the study, the descriptive statistics indicated that the students had moderate levels of metacognitive awareness, self-efficacy beliefs, and foreign language learning anxiety. According to the results obtained from the structural equation modelling, it was concluded that the metacognitive awareness levels of the students did not have a mediating effect on the relationship between the students' level of foreign language learning anxiety and self-efficacy beliefs. In conclusion, it was determined that metacognitive awareness, self-efficacy beliefs, and foreign language learning anxiety are individual differences which interact with each other and are of great importance in foreign language learning, and that metacognitive awareness and self-efficacy beliefs have the power to affect foreign language learning anxiety.

Key words: Metacognitive awareness, Self-efficacy belief, Foreign language learning anxiety, Structural equation modelling.

Introduction

Today, cheaper and widespread mass media such as the internet, easier travel opportunities across countries and universal capital circulation, that is the transformation of individuals who form information society from a lifestyle at the national level to a new way of life at the international level, have led to the arousal of the need for a "common language" (Jenkins, 2009), which makes inter-communal communication more necessary than ever (Balay, 2004; Tezcan, 2002). This common language has been English. This is because English is widely used as a second language and science language in addition to its use as a mother tongue by a large number of people and as a second language for historical and economic reasons (Öner, 2008; Soruç, 2015).

In Turkey, English education, which emerged as an inevitable necessity of modernization initiatives (Göktürk, 1982), has always been a subject of great importance and was made compulsory from the second grade of primary school to the last year of high school with the change in the English curriculum in 2012. Today, the importance given by the Ministry of National Education to foreign language education is increasing day by day and depending on this situation, changes are made in the education plans (Zengin and Radmard, 2019). However, despite all these changes and the importance given, it is emphasized in the literature that English education is problematic (Aydemir, 2007; Doğan, 2016). The mistakes in the education system and curriculum principles are shown to be the reasons for this situation (Işık, 2008). In addition to the troubles caused by the program, the fact that language teaching is affected by many variables due to its being a very complex process

* This study was produced from the first author's master thesis titled "An investigation of the relationships among metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety of secondary school students by structural equation modeling". It was presented at the International Congress on Education, Distance Education and Educational Technology held on 29-30 November 2019 in Antalya/Turkey.

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(Demirel, 1999) may bring about problems in foreign language education. One of the variables that complicates language teaching is the individual differences of the learner who is at the centre of the learning process in today's educational approaches (Aydın and Zengin, 2008; Başbay and Gözüm, 2019; Doğan, 2016). Therefore, individual characteristics of students are of great importance in foreign language education. Individuals perform their learning by processing information according to their cognitive, affective, social and physiological characteristics and by using their individual methods and approaches (Cesur, 2008). Affective variables such as motivation, anxiety, and self-efficacy and cognitive variables such as intelligence, learning strategies, and cognitive/metacognitive awareness can be shown as an example to these individual differences, which make learning as personal as fingerprints (Boydak, 2008; Horwitz, 1986).

Anxiety, which is one of the individual differences that affect foreign language education and has an important place in the affective domain, is described in the general sense by Aydın and Zengin (2008) as an emotional situation in which a sense of weakness is experienced when a danger is sensed. Horwitz, Horwitz, and Cope (1986) first addressed the concept of foreign language anxiety as a concept specific to the field of foreign language learning and defined it as a sense of self-perceptions, feelings, and behaviours arising from the uncertainties of the foreign language learning process. When the relevant literature is examined, foreign language anxiety is seen to be an important individual difference that affects one's foreign language learning hardly positively but mostly negatively (Cheng, Horwitz, and Shallert, 1999; Demirdaş and Bozdoğan, 2013; Horwitz and Young, 1991; Horwitz et al., 1986; Krashen, 1985; MacIntyre and Gardner, 1994; Öner and Gedikoğlu, 2007).

One of the individual differences that affect foreign language education is self-efficacy belief, which is thought to interact with foreign language learning anxiety (Aktaş, 2014; Anyadubalu, 2010; Cheng, 2004; Krashen, 1987; Öztürk and Saydam, 2014; Pajares, 2003; Raoofi, Tan, and Chan, 2012; Woodrow, 2011). Pajares (1997) claims that if one feels inadequate in a subject, he believes that he will fail and this belief leads to anxiety. From this point of view, it can be suggested that there is a relationship between anxiety and self-efficacy belief. Bandura (1997), who introduced the concept of self-efficacy to the literature, defines self-efficacy as an individual's belief in his or her ability to succeed in an area. The examination of the studies conducted indicates that self-efficacy belief has a vital role in education. Pintrich, Smith, Garcia, and McKeachie (1993) concluded that self-efficacy belief had a greater impact than ability. In the study conducted by Lee (2009) using PISA 2003 data, one of the variables that predicted academic achievement was reported to be self-efficacy. When the studies examining the relationship between self-efficacy belief and anxiety are examined, it is observed that these two important variables which belong to the affective domain among the individual differences that have an impact on learning affect each other (Aktaş, 2014; Anyadubalu, 2010; Cheng, 2004; Krashen, 1987; Öztürk and Saydam, 2014; Pajares, 2003; Raoofi, et al., 2012; Woodrow, 2011). As a result of his research, Krashen (1987) pointed out that self-efficacy belief and anxiety were among the factors that affected foreign language learning success. In a research on writing skill in foreign languages, Pajares (2003) concluded that people who had positive self-efficacy beliefs about writing were less anxious while writing. In a study on writing skill in foreign language, Cheng (2004) also revealed a negative relationship between writing anxiety and self-efficacy belief in writing. In another research, Raoofi, et al. (2012) came to conclusion that as the level of anxiety decreased, self-efficacy beliefs increased. In their study examining the relationship between writing anxiety in foreign language and self-efficacy beliefs, Öztürk and Saydam (2014) argued that self-efficacy beliefs decreased significantly as students' writing anxiety in English increased.

It is believed that foreign language learning anxiety and self-efficacy belief are related to metacognitive awareness, a sub-dimension of self-regulation which is another individual difference (Doğan, 2016). Pintrich, et al. (1993) reported that people with high self-efficacy tended to use self-regulation skills such as setting goals and trying to correct their mistakes. In education, the concept of self-regulation has emerged with the increasing importance of approaches that put the student in the centre and expect the learner to take responsibility for their own learning process (Üredi, 2005). The definitions made by various researchers (Kauffman, 2004; Pintrich, 1999; Zimmerman, 1990) indicate that the concept of self-regulation means that individuals have effects on their own learning processes in behavioural, cognitive and motivational aspects; in other words, it can be defined as a process in which the individual manages his or her own learning process and directs it and becomes an independent learner (Aktan, 2012). Stressing the importance of individual differences in education, Gardner (1963) points out the concept of self-regulation by stating that the main purpose of education is to make one take responsibility for his or her education (cited in Zimmerman, 1990).

Self-regulation includes cognitive, metacognitive, and behavioural learning strategies, and motivational elements also have a significant impact on self-regulation process (Pintrich, 2004; Pintrich and De Groot, 1990). When the relevant literature is examined, it is concluded that metacognitive awareness affects self-efficacy

belief and foreign language learning anxiety, which are the other variables of the study (Baykara, 2011; Çikrikci and Odacı, 2013; Doğan, 2016; Nosratinia, Saveiy, and Zaker, 2014; Kocakulah, Özdemir, Çoramık, and Işıldak, 2016; Koç and Arslan, 2017; Öztürk and Kurtuluş, 2017). Therefore, in this study, the metacognitive awareness dimension of self-regulated learning is discussed. In addition, the fact that self-efficacy belief and metacognitive awareness are among the important individual characteristics required to have problem solving, information, and technology utilization, and knowledge generation skills, which are expected from the 21st century people (Oğuz and Kutlu Kalender, 2018) has been effective in including metacognitive awareness in the study. Tseng, Dörnyei, and Schmitt (2006) reported that metacognitive awareness affected the tendency to learn a foreign language positively. The term metacognition, used for the first time by Flavell, is defined as one's knowledge of his or her own cognitive process (Flavell, 1979). Metacognition is in constant interaction with cognition (Memiş and Arıcan, 2013). While cognition is the ability to understand and learn a situation, metacognition is being aware of how one understands and learns a situation (Senemoğlu, 2015). If one facilitates his or her learning by being aware of his or her knowledge and offering effective solutions to solve a problem confronted without being dependent on others, this means the person has metacognitive awareness (Oğuz & Kutlu Kalender, 2018). When the relevant literature is examined, it is concluded that metacognitive awareness of individuals is an essential individual difference that affects foreign language education (Alcı and Yüksel, 2012; Flavell, 1979; Pishghadam and Khajavy, 2013; Victori and Lockhart, 1995; Wenden, 1998). In addition, the studies conducted by Baykara (2011), Çikrikci and Odacı (2013), Kocakulah et al. (2016), Koç and Arslan (2017), Nosratinia et al. (2014), and Öztürk and Kurtuluş (2017) have revealed that metacognitive awareness and self-efficacy beliefs are related, and the study by Doğan (2016) has indicated that metacognitive awareness and foreign language learning anxiety are related.

Significance of the Study

In the globalizing world, the importance of English, which is accepted as the common language of communication, science and economy, and which is valid all over the world in accessing and transmitting information, is increasing day by day (Hancı Yanar, 2008; Kuyumcu Vardar and Arsal, 2014). In many countries, this has made English proficiency a prerequisite for introduction to the international business world, education, science and technology, and increased the importance of English education (Oğuz and Baysal, 2015). In order to meet people's growing need for learning foreign languages, teaching and learning methods and techniques are developed for English education, and changes are made in English curriculum in Turkey and in the world (Öner, 2008). Although Turkey has been in a unique struggle in language education around the world by allocating its limited resources for language education, (Hancı Yanar, 2008; Sezer, 1987), quantity does not coincide with quality in English education in Turkey (Aydın and Zengin, 2008), and the desired success level has not been reached in English education (Aydemir, 2007; Doğan, 2016; Hancı Yanar, 2008). Öner (2008) also confirms the failure in English education by stating that most of the students who come to universities as graduates from foreign language high schools have not been very successful in preparatory class proficiency exams and preparatory classes.

Powers, Echevarria and Short (2006) argue that the lack of success in foreign language education despite the use of the right methods and techniques stems from the application of these techniques. Woodrow (2011) suggests that failure to provide prerequisites for the course and students during the teaching process lead to failure in foreign language education and Chomsky (2006) reports that success in foreign languages cannot be explained only by the teaching methods and techniques used and points out the effect of individual differences in foreign language education.

In foreign language education, the characteristics of the individual, which is at the centre of the learning process, are of great importance (Horwitz, 1986; Çimen, 2011). According to Başbay and Gözüm (2019), the most important factor that affects foreign language education is individual differences with cognitive or affective nature. Considering that emotional preparation is the prerequisite for mental preparation (Chastain, 1988), the importance of affective characteristics in language education can be understood. Foreign language learning anxiety, which is an individual difference in the affective field, stems from the negative thoughts developed by the individual against the language as a result of the negative experiences experienced by the individual (MacIntyre and Gardner, 1989). Individuals who are anxious about foreign languages are afraid to be corrected by their teachers and humiliated in front of their friends if they make mistakes in the new language they have been learning in the classroom; and they think that there may be social pressure on them (Öner and Gedikoğlu, 2007). When one feels insecure in an environment, he or she psychologically avoids communication in a foreign language, and when this situation further proceeds, it may prevent learning (Öner and Gedikoğlu, 2007). Therefore, it is emphasized that self-confident individuals do not have foreign language anxiety, and even if

they have anxiety, it is not at a level to prevent them from learning (Brown, 1994). The self-confidence of the individual reveals the importance of the concept of self-efficacy, another variable discussed in this study, in foreign language education.

Educated people living in the 21st century are expected to be individuals who have high-order thinking skills, science, mathematics and foreign language literacy, and leadership characteristics, and can take responsibility for his or her own learning process and use technology effectively (Aktan, 2012). The most important goal of the 21st century education system is to raise independent individuals who can direct their own learning processes without the need for any support (Barron and Harackiewicz, 2000). Lifelong learners who learn by directing their own learning process have brought up the concept of self-regulation in education (Zimmerman, 2002). With the concept of self-regulation, the terms “teacher and teaching” have been replaced by the terms “student and learning” (Başbay and Gözüm, 2019). The terms “student and learning” mean that the individual can regulate his/her own learning process; in other words, it requires metacognitive awareness, which is the sub-dimension of self-regulation. Metacognitive awareness is regarded as the most essential element of the learning process (Oğuz and Kutlu Kalender, 2018).

As seen in the literature, students' metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety are among the individual differences that are important in the process of teaching and learning foreign languages and each student has at different levels. It is emphasized in the literature that it is necessary to conduct more studies to investigate the relationships between individual differences (Roberts and Meyer, 2012). In the studies conducted by Doğan (2016) and Tuncer and Doğan (2016), the relationships between metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety of university students were examined via structural equation modelling. However, the fact that the sample group of that study was composed of university students and the preferred measurement tools were different from the ones used in this study differentiate the studies. As a result, the fact that there is no research in the literature that investigates the structural relationships between metacognitive awareness, self-efficacy belief and foreign language learning anxiety at middle school level makes the present study unique. In addition, it can be suggested that the study is important in terms of providing information about the student characteristics that should be emphasized for an effective foreign language teaching-learning process whose importance is believed to be never-ending in a world globalizing around a common language.

As discussed in the literature review above, this study assumes that the metacognitive awareness variable has a mediating effect on the predicted relationship between middle school students' self-efficacy beliefs and foreign language anxiety. The mediation effect in question has been put forward because the following conditions are supported by the literature:

Link 1. Students' self-efficacy belief significantly predicts foreign language learning anxiety. According to the literature, this procedure is that students with high self-efficacy have lower foreign language learning anxiety (Pajares, 2003; Raoofi, Tan, and Chan, 2012; Aktaş, 2014; Anyadubalu, 2010).

Link 2. Students' self-efficacy belief significantly predicts their metacognitive awareness. According to the literature, this procedure is that students with high self-efficacy belief have high metacognitive awareness (Koç and Aslan, 2017; Öztürk and Kurtuluş, 2017).

Link 3. Students' metacognitive awareness significantly predicts foreign language learning anxiety. According to the literature, this procedure is that students with high cognitive awareness will have low anxiety to learn foreign languages (Kaçar and Sarıçam, 2015; Everson, Smolake, and Tobias, 2015).

When the effect of metacognitive awareness is checked and it is added to the model as variable (Doğan, 2016; Başbay, 2013), a significant decrease in the amount of relationship between students' self-efficacy beliefs and foreign language learning anxiety is expected (partial mediation) or the determined relationship is no longer statistically significant (fully mediated) (Şimşek, 2007). The proposed structure of the model is summarized schematically in Figure 1.

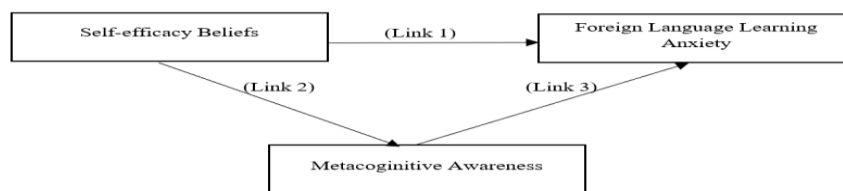


Figure 1. The proposed model

According to the proposed model, it can be said that in an environment where middle school students' self-efficacy beliefs are supported with metacognitive awareness, their foreign language learning anxieties will decrease more.

In this context, the main problem of the research is “What is the structural model explaining the effect of the levels of metacognitive awareness and self-efficacy beliefs of middle school students on their foreign language learning anxiety?”

The sub-problems of the study are given below:

1. What is the relationship between middle school students' metacognitive awareness levels, self-efficacy beliefs and foreign language learning anxiety?
2. Are the self-efficacy beliefs of middle school students a significant predictor of their foreign language learning anxiety?
3. Do the metacognitive awareness levels of middle school students have a mediating effect on the relationship between their self-efficacy beliefs and foreign language learning anxiety?

Method

Research Model

This study was designed in the relational survey model, which is one of the descriptive research types. This model is a research model that aims to reflect the existence and size of the change between two or more variables as it is (Karasar, 2008).

Participants

The participants of the study included a total of 285 7th and 8th grade students, who were selected via convenience sampling method and studying at a middle school with middle socio-economic status in Antalya in the 2018-2019 academic year. The frequency and percentage distributions of the students according to their gender and class level are illustrated in Table 1.

Table 1. Frequency and percentage distribution of the sample by gender and class levels

			Class Levels		
			7 th grade	8 th grade	Total
Gender	Female	F	90	59	149
		%	60.4	39.6	100
	Male	F	77	59	136
		%	56.6	43.4	100
Total	F		167	118	285
	%		58.6	41.4	100

As can be seen in Table 1, when the demographic characteristics of the 7th and 8th grade students included in the study were examined; 149 of them were female and 136 of them were male, and 167 of them were in 7th grade and 118 of them were in 8th grade.

Data Collection Tools

Personal Information Form, the Junior Metacognitive Awareness Inventory, the Self-Efficacy Questionnaire for Children and Foreign Language Learning Anxiety Scale were used as data collection instruments.

Personal Information Form

The personal information form created by the researcher included questions about the gender of the students, the grade they studied in, their English marks in their first semester report card and their grade point averages in their first semester report card for the 2018-2019 academic year.

The Junior Metacognitive Awareness Inventory

In the study, “the Junior Metacognitive Awareness Inventory (Jr. MAI) B Form” developed by Sperling, Howard, Miller, and Murphy (2002) and adapted to Turkish by Karakelle and Saraç (2007) was used to measure the metacognitive awareness of the students. The scale is comprised of two sections as Form A for the 3rd, 4th and 5th graders and Form B for the 6th, 7th, 8th and 9th graders. Since the sample of this study consisted of 7th and 8th grade students, Form B was employed. The Junior Metacognitive Awareness Inventory- B Form comprise 18 items and is 5-likert type as “never (1)”, “rarely (2)”, “sometimes (3)”, “often (4)”, “always (5)”. As a result of exploratory factor analysis, it was considered more appropriate to evaluate the scale as a single factor (Karakelle and Saraç, 2007). The validity analysis of the scale was performed by Karakelle and Saraç (2007). As a result of the t-test conducted, a significant difference was found between the upper and lower bounds. Cronbach's alpha value was revealed as 0.80 and the scale was determined to be reliable.

The validity and reliability analyses of the Junior Metacognitive Awareness Inventory were re-conducted for this study. As a result of confirmatory factor analysis, values were found as ($\chi^2 = 325.52 / df = 135 = 2.41$, $p = 0.00$), GFI = 0.89, IFI = 0.91, CFI = 0.91, NFI = 0.85, AGFI = 0.86, RMSEA = 0.07, and SRMR = 0.06. The obtained values indicate that the model has an acceptable level of fit (Jöreskog and Sörbom, 1993). In addition, the t-values obtained from the model confirm the significance of the factor loadings. As a result of the reliability analysis, Cronbach's alpha coefficient of the scale was found to be 0.81. Accordingly, the measurements made by using the scale can be stated to be highly reliable (Büyükoztürk, 2016).

The Self-Efficacy Questionnaire for Children

In the study, “The Self-Efficacy Questionnaire for Children” developed by Muris (2001) and adapted to Turkish by Telef and Karaca (2012) was used to measure the self-efficacy beliefs of the students. The questionnaire consisting of 21 items was prepared as five-point Likert type as “not good at all (1)”, “slightly good (2)”, “quite good (3)”, “good (4)”, “very good (5)”. Exploratory factor analysis revealed that it consisted of three factors as social, academic, and emotional self-efficacy as in the original form of the scale. Cronbach alpha values were calculated as 0.86 for the overall scale, 0.84 for the academic self-efficacy, 0.64 for the social self-efficacy, and 0.78 for the emotional self-efficacy. As a result of the confirmatory factor analysis, fit index values were found as RMSEA = 0.04, NFI = .95, CFI = 0.96, GFI = 0.94, and SRMR = 0.06.

Confirmatory factor analysis of the Self-Efficacy Questionnaire for Children was re-conducted for this study. Goodness of fit index values of the scale were revealed as ($\chi^2 = 314.31 / df = 186 = 1.68$ ($p = 0.00$), GFI = 0.90, IFI = 0.95, CFI = 0.95, NFI = 0.89, AGFI = 0.88, RMSEA = 0.04, and SRMR = 0.05. As a result of the analyses conducted, the factor structures were confirmed and the model was found to have good fit (Jöreskog and Sörbom, 1993). The t-values obtained from the model confirmed the significance of the factor loadings. In addition, Cronbach's alpha internal consistency coefficients were calculated for the overall scale and sub-factors. Cronbach alpha values were calculated as 0.83 for the overall scale, 0.70 for the “social efficacy” factor, 0.75 for the “academic efficacy” factor, and 0.73 for the “emotional efficacy” factor. According to these reliability coefficients, it can be argued that the measurements obtained from the scale and the sub-factors are reliable (Büyükoztürk, 2016).

Foreign Language Learning Anxiety Scale

In the study, Foreign Language Learning Anxiety Scale developed by Baş (2013) was used to measure foreign language learning anxiety of the students. The scale consisted of 27 items. The scale is 5-likert type as “Strongly disagree (1)”, “disagree (2)”, “undecided (3)”, “agree (4)” and “strongly agree (5)”. To test the construct validity of the scale, exploratory factor analysis and reliability analysis were performed. As a result of the analysis, it was found that the scale is composed of a three-factor structure as “personality”, “communication” and “evaluation”. Cronbach's alpha internal consistency coefficient was used for reliability of the scale. This

coefficient was found to be 0.93 for the overall scale, 0.89 for the “personality” factor, 0.88 for the “communication” factor, and 0.83 for the “evaluation” factor. Considering that Cronbach's alpha value should be at least 0.70 (Peers, 1996), the overall scale and each factor have reliable values (Baş, 2013).

Confirmatory factor analysis for the Foreign Language Learning Anxiety Scale was re-conducted for this study and the values were found as ($\chi^2 = 1548.30 / df = 321 = 4.82$ ($p = 0.00$), GFI = 0.92, IFI = 0.83, CFI = 0.83, NFI = 0.80, AGFI = 0.91, RMSEA = 0.09, and SRMR = 0.09. The obtained values indicate that the fit indices of the model are acceptable (Hair, Black, Babin, and Anderson, 2010; Marsh, Balla, and McDonald, 1988). The t-values obtained from the model also confirm the significance of the factor loadings. In addition, Cronbach Alpha internal consistency coefficient was calculated to measure the reliability of the Foreign Language Learning Anxiety Scale. The Cronbach Alpha internal consistency coefficients were found as 0.89 for the overall scale, 0.73 for the “personality” factor, 0.81 for the “communication” factor, and 0.72 for the “evaluation” factor. Accordingly, it can be stated that the measurements obtained from the scale and its sub-factors are reliable (Büyüköztürk, 2016).

Data Collection Process

In the study, the scales were applied under the guidance of the researcher in different course hours on different days determined for each class. Since multiple scales will be applied to the students, data were collected in two sessions of 40 minutes each. Personal information form and Foreign Language Learning Anxiety Scale were applied in the first session, and the Junior Metacognitive Awareness Inventory and the Self-Efficacy Questionnaire for Children were applied in the second session one week later. Since the students did not specify their first and last names in the scales, they were asked to code in order to match the scales of two different sessions. Since English was the only language taught as a foreign language course in the Middle School where the research was conducted, “foreign language course” meant “English course” for children. It was also emphasized by the researcher that the Foreign Language Learning Anxiety Scale should be answered by considering the English course. The scales were filled by 298 students by putting ticks on the scales. The data of 13 students who left some items of the scales unanswered were not included in the study. The data of 285 students were transferred to SPSS 23 statistical program and made ready for analysis.

Data Analysis

Structural equation modelling was used to develop the structural model that would explain the impact of the metacognitive awareness and self-efficacy beliefs of middle school students on their foreign language learning anxiety. In addition, descriptive statistics and correlations of the variables were calculated. In the analysis, LISREL 8.7 was used for the structural equation modelling and SPSS 23 programs were used for the descriptive statistics and correlations.

Results

Assumptions of Structural Equation Modeling

The assumptions regarding structural equation modeling are given below (Varol, 2014):

1. Multivariate normality has been achieved.
2. Having linear relationships between variables.
3. Sample size is sufficient.
4. Data being measured on a continuous scale.

Multivariate Normality

One of the assumptions of structural equation modeling is the normalization of the multivariate data (Varol, 2014). Multivariate normality analysis was performed to check the normal distribution of the data obtained in the study. The results of the multivariate normality test with LISREL are given in Table 2.

Table 2. LISREL multivariate normality test

Skewness			Kurtosis			Skewness and Kurtosis	
Value	z-score	P	Value	z-score	P	Chi-square (χ^2)	p
11.365	8.489	0.00	150.802	3.751	0.00	86.138	0.00

According to the data obtained from Table 2, the multivariate normality assumption could not be achieved ($p < 0.05$; $z\text{-score} > 1.96$) (Varol, 2014). In data without normal distribution, it is recommended to use WLS (weighted least squares) method as the prediction method of structural equation modeling (Raykow and Marcoulides, 2006; Muthén, 1993). However, since the WLS estimation method requires samples larger than 1000, Robust WLS estimation methods are specified as a more suitable estimation method considering the number of samples ($N = 285$) (Finney and DiStefano, 2006). While WLS method generates parameter estimates using traditional chi-square and standard errors, Robust WLS methods provide estimation of the weighted least squares parameter using robust standard errors, mean and variance corrected statistics (Varol, 2014). It is reported that Robust WLS estimation methods perform better in small samples than WLS method (Yang-Wallentin, Jöreskog, and Lüo). Robust WLS estimation methods are generally called as diagonal and analyzed by selecting DWLS method in LISREL (Yıldırım, Saraç, and Büyüköztürk, 2018). Therefore, DWLS method was used in this study.

Linear Relationship

In structural equation modeling, the relationships between variables are assumed to be linear. This assumption can be evaluated by examining scatter plots (Büyüköztürk, 2016). Below are the scatter plots that demonstrate the linearity between the observed variables in the structural equation modeling of the study. The graphs demonstrating the linear relationship of all the variables (the latent and the observed variables) are not included because they take up too much place.

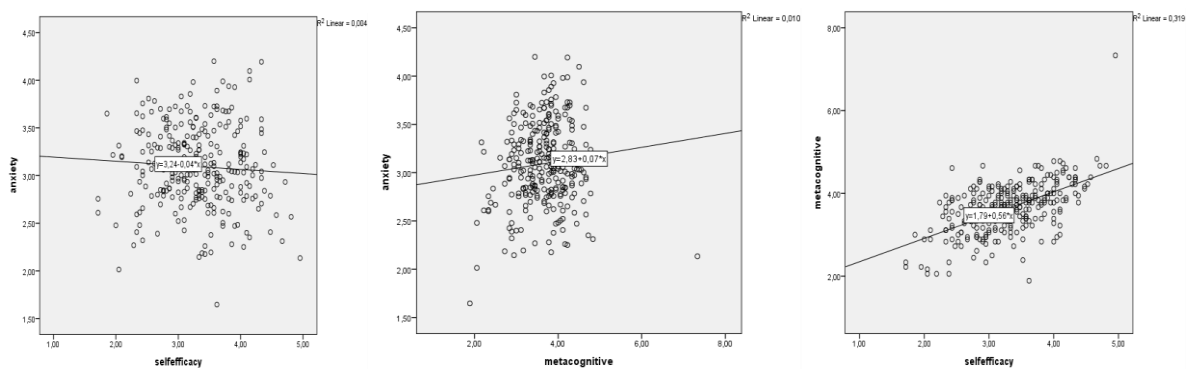


Figure 2. Scatter plots showing the relationship between the observed variables

As can be seen in Figure 2, it can be said that there is a linear relationship between the variables in all three graphs, as the points showing the values related to the variables are gathered around a line (Büyüköztürk, 2016).

Sample Size

The DWLS method has been found to cause problems in samples less than 200 (Forero, Maydeu-Olivares, and Gallardo-Pujol, 2009). Also, in structural equation modeling, the ideal sample size was specified as 20 times the number of estimates in the model and 10 times in less ideal studies (Kline, 2011). Since the number of parameters is 11 in the study, it can be said that the sample size is the ideal size.

Scale Type

Structural equation modeling assumes that data is measured on a continuous scale. However, as in the relevant study, psychological data are generally more suitable for collecting data with the sequential scale (the data was collected with the likert type scale in the study). At this point, the WLS method is considered as an appropriate estimation method as it is handled independently of the normal distribution of variables (Yıldırım et al., 2018; Varol, 2014). In the study, the preferred DWLS (Robust WLS) method was used when the sample size did not meet the WLS method. Therefore, it can be said that the study meets the assumption of continuous measurement.

Findings Related to the First Sub-Problem

First of all, descriptive statistics of the variables of the study were revealed. Arithmetic mean, standard deviation and Pearson correlation coefficient values were calculated, and the results are illustrated in Table 3.

Table 3. Arithmetic mean, standard deviation and Pearson correlation coefficient values

Variables	Mean	df	1	2	3	4	5	6	7	8	9	10	11
Foreign Language Learning Anxiety	2.98												
1. Personality	2.78	0.78											
2. Communication	2.92	0.85	0.74**										
3. Evaluation	3.24	0.82	0.61**	0.68**									
Self-efficacy Belief	3.30												
4. Academic	3.31	0.75	-0.31**	-0.33**	-0.24**								
5. Social	3.51	0.77	-0.24**	-0.29**	-0.17**	0.42**							
6. Emotional	3.09	0.84	-0.19**	-0.19**	-0.17**	0.43**	0.38**						
Metacognitive Awareness	3.68												
7. Metacog1	3.33	0.97	-0.17**	-0.10	-0.00	0.37**	0.23**	0.22**					
8. Metacog2	3.73	0.74	-0.23**	-0.16**	-0.07	0.40**	0.39**	0.23**	0.42**				
9. Metacog3	4.26	0.83	-0.15*	-0.13*	0.02	0.34**	0.24**	0.14*	0.30**	0.33**			
10. Metacog4	3.32	0.81	0.00	0.04	0.10	0.32**	0.24**	0.21**	0.40**	0.44**	0.21**		
11. Metacog5	3.77	0.80	-0.27**	-0.33**	-0.21**	0.39**	0.41**	0.31**	0.29**	0.40**	0.26**	0.20**	1

As revealed in Table 3, the metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety levels of the middle school students are close to 3, which is the midpoint of the 5-point Likert-type scale. In this case, it can be put forward that the students included in the sample had moderate levels of foreign language learning anxiety, self-efficacy belief, and metacognitive awareness. Also, their foreign language learning anxiety was found highest in the evaluation sub-scale ($M = 3.24$) and lowest in the personality sub-scale ($M = 2.78$). In addition, their self-efficacy beliefs were highest in the social domain ($M = 3.51$) and lowest in the emotional domain ($M = 3.09$), and their metacognitive awareness was highest in the third subscale ($M = 4.26$) and lowest in the fourth sub-scale ($M = 3.32$).

The correlation coefficients given in Table 3 indicate a low, significant and negative correlation between the personality and communication sub-scales of the foreign language learning anxiety scale and the sub-scales of the self-efficacy belief scale from -0.33 to -0.19 ($p < .01$). Significant, low and negative relationships were found between the sub-scales created by the researcher by means of item parcelling in the foreign language learning anxiety scale and the metacognitive awareness scale between -0.13 and -0.27 ($p < .05$).

In the analysis of the data related to the first sub-problem of the study, foreign language learning anxiety, self-efficacy belief, and metacognitive awareness were defined as latent variables. The three sub-scales of the Foreign Language Learning Anxiety Scale and the three sub-scales of the Self-Efficacy Questionnaire for

Children were assigned as the observed variables. In addition, item parcelling was performed for the metacognitive awareness variable through exploratory factor analysis and five observed variables were determined. In item parcelling, five sub-factors were created by considering the factor loadings of the scale items. As a result, a measurement model was created for the three scales with a total of three latent variables and eleven observed variables. The model is given in Figure 3.

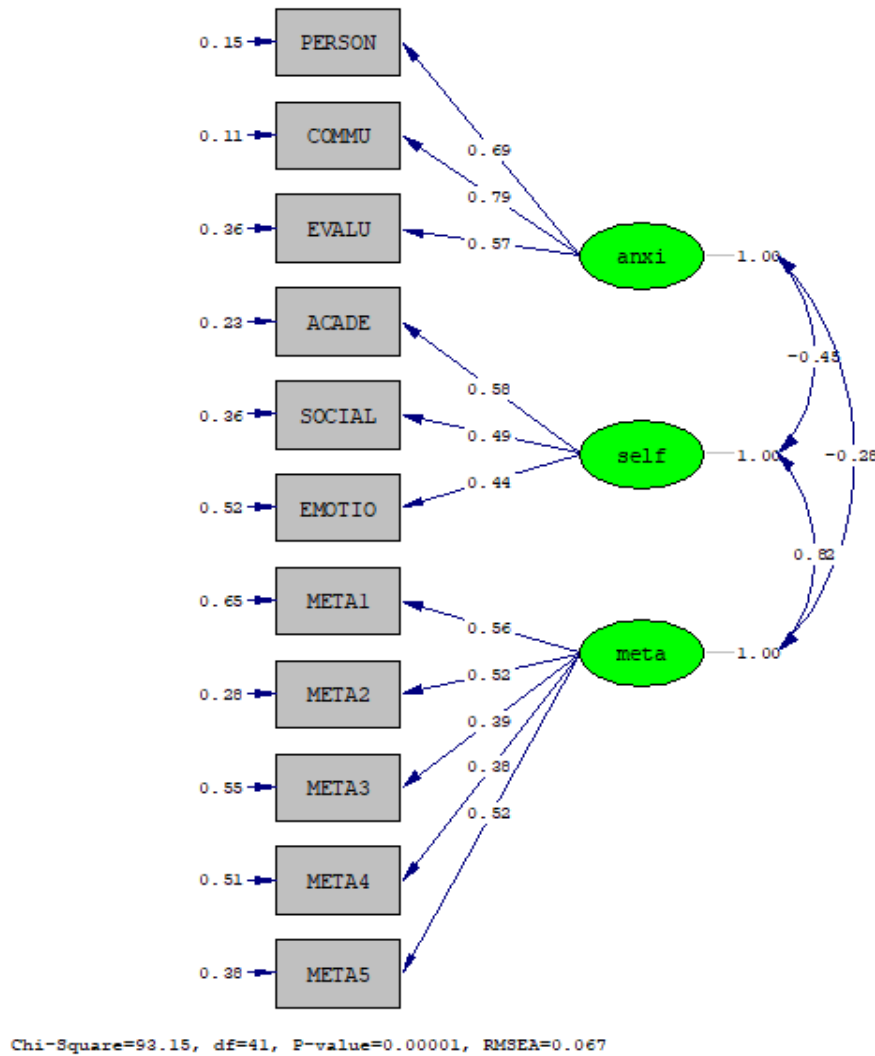


Figure 3. The measurement model

In the study, fit indices were evaluated and reported through RMSEA, SRMR, CFI, and NNFI fit indices as well as χ^2 / df . In structural equation modeling, the indicated indexes are among the indexes that are considered sufficient to be reported (İlhan and Çetin, 2014). Accordingly, the fit indices of measurement model seen in Figure 3 were determined as [$\chi^2 = 93.15$, $df = 41$, $p = .000$, $\chi^2 / df = 2.27$], NNFI = 0.94, CFI = 0.97, RMSEA = 0.06, and SRMR = 0.06. Among the determined fit indices, the fact that NNFI value ranges from 0.90 to 0.95, and the χ^2 / df value is between 2 and 3 are an indicator of acceptable compliance. It can be said that it has a perfect fit because the CFI value is higher than 0.95. Since RMSEA and SRMR values were also between 0.05 and 0.08, they were in the acceptable fit range (Kline, 2011; Schermelleh-Engel, Moosbrugger, and Müller, 2003). The model indicates a moderate, negative and significant (-0.45) relationship between the students' foreign language learning anxiety levels and self-efficacy beliefs, and a low, negative and significant (-0.28) relationship between their anxiety levels and metacognitive awareness levels. According to the findings, it can be suggested that the self-efficacy beliefs and metacognitive awareness levels of the students decrease as their

foreign language learning anxiety levels increase. In the measurement model, t-values were examined to test the significance of the direct effects and the significance of the t-values and factor loadings were confirmed.

Findings Related to the Second Sub-Problem

As a result of the analysis conducted for the second sub-problem of the study, the direct relationship between the variables of self-efficacy beliefs and foreign language learning anxiety was tested. The structural model created is illustrated in Figure 4.

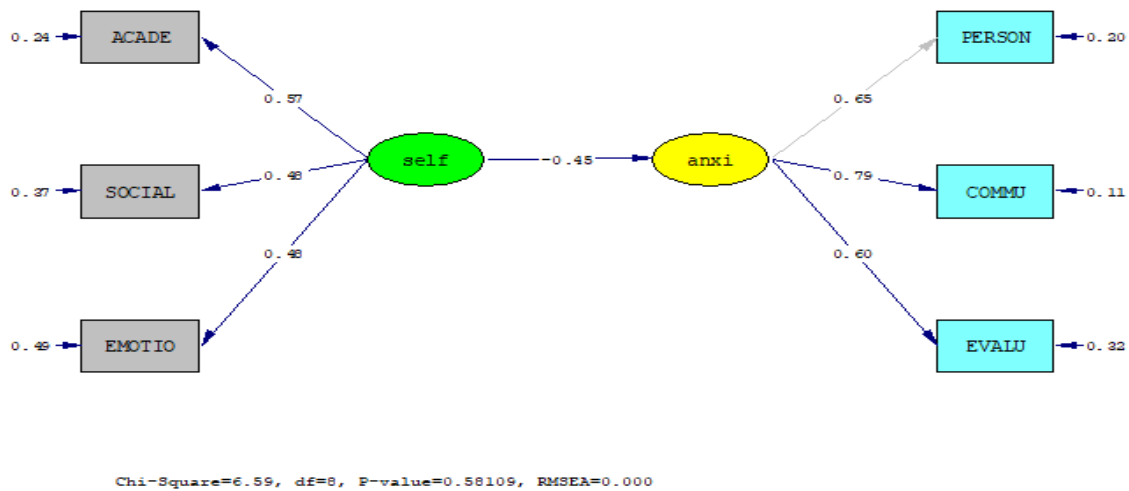


Figure 4. The model showing the direct relationship between the variables of self-efficacy beliefs and foreign language learning anxiety

As can be in Figure 4, the relationship between the self-efficacy beliefs and foreign language learning anxiety (-0.45) was found to be negative and moderate. The fit indices obtained were determined as [$\chi^2 = 6.59$, $df = 8$, $p = .58$], NNFI = 1.00, CFI = 1.00, RMSEA = 0.00, and SRMR = 0.02. In order for the model to be acceptable, the χ^2 value is not expected to be significant (Şimşek, 2007). Therefore, it is not necessary to determine the χ^2 / df value as the fit index. When other fit indexes are examined, it can be said that the model shows perfect fit (Kline, 2011; Schermelleh-Engel, et al., 2003).

Findings Related to the Third Sub-Problem

In the analysis conducted for the third sub-problem of the study, metacognitive awareness was added as the mediating variable to the model between self-efficacy beliefs and foreign language learning anxiety, and the model consisting of the partial mediation relationship was tested. Mediation effect in structural equation modelling can be expressed as a situation in which a mediating variable affects the independent variable and thus indirectly affects the dependent variable in addition to the direct relationship between the dependent and independent variables (İlhan and Çetin, 2014; MacKinnon, 2008). The mediator variable provides a better understanding of the relationship between the dependent and independent variable. The partial mediation model is shown in Figure 5.

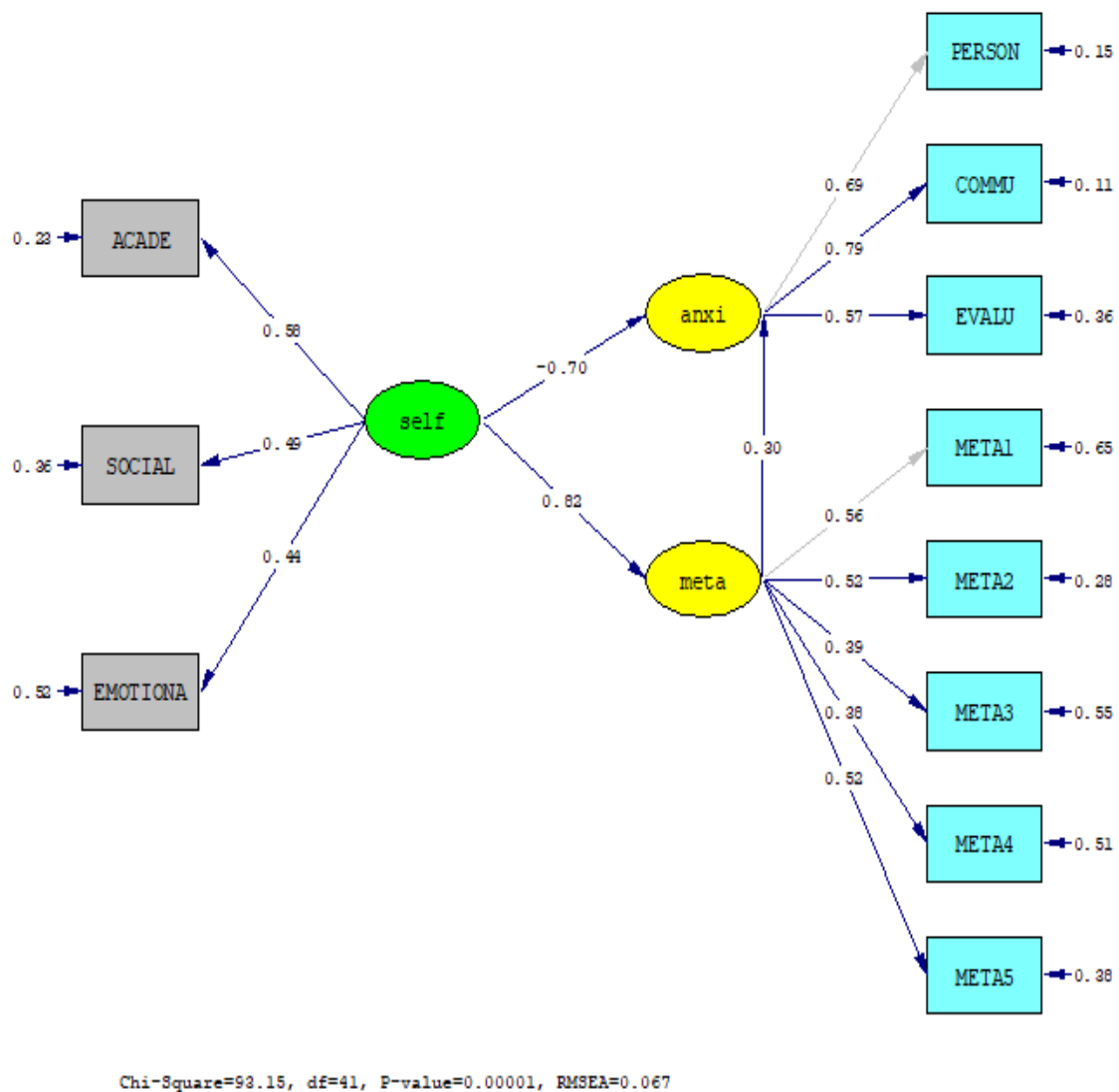


Figure 5. The model showing the impact of metacognitive awareness on foreign language learning anxiety as the mediator variable

Figure 4 shows that the direct effect of self-efficacy belief on foreign language learning anxiety is -0.45, and Figure 5 indicates that the effect of self-efficacy belief on foreign language learning anxiety is -0.70 when metacognitive awareness is added as the mediator variable. Based on this increase in the level of the relationship, it can be argued that metacognitive awareness does not have a partial mediation effect on the relationship between self-efficacy belief and foreign language learning anxiety. Accordingly, self-efficacy belief affects foreign language learning anxiety; however, the level of metacognitive awareness has no effect on this relationship. When the fit indices of the model are examined, it is seen that the fit indices are good (Kline, 2011; Schermelleh-Engel, et al. 2003): Chi-square value is $\chi^2 = 93.15$, $df = 41$, $p = 0.00$, $\chi^2/df = 2.27$; NNFI = 0.95, CFI = 0.97, RMSEA = 0.06, and SRMR = 0.06.

Discussion

The results obtained based on the sub-problems of the research are discussed below.

The first sub-problem of the study aims to investigate the metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety levels of the participants. According to the descriptive statistics, it has been determined that the students have moderate levels of foreign language learning anxiety, self-efficacy belief and metacognitive awareness. There are studies supporting this finding in the relevant literature. The studies conducted by Baysal, Ayvaz, Çekirdekçi, and Malbeleş (2013) and by Özsoy and Günindi (2011) on university students have revealed moderate levels of metacognitive awareness. Similarly, the studies carried out by Berkant and Ekici (2007) on university students and by Ekici (2006) on vocational high school teachers have found moderate levels of self-efficacy beliefs, and the studies of Ateş (2013), Doğan (2016), and Tuncer and Doğan (2015) have revealed moderate levels of foreign language learning anxiety. On the other hand, in their study which investigates the study approaches and academic self-efficacy of the university students studying in Computer and Instructional Technologies Department, Çuhadar, Gündüz, and Tanyeri (2013) have found high levels of self-efficacy beliefs. Likewise, Seçkin and Başbay (2013) have found high levels of self-efficacy belief in their study which examines the self-efficacy beliefs of pre-service physical education and sports teacher candidates about the teaching profession. This situation can be interpreted in a way that self-efficacy belief increases as the education level and age increase (Zimmerman, Bandura, and Martinez-Pons, 1992). In addition, based on the finding revealed by Aydın (2011) and Vardarlı (2005) reporting that socio-economic status positively affects self-efficacy belief, it can be suggested that the middle socio-economic status of the sample group might affect the self-efficacy belief, which was found moderate in the study. On the other hand, in another study investigating the relationship between the foreign language course anxiety and academic self-efficacy of the preparatory school students at university, Tuncer and Doğan (2015) have found moderate foreign language anxiety, which is in parallel with the findings of this research, and reported that moderate levels of anxiety do not affect learning negatively.

In addition, in the first sub-problem of the study, the relationships between the middle school students' self-efficacy beliefs, metacognitive awareness and foreign language learning anxiety and their sub-variables were examined via correlation analysis. As a result of the analysis, a significant, high and positive correlation was observed between the metacognitive awareness levels and self-efficacy beliefs of the students. Based on this finding; It can be suggested that students who believe that they can be successful manage their cognitive processes better on the way to success. Tunca and Alkın Şahin (2014) also have found a moderate, positive and significant relationship between prospective teachers' metacognitive learning strategies and their academic self-efficacy beliefs. In their study conducted on high school students, Bektaş Bedir and Dursun (2019) indicate that teaching students metacognitive reading strategies has a positive effect on their self-efficacy beliefs. In another study carried out with high school students, Lindsay (2010) has reached a high, positive and significant relationship between metacognitive awareness and self-efficacy belief. In addition, a positive and significant relationship have been detected between these two variables in the studies conducted with high school students by Cera, Mancini and Antonietti (2013) and by Rahimi and Abedi (2014), with university students by Nosratinia et al. (2014), with prospective teachers in the Department of Painting and Music Education by Sapanç (2010), and with middle school students by Oguz and Kutlu Kalender (2018).

Another relationship revealed as a result of correlation analysis is also between the variables of metacognitive awareness and foreign language learning anxiety. A low and negative correlation was observed between the metacognitive awareness levels and foreign language learning anxiety of the students involved in the study. Based on the findings, it can be maintained that students' foreign language learning anxiety decreases as their metacognitive awareness levels increase. In their study examining the relationship between the metacognitive awareness and math anxiety levels of prospective elementary school teachers, Kacar and Sarıçam (2015) have found a significant and negative relationship between these two variables. In another study investigating the relationship between high school students' anxiety and metacognitive awareness in reading skills, Everson, Smoldaka, and Tobias (1994) have concluded that the metacognitive word knowledge of the students with high anxiety is weaker and found a significant and negative relationship between these two variables.

A significant and negative correlation was observed between the variables of self-efficacy belief and foreign language learning anxiety. When the studies in the literature that investigate the correlation between self-efficacy beliefs and learning anxiety are examined, it is seen that in a study conducted with students studying at seven different colleges in Taiwan and learning English as a foreign language, Cheng (2004) maintains that students with low self-efficacy have a high level of anxiety. In their study conducted with undergraduate students studying at eight different universities in Turkey, Öztürk, and Saydam (2014) have revealed a

significant and negative relationship between self-efficacy beliefs and foreign language anxiety. In another study carried out at middle school, Anyadubalu (2010) conclude that students with high foreign language anxiety have low self-efficacy beliefs. Kafkas, Açak, Çoban, and Karademir (2010) have examined the relationship between the self-efficacy beliefs and professional anxiety of the prospective physical education teachers and maintained that there is a moderate and negative correlation between these two variables. Adal and Yavuz (2017) have found a low and negative correlation between mathematics self-efficacy and math anxiety levels of middle school students. Dobson (2012), Erkan and Saban (2011), Oğuz and Baysal (2015), Tsai (2013), and Yıldırım (2011) report a negative relationship between foreign language learning anxiety and self-efficacy beliefs as well. In addition, Horwitz and Young (1991) argue that learners' low self-esteem, personal problems and fear of losing their identity in society pave the way for foreign language anxiety. On the other hand, Çubukçu (2008) point out that there is no significant relationship between self-efficacy beliefs and foreign language learning anxiety in a study conducted with university students studying in the foreign language department. The reason for this situation can be explained by the fact that the sample consisted of university students studying in the foreign language department, because students who have an interest and desire to learn foreign languages and who are less anxious to learn foreign languages are expected to go to foreign language departments. In the study of Tuncer and Doğan (2015), which examines the relationship between the foreign language anxiety and academic self-efficacy of preparatory class students at university, a positive relationship has been detected between the variables. This may be caused by the fact that the preparatory class students, who make up the sample, do not attach much importance to the preparatory class and see the preparatory class as a stage when they can feel at ease and get used to the university environment before moving on to the department they have won. As a matter of fact, this situation will decrease the learning anxiety of students in a negative way, and the desire to learn will not be intense in students who do not have enough learning anxiety. In this respect, students who lack the necessary level of anxiety that help them learn can be expected to have low self-efficacy beliefs. Tuncer and Doğan (2015) have reported that high or low level of anxiety affects learning negatively and moderate level of anxiety is suitable for learning environments. In addition, based on Pajares (2002)'s finding that individuals with high self-efficacy are more persistent in difficult tasks and do not give up easily, it can be put forward that people with low self-efficacy avoid difficult tasks with the prejudice that they will fail and thus keep themselves away from situations that may cause high levels of anxiety.

In the study, since significant relationships were found between metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety as a result of correlation analysis and these relationships were supported by the relevant literature, structural equation modelling was performed to examine the multidimensional relationships between the variables. In order to explain to what extent the variables directly and indirectly affect each other, it is necessary to investigate the structural relationships of the variables with each other (Veenman, Van Hout-Wolters, and Afflerbach, 2006). For this reason, the structural relationships between the variables of the study were determined through the structural equation modelling.

The findings obtained from the structural equation modelling are the answer to the second sub-problem of the research. According to the model created via structural equation modelling, a moderate, negative and significant relationship was found between the foreign language learning anxiety and self-efficacy beliefs of the middle school students. This finding can be explained in a way that students with low self-efficacy beliefs have high anxiety about learning foreign languages. Students who consider themselves inadequate and have low self-esteem in the learning process have high level of anxiety about learning in general, which can also affect their foreign language learning negatively and may even push students into learned helplessness, a burden they will carry throughout their lives (Pajares, 1997). Doğan (2016) conducted a study with preparatory class students at university in order to examine the relationship between metacognitive awareness, self-efficacy beliefs, foreign language learning anxiety, attitudes towards foreign language and academic achievement in foreign language by structural equation modelling and reported a significant and negative relationship between self-efficacy beliefs and foreign language learning anxiety, which is in parallel with the finding of the present research. In another study examining the relationships between goal orientation, anxiety, self-efficacy belief, metacognitive awareness and academic performance through structural equation modelling, Lindsay (2010) has found a significant and negative relationship between anxiety and self-efficacy belief. As a result of their structural equation modelling, Ahmed, Minnaert, Kuyper, and Van der Werf (2011) have asserted that individuals with low self-efficacy have higher math anxiety.

As can be seen from the literature, there is a direct relationship between self-efficacy beliefs and foreign language learning anxiety. In addition, statistically significant relationships have been observed between both self-efficacy beliefs and metacognitive awareness and foreign language learning anxiety and metacognitive awareness. However, the studies in the literature examining the relationships between these three variables (Adal and Yavuz, 2017; Cheng, 2004; Everson et al., 1994; Kacar and Sarıçam, 2015; Lindsay, 2010; Tunca and

Alkın Şahin, 2014) mostly address these relationships separately and reveal the direct relationships between the variables. Starting from this limitation in the literature, in order to include the indirect relationships between these three variables, the mediating effect of metacognitive awareness was investigated in the relationship between self-efficacy belief and foreign language learning anxiety in the third sub-problem of this study. In this study, it was seen that students with high self-efficacy beliefs had low foreign language learning anxiety. If the students with high self-efficacy beliefs also had high cognitive awareness, whether there was a great decrease in foreign language learning anxiety, in other words, whether the metacognitive awareness variable had mediating effect in this relationship was investigated. In the study, the results obtained from the model developed for this purpose indicated that the metacognitive awareness variable had no impact on foreign language learning anxiety as the mediator variable. This could result from the developmental characteristics of the adolescence period since the sample consisted of students aged 13-15. As a matter of fact, Flavell (1987), Yalçın and Karakaş (2008) argue that metacognitive awareness level increases with age. In addition, according to Slavin (2012), a decrease is observed in self-efficacy belief and metacognitive awareness level in adolescence with emotional fluctuations. Noushad (2008) also points out that self-efficacy beliefs and metacognitive awareness of students are higher in the age group of 11-12 years compared to younger ages; however, he also adds that these characteristics decrease with puberty. In addition, the fact that metacognitive awareness variable had no mediating effect in the present study could result from the socioeconomic status of the students. In the study by Balcı (2007), it has been concluded that the higher the socioeconomic status, the higher the metacognitive awareness level. This situation could be due to the fact that individuals with high socioeconomic opportunities can benefit from educational opportunities more and thus are exposed to more stimuli. Therefore, it can be argued that the middle socioeconomic status of the students in the sample affected their metacognitive awareness level. However, the fact that the variable of metacognitive awareness had no mediating effect in the direct relationship between self-efficacy belief and foreign language learning anxiety did not affect the presence of direct relationships between the variables. As stated earlier, a significant and negative correlation was detected between metacognitive awareness and foreign language learning anxiety in the study. In other words, as the individual's control over his or her learning process increases, his or her anxiety about learning a foreign language decreases. A variety of researchers have reported that they have reached findings supporting this interpretation (Dobson, 2012; Doğan, 2016; Everson et al., 1994; Kacar and Sarıçam, 2015). In addition, a significant and positive correlation was found between metacognitive awareness and self-efficacy belief, which are the other two variables of the study. As reported in other studies obtaining the same result (Bektaş Bedir and Dursun, 2019; Cera et al, 2013; Doğan, 2016; Lindsay, 2010; Nosratinia et al, 2014; Oğuz and Kutlu Kalender, 2018; Rahimi and Abedi, 2014; Sapancı, 2010; Tunca and Alkın Şahin, 2014), individuals with high self-efficacy beliefs are more successful than those with low self-efficacy beliefs in the fields that can be explained by metacognitive awareness skills such as regulating their own learning processes, setting goals for themselves, and making efforts to correct their mistakes.

In a study conducted with preparatory class students at university, the relationships between the variables of foreign language learning anxiety, self-efficacy beliefs and metacognitive awareness have been examined through structural equation modelling (Tuncer and Doğan, 2016). As a result of that study, a significant and positive relationship is found between self-efficacy beliefs and foreign language learning anxiety, and it is suggested that this may result from the characteristics of the students making up the sample. Also, a significant and negative correlation is observed between self-efficacy beliefs and metacognitive awareness of the students, and it is put forward that this could be caused by the lack of motivation in the students. In addition, a significant and positive relationship is revealed between foreign language learning anxiety and metacognitive awareness, and it is reported that this might result from the fact that the study includes the general metacognitive awareness of the students rather than their metacognitive awareness in foreign language learning. Moreover, self-efficacy belief is concluded to have no mediating effect.

Doğan (2016) have reported that metacognitive awareness and self-efficacy belief have a mediating effect on the relationship between achievement and attitude in foreign language learning. Clause, Delbridge, Schmitt, Chan, and Jennings (2001) have examined the relationship between self-efficacy belief, metacognitive awareness and success of job applicants through structural equation modelling and concluded that metacognitive awareness has a mediating effect on the relationship between self-efficacy belief and success. In the study conducted by Lindsay (2010), it has been concluded that self-efficacy belief has a partial mediating effect on the relationship between test anxiety and metacognitive awareness. On the other hand, Coutinho (2008) has reported that metacognitive awareness does not have a mediating effect on the relationship between self-efficacy belief and performance.

Conclusion and Recommendations

The hypothesis that individual differences have a major impact on the problems experienced in foreign language education in Turkey was the starting point in the study, and as a result of the research, this hypothesis was confirmed from relational perspective. According to the results obtained from the study and presented based on the literature, metacognitive awareness, self-efficacy beliefs and foreign language learning anxiety are individual differences that interact with each other and are of great importance in foreign language education. In addition, one's metacognitive awareness and self-efficacy beliefs have the power to influence foreign language learning anxiety. People who know their individual differences and characteristics in the learning process will be life-long learners by moving away from the anxiety that they cannot learn and taking responsibility for their own learning process. Problems in foreign language education can be solved by those who are aware of the dynamic relationships between the individual differences, which have been revealed both in the study and the literature and affect the learning and teaching process. Therefore, the obstacles to the success of the individual should be eliminated by focusing on the individual characteristics of the individuals in the teaching-learning process together in addition to the efforts to improve the curriculum in foreign language education.

Based on the results obtained from the research, recommendations for research and implementation are presented below.

1. Considering that foreign language learning anxiety negatively affects self-efficacy beliefs and metacognitive awareness, which are of great importance in the learning process, it is recommended that the negative effects of foreign language learning anxiety are eliminated by teachers by creating a classroom environment that is free from competition, encourages students and focuses on interaction and communication.
2. Considering the impact of self-efficacy belief in foreign language education, it can be suggested that students are raised as individuals who believe in their own capacities and that especially lesson plans that support self-efficacy are implemented in classrooms.
3. Considering the importance of metacognitive awareness in becoming lifelong learners, it may be recommended that students are assigned in-class tasks or appropriate extensive tasks that can direct them to take more responsibility in order to raise individuals who take responsibility for their own learning.

In the study, the participants were not sampled randomly. They were from only one school and the number of them was 285. This situation creates a limitation regarding the generalizability of the findings.

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International Journal of Contemporary Educational Research (IJCER)

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To cite this article:

Aktan, O. (2020). Determination of educational needs of teachers regarding the education of inclusive students with learning disability. *International Journal of Contemporary Educational Research*, 7(1), 149-164. DOI: <https://doi.org/10.33200/ijcer.638362>

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Determination of Educational Needs of Teachers Regarding the Education of Inclusive Students with Learning Disability

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Abstract

The aim of this study is to determine the educational needs of the teachers regarding the education of inclusive students with learning disabilities in their classes. A qualitative case study design was used in this paper. The study group consists of 20 teachers who work in primary, secondary and high schools in Duzce city center in the 2018-2019 academic year and they have students who were diagnosed with learning disabilities in their classrooms. The participating teachers were selected according to the maximum diversity sampling method. In this research, teacher opinions were asked through a semi-structured interview form and content analysis was employed to analyze the data. As a result of the research, the educational needs of the teachers were gathered in five themes which are the competence of recognizing learning difficulties of students, to use the educational diagnostic process for students with learning difficulties, to prepare an individualized education plan, to develop instructional adaptations, and to conduct a family education. Based on the findings of this study, the teachers were revealed to need education in recognizing learning disabilities and the features of students with learning disabilities. In addition to these, they were also detected to need education not only in the use and the interpretation of standard assessment tools but also the knowledge about vocational regulations. The participating teachers also stated that they lack knowledge in the establishment of support and cooperation mechanisms, having the content knowledge regarding the preparation of an individualized education plan, providing expert support as well as pre, while and post educational interventions and training for family education. In the light of the research findings, it was proposed to provide practical in-service training with expert support, improve the professional qualifications of teachers providing prevocational and on the job training, and to carry out awareness activities aiming at increasing family participation.

Key words: Special education, inclusive education, learning disability, teacher, educational needs

Introduction

Today, individual differences play an important role in the structuring of the education system. In an education system where individual differences are taken into consideration, conditions appropriate to the educational, social and personal needs of individuals should be provided. Consistent with this understanding, special education is defined as the education offered to students with different and special needs. Through this education, it is aimed to enable gifted students to make the most of their abilities, prevent the disability of individuals from becoming an obstacle and enable these individuals to meet their own needs by equipping them with the skills that will help them to be independent and productive individuals (Ataman, 2011). In addition to this definition, the concept is also defined as the provision of comprehensive, research-based assessment, education and counseling services to gifted or students with disabilities in cognitive, behavioral, socio-affective, physical and sensory areas through specially prepared programs (Bryant, Smith, and Bryant, 2008; Salend, 2008). Determining the educational needs of students with special needs, providing them with appropriate education settings and services contributes them greatly to take part in their community as independent and productive members (Kırcaali-İftar, 1998; Şahbaz and Kalay, 2010).

Individuals with special education needs are classified according to the type of disability they have as the ones with mild intellectual disability, moderate intellectual disability, severe intellectual disability, profound intellectual disability, attention deficit and hyperactivity disorder, emotional and behavioral disorders, speech and language disorders, visual processing disorders, auditory processing disorders, orthopedic impairments,

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cerebral palsy, autism spectrum disorder, specific learning disorders, persistent (chronic) diseases and gifted individuals (MoNE, 2018). Learning disability is defined as a heterogeneous disorder as a result of standard tests applied to an individual who has a certain difficulty in the acquisition of writing, speaking, reading, writing, reasoning or mathematical skills considering the person's age, determined intelligence level, and education level (American Psychiatric Association [APA], 2013; Ebert, Loosen, and Nurcombe, 2003; Sattler, 1998). Furthermore, learning disability was detected to be associated with the functions of the central nervous system (Swanson, 2008) and neurological structures of the brain (Rumsey, 2006), causing low academic achievement (Johnson, Humphrey, Mellard, Woods, and Swanson, 2010). It can be said that the difficulties leading to the student's academic failure are not directly related to brain functions and perceptual disorders (Bender and Shores, 2007). Hence, individuals with special learning disabilities can be expressed as individuals with a significant difference between their real performance levels and their estimated potential due to the problems in their learning process (Hallahan and Mercer, 2001). As a result of conducted individual and standardized tests, the reading, mathematics or written expression of children with learning difficulties is quite lower than their expected level considering their age, reading status and level of intelligence. These learning problems negatively affect their academic achievement or their daily activities that require reading, math or writing skills (Özsoy, Özyürek, and Eripek, 1998). These students are behind their peers in terms of reading skills and make more reading mistakes than their peers. They also have difficulty in distinguishing visual symbols such as colors and numbers. Besides, they have problems with their short-term, long-term, and working memory. Other problems that they have are the difficulty in remembering what they see, hearing and memorization (MoNE, 2008). In Turkey, students with learning disabilities are accepted as individuals in need of special education according to the special education services regulation. Moreover, they can benefit from educational support services and are included in inclusive education (Dadandi and Urfali-Dadandi, 2015).

Children with special needs have different educational settings according to the types and severity of their handicaps. These settings range from the least restrictive settings where they get education with their peers to private boarding schools (Ataman, 2011; Eripek, 2007). The education services in placing individuals to place them in appropriate education settings from the least restrictive to the most restrictive ones are primarily classes where their non-disabled peers attend, resource rooms, special education classes, separate schools, boarding schools and home or hospital schooling (MoNE, 2018; Salend, 2008; Dikici Sığırmaç, and Gül, 2014). The model that is most widely adopted and tried to be developed in Turkey and in the world is inclusive education interventions which isolate students least from their peers. Inclusive education is based on the idea of educating students with disabilities in ordinary classes, which provide education in a regular education setting with their typically developing peers (Batu and Iftar, 2011; Melekoğlu, Çakiroğlu, and Malmgren, 2009; Pijl, Meijer, and Hegarty, 1997; Sucuoğlu and Kargin, 2014).

Inclusive education intervention requires providing educational support services to the individuals with special needs who suffer from disabilities alongside their typically developing peers (Batu & Kırcaali Iftar, 2011; De Boer, Pijl, and Minnaert, 2010; Osborne and DiMattia, 1994; Pijl, Meijer, and Hegarty, 1997; Rafferty, Boettcher, and Griffin, 2001). Being in the same educational setting with their non-disabled peers has positive emotional effects on children with special needs and provides them with a chance to learn some behaviors from their peers (Cagran and Schmidt, 2011; Eripek, 2003). According to the Regulation on Special Education Services of the Ministry of Education (2018), students with learning disabilities are considered individuals in need of special education. Thus, students who receive this diagnosis can benefit from educational support services and are included in inclusion education (MoNE, 2018). The rate of students who were diagnosed with learning disabilities in world is 3% among students with special needs (U.S Department of Education, 2016; Melekoğlu, 2017). Besides, 80% of individuals with learning disabilities are individuals with reading impairment (Ministry of family and social policies, 2014, p.39). It was also reported in DSM-V that the prevalence of specific learning disabilities is between 5% and 15% among school children. Considering the gender distribution, it can be said that learning disabilities are more common in boys than in girls (APA, 2013; Lagae, 2008; Liederman, Kantrowitz, and Flannery, 2005).

Educational arrangements that are made before starting the education of students with learning disabilities can promote to obtain effective results in achieving the goal of teaching. These arrangements are keeping the physical setting in which the student lives simple and free from any distracters, allowing the student to seat next to his / her favorite peer, determining daily routines and making a list of rules regarding obeying them, making adaptations in teaching materials, content and assessment for students, providing skills education for students to improve their weak skills, supporting the content of courses using audio-visual and technological materials, assessing student performance at certain intervals, ensuring and reinforcing class participation, making the instructions clear and intelligible, preparing individual activities and group works, introducing students to their

peers and providing peer support (Aktan and Budak, 2017; Downing and Parker, 2006; Fuchs and Fuchs, 1998; Güzel Özmen, 2013).

When the relevant literature is examined; it is seen that studies on the features of learning disability (Özçivit Asfuroğlu and Tülin Fidan, 2016; Turan and Yükselen, 2004), identifying individuals with learning disabilities (Çakıroğlu, 2015; Turan Turgut, Erdoğan Bakar, Erden, and Karakaş, 2016), problems experienced by teachers of learning disabled children (Dadandı and Urfalı- Dadandı, 2015; Birol and Aksoy Zor, 2018), misconceptions of classroom teachers related to learning disability (Başar and Göncü, 2018), learning disabilities in gifted students (Özkardeş and Şekeral, 2013), anxiety and depression levels of children with learning disabilities (Deniz, Yorgancı, and Özyeşil, 2009), education of students with learning difficulties (Çakıroğlu, 2015a; İlker and Melekoğlu, 2017; Kançeşme, 2015; Mutlu, 2016; Tatar and Dikici, 2008; Yıldırım Doğru, Alabay, and Kayılı, 2010), improving professional competencies of teachers regarding inclusive education (Acedo, 2011; Florian, Young, and Rouse, 2010; Griffin et al., 2017), were carried out. When studies are analyzed, it is understood that although research on different dimensions of learning disability were conducted with an emphasis on the education of students with learning disabilities, the research on the educational needs of teachers regarding the education of inclusive students with learning disabilities are limited.

In studies conducted for the education of students with learning difficulties, it was determined that teachers need in-service training about learning difficulties (Ergin, Akseki, and Deniz, 2012; Serin and Korkmaz, 2014), there is not enough cooperation for the education of students (Blecker and Boakes, 2010), teacher training is inadequate (Dadandı and Urfalı-Dadandı, 2015), teachers have both lack of information and misconceptions that will make diagnosis difficult (Başar and Göncü, 2018; Clark, 1997; Doğan, 2013; Kuruyer and Çakıroğlu, 2017; Özabacı and Ergün-Başak, 2013; Yeo, Chong, Neihart, and Huan, 2014); they have problems in not only identifying the difficulties of students with learning disabilities but also providing the support and education they need (Güzel Özmen, 2013), teachers' knowledge of the regulations regarding the education of students with learning disabilities is insufficient (Dapudong, 2013, Lee and Low, 2013). It was also found that providing support and cooperation in special education (Batu, 1998; Baykoç-Dönmez, Aslan, and Avcı, 1997; Demirdağ, 2014; Kaya, 2013; Lewis and Doorlag, 2011) and trying out different educational approaches (Demirdağ, 2014) to help students with specific learning disabilities to achieve success is of top priority.

It is aimed to meet the “continuing education” principle through the education received during the candidate teacher period and on the job training. In-service training programs are prepared according to the training needs of the personnel in accordance with the purpose of the institution (Ergin et al., 2012). In all branches of teaching, it is impossible for teachers to interpret the reflections of the changes and developments in education in the world and Turkey with the education they received before the service (Bilir, 2004). There are inclusion students with a diagnosis of learning disabilities in primary, secondary and high school education levels and they get education in the same class with their peers. To ensure the desired success of the inclusion of students with learning disabilities, teachers who are primarily responsible for the education of these students are required to improve their professional competencies. The number of students diagnosed with learning disabilities increase day by day with the development of assessment tools aimed at diagnosing students in terms of health and education (Butterworth and Kovas, 2013; Cortiella and Horowitz, 2014; Petretto and Masala, 2017). From this point on, the determination of the educational needs of the teachers to provide better education to students diagnosed with learning disabilities makes this research even more important. The aim of this research is to determine the educational needs of teachers working at different levels of education regarding the education of inclusion students diagnosed with learning disabilities.

Method

Research Design

In this study, the training needs of teachers working at different levels of education regarding the students diagnosed with learning disabilities were examined and the case study design that is among qualitative research methods was used. Case studies, in which different units from a single individual to a school can be addressed, provide researchers with rich and detailed data, but are not intended to generalize as in other qualitative research approaches (Lichtman, 2006). The case study involves an in-depth analysis of one or more events, settings, programs, social groups, societies, subjects, or other constrained systems without prejudice. (Cohen, Manion and Morrison, 2005; Stake, 1995; Silverman, 2006; Yin, 2003). Therefore, the research was conducted as a case study in order to determine the educational needs of teachers who take an active role in educational activities concerning learning disabilities more comprehensively.

Study Group

The study group was selected among the teachers who served at different levels of education in Düzce province and who have inclusion students diagnosed with learning disabilities in their class in the 2018-2019 academic year. Maximum diversity sampling a special kind of purposeful sampling methods was used to create the study group. Maximum diversity sampling is used when the sample size is relatively small to reveal the diversity of individuals who may be party to the problem studied in this sample and the different dimensions of the problem according to this diversity (Yildirim and Simsek, 2013). In order to ensure the diversity in the study group, attention was paid to select participants with different features by taking into account the different characteristics of the participants such as their level of education, branch, professional seniority and educational status. The study group consists of 20 teachers selected within the framework of the pre-determined criteria.

Data Collection

A structured interview form prepared by the researcher was used as a data collection tool in the research. This form consisting of eight open-ended questions prepared and implemented to determine the needs of the participating teachers for the education of inclusion students diagnosed with learning disabilities. For the structured interview questions prepared for the teachers, three different expert opinions were obtained and the intelligibility of the questions were tested by conducting pilot interviews with three teachers. After expert opinions and pilot interviews, one of the interview questions was removed from the form and one question was combined with another, hence; the interview form was given its final form. During the interviews, the participants were addressed by their names, however; during the analysis and reporting process, each participant was given a code name. The interviews with each participant were carried out by the researcher, and each interview took approximately 30 minutes. All the interviews with the participants were recorded with a recorder.

Data Analysis

The data collected for the research was analyzed by content analysis method. The researcher conducted one-to-one interviews with the teachers and the interviews were recorded. Then the recordings were transcribed and analyzed. In order to increase the validity of the research results, maximum diversity sampling from purposeful sampling varieties was used in the research to be consistent with the qualitative research tradition. The data set was studied in detail in the research. In the analyses, each teacher was given a code, the data was analyzed and the themes and sub-themes were reached. While coding and editing themes and sub-themes, the researcher abode by the raw data. For this purpose, the data was depicted using direct quotations from teacher opinions. In order to ensure the reliability of the research, the opinions of the teachers were coded separately by the researcher, and in the creation of the themes and sub-themes, the opinions of three experts in qualitative research were compared, and the themes and categories were finalized. Moreover, to ensure the reliability of the data obtained through descriptive analysis, Miles and Huberman's (1994) "Consensus / (Consensus + Disagreement) x 100" formula was utilized. The reliability rate between the coding obtained by the researcher and the consistency between the theme and the sub-themes was determined as 87%.

Findings

Within the scope of the research, the opinions of the teachers were analyzed and interpreted using direct citations. At the end of the interviews with the teachers, it was determined that the educational needs of teachers related to the education of inclusion students with learning difficulties were gathered in five themes. Below are the themes and sub-themes created according to the opinions, respectively.

Theme 1. Recognizing Learning Difficulties

In the context of the research, the views of the teachers regarding the theme which is recognizing learning difficulties were given in Table 1.

Table 1. The teachers' educational needs related to recognizing learning difficulties of students

Theme	Sub theme	Opinions	Frequency (f)
Recognizing learning difficulties	Theoretical Foundations	Recognizing learning difficulties	14
		Features of students with learning disabilities	12
		Difficulty in reading	8
		Difficulty in writing	6
		Difficulty in mathematics	5
		Positive attitude development	4
		Empathetic thinking	1
		Conceptual integrity	1

When Table 1 is examined, it is seen that teachers explained the educational needs related to the theme of recognizing learning difficulties within the context of theoretical foundations (f=51) sub-theme. In line with the views of the teachers, the theoretical foundations are as follows: recognition of learning difficulties (f=14), characteristics of the students with learning difficulties (f=12) and reading difficulties (f=8). Below are direct citations of the teachers on this theme which is recognizing learning difficulties;

"... there is a confusion of concepts about this. The reading dimension should be considered separately, the writing dimension should be considered separately, and the mathematics subject should be considered separately. Each has a separate approach. If we want to get improvement in the education of these children, the competence of teachers needs to be improved in these matters. (T5)."

"..Some of the students in my class have serious behavioural problems. These behaviors can be analyzed to determine whether they are related to learning disabilities. A serious training in behavioural analysis is needed. (T12)."

"...unfortunately there is a negative perception about these students. When faced with such a student, as a general opinion, the prevailing idea is "a student I will have a problem with". The elimination of this idea and the inclusion of studies on the development of empathetic thinking and positive attitudes in this regard should be considered as a priority... (T4)"

".. what should be done to correct the writing of children with writing problems. In the same way, a systematic support is essential for how to follow a path for reading problems. Our own experience may be inadequate... (T3)"

"I think students with learning disabilities should be seriously monitored for a certain period of time in classroom settings. The student should be observed in classroom setting and decided according to the results of the observation. I think this has been neglected or we have had to be neglected in the intensive teaching processes. Besides, I don't think we're qualified enough for this observation. (T6)."

Theme 2. Educational Diagnostic Process for Students with Learning Disabilities

In the context of the research, the teachers' views on the theme of educational diagnostic process for students with learning disabilities were presented in Table 2.

Table 2. The teachers' educational needs related to educational diagnostic process

Theme	Sub theme	Opinions	Frequency (f)
Educational Diagnostic Process	Informing	Knowledge regarding regulations	8
		Operational knowledge for Guidance and Research Center	4
	Diagnosis	Using and interpreting standard assessment tools	5
		Observation and interpretation	3
		Behavior analysis	2
	Cooperation	Receiving family support	11
		Receiving school administration support	7
		Receiving Guidance and Research Center support	6
		Collaboration with the guidance service	5
		Providing collaboration between teachers	4

When Table 2 is examined, it is seen that the teachers explained the educational needs related to the educational diagnostic process theme for students with learning disabilities in the context of information (f=12), diagnosis (f=10) and cooperation (f=33) sub-themes. In line with the teachers' views, the information sub-theme regulatory information (f=8) and guidance and research center working information (f=4) are the prominent

opinions. Using and interpreting standard measurement tools in diagnostic subtext (f=5), observing and interpreting (f=3), and behavior analysis (f=3) are the prominent opinions in line with the teacher opinions. In line with teacher opinions, cooperation is important in the sub-theme: receiving family support (f=11), receiving school administration support (f=7) and receiving guidance and research center support (f=5). Below are direct citations of the teachers' educational needs concerning the theme which is the educational diagnostic process for students with learning disabilities;

"Legislation related to the educational diagnostic process is sometimes up in the air, teachers should be informed about it (T17)."

"The process of educational identification must take place in cooperation. Efforts should be made to develop cooperation between the family, school administration, and counselling and research center. If this process is not dynamic, no results can be obtained (T11)."

"We can't get the support of the families. Teachers should be given guidance on providing family support (T2)."

"The school administration and the guidance service must do their part. However, most of the time, the teacher is the only person who takes the burden of this responsibility (T12)."

"The family should be more involved in the educational process (T18)."

"Information should be obtained from all teachers who provide education to students and it should be revealed in which subjects students' learning difficulties arise. Teachers should cooperate in order to implement a common attitude towards students and it is the guidance service that will make this happen with the support of the school administration (T20)."

"I think we need to get expert support on this issue to identify these students correctly and provide them with more support. I don't think I have the necessary diagnostic knowledge about this. Because I think this work is more accurate to be done by experts (T9)."

Theme 3. Competence to prepare an Individualized Education Plan (IEP)

Within the scope of the research, the teachers' views on the competence to prepare IEP theme were presented in Table 3.

Table 3. The teachers' educational needs related to competence to prepare IEP

Theme	Sub theme	Opinions	Frequency (f)
IEP preparation qualification	Theory	Learning disability knowledge	8
		Educational assessment knowledge	4
		Program development knowledge	3
		IEP regulation knowledge	3
		Special education method and technical knowledge	2
		Development of assessment tools	1
		Attention tests	1
	Intervention	Receiving expert support	10
		Teamwork and collaboration	8
		IEP preparation	7
		Receiving family support	2
		Program adaptation	2
		Program assessment	1

When table 3 is analyzed, it is seen that the teachers explained the educational needs related to the theme of IEP preparation competence within the scope of the sub-themes of theory (f=22) and practice (f=30). In line with the teachers' views, knowledge of learning disabilities (f=8), knowledge of educational evaluation (f=4) and knowledge of program development (F=3), knowledge of IEP legislation are the prominent opinions. Below are the direct citations of the teachers for their educational needs regarding the IEP theme;

"I think IEP preparation requires expertise. Training should be provided with expert support before these plans are prepared at the beginning of the educational year (T3)."

"On the job training should be conducted with the participation of experts regarding the preparation and implementation of serious content for IEP in both planning and implementation stages. Besides, support should be provided on how to determine the gains and how to choose the appropriate method and technique (T8)".

"Everyone involved in the school should support the process of IEP preparation and coordination between the family, teachers and the administration should be ensured during the implementation phase (T11)".

"The professional competence of teachers should be improved in the field of IEP preparation. (T1)"

"....I don't think teachers are good enough at this. In particular, teachers should be made competent by trainings for the preparation of IEP (T16)".

"I believe the process will be more successful if the family is also involved (T20)".

"....as a result, long-term and short-term goals are written, a kind of program is developed. Teachers should have sufficient background in writing objectives and preparing programs, considering the existing curriculum (T7)".

Theme 4. Instructional Adaptations

Within the scope of the research, the teachers' views on the theme of IEP preparation competence were presented in Table 4.

Table 4. The teachers' educational needs related to the instructional adaptations

Theme	Sub theme	Opinions	Frequency (f)
Instructional Adaptations	Pre-teaching adaptations	Variety of methods and techniques	7
		Organizing content by topic	6
		Simplifying content	4
		Preparation of appropriate activity	3
		Communication skills	3
		Time management	2
		Selecting appropriate content	2
		Preparing material suitable for the content	2
		Choosing the appropriate method for the subject	1
	While-teaching adaptations	Classroom management	5
		Use of group studies in teaching	2
		Arranging the setting	2
		Peer teaching	1
	Post-teaching adaptations	Preparation of assessment tools appropriate for IEP gains	7
		Preparation of alternative assessment tools	3

As far as Table 4 is concerned, it can be seen that the theme of the teachers' educational needs related to the instructional adaptations was explained under three sub-themes, which are teaching pre-adaptations (F=30), adaptations during teaching (f=10), and adaptations at the end of the teaching (f=10). In line with the teachers' views, the most prominent views on the needs in pre-teaching adaptations sub-theme are; methods and diversity (f=7), organizing content by topic (f=5) and simplifying content (f=4). The noteworthy opinions in the while teaching adaptations regarding the needs related to the sub-theme are classroom management (f=5), use of group studies in teaching (f=2) and arranging the setting (f=3). Finally, the teacher's views for post-teaching adaptations sub-theme regarding the preparation of assessment tools appropriate for IEP gains (f=7), and preparing alternative assessment tools (f=3) were presented. Direct citations of the educational needs of the teachers regarding the relevant theme are as follows;

"....in-service training should be given not only about methods and techniques appropriate for students with learning disabilities but also on developing materials consistent with the course content (T12)".

"... often there are problems that arise from us as well, because we cannot communicate with the student. I need communication skills for students with learning disabilities (T6)".

"I think if we can manage the class, there will be time for those students. We cannot have efficient lessons in the classroom because of telling students to stop, sit down, do not do it. If classroom management is good, there will be an opportunity to deal with students with learning disabilities (T14)".

"I think our most important insufficiencies are on how to choose the method according to the subject and the features of the students, how to design the course based on the chosen method ... (T7)".

"..During teaching in the classroom, these children often fall behind the classroom. They cannot finish noting down in time or follow the lesson. I can say that I have difficulty in how to simplify the subject according to the level of the student or how to explain things more clearly (T20)".

"I have problems in how to plan a group work in class, getting support from other students, preparing exam paper appropriate for students and content, developing multiple-choice tests instead of open-ended exams, short-answer questions, matching questions, portfolio, observation, etc. preparation and application of assessment tools ...(T3)".
 "...practical training should be given on how the assessment tools for students with learning disabilities are prepared and how they are implemented (T14)".

Theme 5. Family Education

Within the scope of the research, the teachers' views on the *educational needs for family education theme* were presented in Table 5.

Table 5. The teachers' educational needs related to the family education

Theme	Sub theme	Opinions	Frequency (f)
Family Education	Individual development	Knowing the child	5
		Features of adolescence	5
		Psychological features of children	3
		Personality knowledge	2
		Social and emotional development	2
	Special education	Recognizing learning difficulties	13
		Providing family support in home setting	9
		Accepting the disability	3
		Inclusion education	3
		Problem behavior prevention	2
	Skills	Problem solving skills	3
		Communication skills	2

When table 5 is examined, it is seen that the teachers stated their educational needs related to the theme of family education under three sub-themes: individual development (f=17), special education (f=30) and skills (f=5). Knowing the child (f=5), features of adolescence (f=5) and psychological features of children (f=3) are prominent views in the theme of individual development. In the special education sub-theme, recognizing learning difficulties (f=13), providing family support in home setting (f=9), accepting the disability (f=3) were the prominent opinions. In the skills sub-theme, problem solving skills (f=3) and communication skills (f=2) were included. Direct citations of the teachers concerning their educational needs for the family education theme were presented below;

"...the family can be informed about how to support the student after school and the prevention of problem behaviors. (T3)"

"I think first of all, parents should be convinced to accept the situation regarding the learning disability of their children. The family does not support you or the student unless they do not accept this. (T5)"

"...education should be given about how to convince families to accept the learning difficulties of their children... (T9)".

"the priority must be placed on the characteristics of special education, the benefits of inclusion and the elimination of unwanted behavior (T13)".

"... issues should be taught regarding special education such as what a learning disability is and its characteristics (T7)"

"... topics such as recognizing the child or adolescence with learning disabilities, problem solving, and communication may be included (T20)".

"Personality formation, recognizing individual features, features of the adolescent, inclusion education, theoretical foundations of learning disability... (T17)".

Discussion and Conclusion

In this study, the educational needs of teachers related to the education of inclusion students diagnosed with learning disabilities were determined. Based on the findings of the study, it was detected that the teachers need education in the recognition of not only learning disabilities and their features but also learning disabilities in reading, writing and math. In addition to these, they were also found to have difficulty in developing positive attitude, empathic thinking and conceptual integrity. In a study by Ergin et al (2012), which examined the in-

service needs of classroom teachers, the teachers were found to consider learning difficulties among their primary in-service education needs. The findings of this study support the findings of educational needs related to learning disabilities identified in our research. Research findings suggesting that teachers have inadequate knowledge regarding learning disabilities (Başar and Göncü, 2018; Dogan, 2013; Güner, 2011; Kuruyer and Çakiroğlu, 2017; Özabacı and Ergun-Basak, 2013; Yeo, Chong, Neihart, and Huan, 2014), supports the educational needs of teachers for learning disabilities in general.

In the light of the findings of this study, it was emphasized that the primary educational needs of the teachers are having the necessary knowledge regarding vocational regulations, operational knowledge of the counseling and research center, using and interpreting standard assessment tools, providing observation and interpretation to families and obtaining support from school administration and guidance and research center. In the research conducted by the training, research and development department of the Ministry of Education (2010), about half of the teachers surveyed stated that they did not have any knowledge about the vocational regulations. Similarly, research findings by Dapudong (2013), Lee and Low (2013) support the findings that teachers lack the knowledge related to vocational regulations for the education of students with learning disabilities. The research carried out by Kaya (2013) pointed out the support of the school administration in achieving the success of inclusion education. Aslanargun (2007) suggested that family participation in education is not sufficient, while the research conducted by Erdoğan and Demirkasimoğlu (2010) stated that teachers and managers do not receive family support during the education process. Research by Leatherman (2007) and Metin, Güleç and Şahin (2009) also determined that teachers need the support of the school administration. The results of these studies are consistent with the results of our research that teachers have educational needs to cooperate with families and school managements and to provide support from school administrations in the educational process of students with learning disabilities.

In the IEP preparation competence theme, the participating teachers expressed that they had educational needs in the theoretical knowledge aspect of learning difficulties, educational assessment, curriculum development, methodological and technical knowledge and the knowledge of vocational regulations. As for the intervention aspect, they stated that they had primary training needs in expert support, teamwork and cooperation, preparing IEP, providing family support, and adapting programs. In the research conducted by Sadioğlu, Bilgin, Batu and Oksal (2013), teachers stated that they needed the most expert support in inclusion practices, and then they needed material support, family support, special education class and support training room support respectively. In different studies, providing support and cooperation in special education (Batu, 1998; Baykoç-Dönmez, Aslan and Avcı, 1997; Demirdağ, 2014; Kaya, 2013; Lewis and Doorlag, 2011), and trying different teaching methods in teaching (Demirdağ, 2014) was claimed to be effective for students with specific learning disabilities to achieve success. In research conducted by Blecker and Boakes (2010) and Vlachou, Didaskalou and Kontofryou (2015), participants expressed that there was a lack of efficient cooperation in inclusion and that teacher training in the field of special education was not sufficient. In order to achieve the desired success in inclusion education, it is necessary to establish an effective cooperation mechanism with teachers, school administration, special education teachers and other partners (Colak, Vuran, and Uzuner, 2013; Sucuoğlu and Kargin, 2014). The findings of the research regarding the importance of providing support and cooperation, applying different methods and techniques, and improving teacher qualifications support our findings. In the research carried out by Dadandı and Urfalı-Dadandı (2015), half of the teachers who participated in the research did not find themselves sufficient about the education of students with learning difficulties, whereas in another study conducted by Serin and Kormaz (2014), teachers stated that they needed in-service training (Altun and Uzuner, 2016; Doyran and Canca, 2013; Polat, 2013) to meet their needs about the education of students with learning difficulties. In the research conducted by Camadan (2012), it was revealed that the in-service trainings for teachers were beneficial. It can be said that similar results have been obtained in support of the research results in the studies on the education of students with learning disabilities in line with our research findings.

In the teaching adaptations theme; it was determined that while teachers needed education in mastering a variety of methods and techniques, organizing content by topic, simplifying content, communication skills, time management during pre-teaching period, they needed education in classroom management, use of group studies in teaching and arranging the setting during while teaching period. As for the post-teaching period, it was detected that teachers needed education in the preparation of assessment tools appropriate for IEP gains and the preparation of alternative assessment tools. Teachers aiming the success of all students in the classroom make necessary instructional adaptations in accordance with the needs of their student (Friend and Bursuck, 2014). In order for students with special needs to receive education with their peers in inclusive settings, adaptations should be made in educational programs, educational purposes, teaching methods and tools (Sucuoğlu and Kargin, 2014; Tyagi, 2016). The general purpose of the instructional adaptations to be made in the classroom is to enable students to participate in the activities at the top level (Sucuoğlu, 2006; Sucuoğlu and Kargin, 2014). It

has been revealed through research that instructional adaptations lead to a positive development in learning and instructional adaptations is particularly effective in the education of individuals with special needs (Yönter, 2009). Today, the primary role of teachers in teaching is to use methods and techniques to convey each subject in the most effective and permanent way and to make adaptations in methods and techniques according to the needs of students (Hakima, 2013; Okur Akçay, Akçay, and Kurt, 2016). The diversity of teaching methods provides opportunities for teachers to enrich and improve their teaching and educational expertise, enabling students to learn more effectively (Darling-Hammond, Hyler, and Gardner, 2017; Skutil, Haclickova, and Matejickova, 2016). Providing a diversity of methods and techniques in educational interventions for students with learning difficulties is necessary to promote the effective teaching of teaching adaptations, and it can be said that teachers do not consider themselves sufficient in this regard. Providing teachers with on the job trainings on different methods and techniques (Ergin et al., 2012) can increase the success in teaching (Demirdağ, 2014).

Based on the opinions of the teachers, it was determined that they needed training in the preparation of appropriate assessment tools and alternative assessment tools. In the studies carried out by Çakan (2004) and Gelbal and Kelecioğlu (2007), a great majority of the teachers considered themselves insufficient or incompetent in assessment and evaluation, while in the research conducted by Anıl and Acar (2008), the majority of the teachers stated that they did not have adequate knowledge about traditional assessment and the in-service trainings they needed for the intervention phase of alternative assessment tools were not sufficient. In the research conducted by the Ministry of National Education (2008a), approximately half of the teachers who participated in the research expressed that they needed in-service training not only in the development and use of assessment and evaluation tools, but also in the assessment and evaluation for individual learning activities. Research results support our research findings.

As for the family education theme; while student families having children with learning disabilities were determined to have educational needs in knowing the child, features of adolescence, psychological features of children, personality knowledge and social and emotional development in individual development sub-theme, they were found to need education in recognizing learning difficulties, providing family support in home setting, accepting the disability, inclusion education and problem behavior prevention in the special education sub-theme. Considering the skills sub-theme, the families were revealed to need problems in problem solving and communication skills. In the research carried out by Dadandı and Urfalı-Dadandı (2015), teachers stated that they had problems with the families of the children with specific learning difficulties because they did not care about communicating with the teachers, did not accept the disability of their children, had unrealistically high expectations about their children and they were not interested in the education of their children. Demir (2005) stated that families are insufficient in terms of knowledge about learning disabilities. The findings of the research support the findings on families' (or parents') recognition of learning disability, acceptance of disability and communication skills, and the educational needs. In the research conducted by Gür and Kurt (2011) which aimed to identify the educational needs of families in Turkey, the findings suggesting that families needed education in preventing and controlling undesirable behavior of their children, child development, relationships with individuals with disabilities and supporting children's studies at home are consistent with our research.

Limitations

In this research, where the educational needs of teachers working at different stages at schools regarding the education of inclusive students with learning difficulties are examined, the findings obtained by qualitative research method are limited. The research is limited to the views of twenty teachers working in the province of Düzce. The reliability of the research is limited by the objectivity of the teachers' answers. Therefore, the results of the research should be evaluated considering the working group of the research.

Suggestions

It is believed that considering the following suggestions in the light of the results of this research will be beneficial in the effectiveness of teachers responsible for education of inclusive students with learning disabilities.

- a. Vocational competencies of teachers about recognizing students with learning disorders can be improved through pre-service and on the job trainings.
- b. Practice-based in-service trainings that teachers need primarily can be organized with the participation of field experts.

- c. In order to increase the professional competencies of teachers of learning disabled students, the program content of the classes for learning disabilities can be increased in undergraduate programs.
- d. In order to promote teamwork and cooperation in the education of students with learning disorders, projects involving stakeholders can be prepared.
- e. For the generalizability of research results, the issue can be examined more thoroughly with qualitative research, quantitative or mixed pattern research that include larger workgroups in the future.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Karaca, N. H. (2020). Development Process of “Scale for the Attitudes towards Risky Play at Early Childhood (SATRPEC) - Parent Form” *International Journal of Contemporary Educational Research*, 7(1), 165-176. DOI: <https://doi.org/10.33200/ijcer.657518>

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Development Process of “Scale for the Attitudes towards Risky Play at Early Childhood (SATRPEC) - Parent Form”

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Abstract

In this study, it was aimed to develop Scale for the Attitudes towards Risky Play at Early Childhood (SATRPEC) for the parents whose children currently attend to a preschool institution. The sample was comprised of 742 parents whose children were attending to a nursery class or a kindergarten located in Afyonkarahisar – Turkey and affiliated to Turkish Ministry of National Education during 2018-2019 academic year. In order to develop the scale, initially a comprehensive literature review was performed. As a result of a detailed screening, a pool of 50 five-point Likert type items was created. The initial form was presented to a total number of 13 experts, i.e. five academicians, one measurement and evaluation specialist, five teachers and two parents. CVR and CVI were calculated according to expert opinions and the scale was reduced to 28 items. This form was first piloted and reliability coefficient was calculated. For construct validity, exploratory factor analysis was performed first. The construct validity of the scale was also tested by confirmatory factor analysis. The obtained values showed that the instrument was reliable and had acceptable psychometric properties.

Keywords: Risky play, Early childhood, Scale, Parents, Attitudes.

Introduction

Early experiences play a critical role in the development of children. Especially the natural course of children's early development increases this importance even more. Children are born with natural curiosity in the process of adapting to the world (Louv, 2008). Thanks to their curiosities, they enjoy the challenges they face; they learn to cope with uncertainty and new situations, push the boundaries, be independent and determined, and also interact with their physical, personal and socio-cultural environment through their curiosities (Tovey, 2007). In this context, the growth process of children includes taking risks and moving away from the safe zone in order to gain new experiences and perspectives (Dweck, 2000). When children are given the opportunity to play free plays, children will be supported to plan their movements, to develop their feelings of independence and creativity, to lead, to make decisions and to increase their confidence (Sanseter, 2010; Little, 2008). Otherwise, these feelings will be suppressed, and these children will develop feelings of guilt about their own interests and needs, and therefore will grow up as obedient individuals lacking initiative (Nikiforidou, 2017). According to Erikson's (1959) theory, children are in the period of *initiative versus guilt* especially in the age of three to six years. Since this is a period of development of independence for children (Lester and Russell, 2008), children show more risk-taking behaviors to test limits (Sandseter, 2010; Little and Wyver, 2008; Stephenson, 2003). Children experience risky behaviors during their childhood. The concept of risk, which is defined as the risk of harm, is used synonymously with the danger and implies a negative value judgment. Although the concept of risk has negative connotations, it is a way of participation in behaviors related to the possibility of consequences and courage (Boyer, 2006). In another study, it was defined as an infinite range of behaviors and activities that could lead to both positive and negative consequences socially constructed from one context to another (Madge and Barker, 2007). Risky play is defined as a play that offers opportunities to challenge, test borders, explore boundaries and learn about injury (Ball, 2002; Little and Wyver, 2008). Play is an inseparable part of children's lives and a dominant activity in their daily lives. Children learn social roles, values and limits through play and risky play. At the same time, they become aware of their physical and cognitive competence. It helps them to develop numerous skills such as decision-making, problem solving, self-control, following the rules, regulating their emotions, discovering dangerous environments and activities, voluntarily moving away from this environment and developing peer relationships. Children take risks in their play, gain experience that will test their own limits, develop confidence, and benefit their future lives as independent and talented, entrepreneurial

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adults (Ball, 2002). There are studies suggesting that children prefer challenging plays that require risk taking from an early age (Sandseter, 2010; Stephenson, 2003) and that risk taking positively supports children's development (Ball, 2002; Fiskum, 2004; Fjortoft, 2000). According to Greenland (2010), risky play can develop rough and fine motor movements, balance, coordination and body consciousness in children in line with the behaviors in the categories. At the same time, children can be more motivated to achieve their goals and cope with new situations (Stephenson, 2003). Because when children play, they desire unconsciously to discover the risk. This allows children to learn how to manage the risk they will use for life and to understand safety. In addition, children meet their innate risk requirements. Through exploration and risky play, they become familiar with their environment, possibilities and boundaries. They learn what is dangerous and how to deal with the risks they face (Gill, 2007).

Risky play is described as an exciting process involving the possibility of injury (Sandseter, 2007; Stephenson, 2003; Greenfield, 2004) and Sandseter (2007) further explained the risky play behaviors in six categories. These categories are; (1) Great heights (climbing, standing on high objects, balance, hanging down, swinging, etc.); (2) high speed (swinging, running, cycling etc.); (3) dangerous tools (using tools such as knives, saws, ropes); (4) dangerous elements (playing in places such as above a high rock, deep pond or edge of a lake, near a burning fire); (5) rough and tumble play (wrestling, fighting plays, swords, sticks, etc.); (6) disappearance / moving away from the sight (conducting research alone or playing alone in unfamiliar environments). Children can perform these risky behaviors that foster their development only in natural play settings. However, in recent years, especially in developed or developing settlements, as a result of changes in social and environmental conditions, children's play characteristics have been changing and this situation has been the focus of attention in the literature. Today's world has forced children to spend most of their time under adult supervision in more structured closed environments, and since these environments restrict children's upbringing naturally, they have raised concerns that they may adversely affect children's healthy development (Meire, 2013). Due to the vertical construction, children started to lose the chance to play in the open-air play environments over time. Due to the overprotective parental attitudes (Carver, Timperio and Crawford, 2008), parents' safety concerns, the risk of injury to their children (Lester and Russell, 2008), lack of geographical freedom (Hofferth, 2009; Schwebel and Barton, 2005), children have started to play in controlled environments and structured play environments (Little, 2015). Because of its easy control, convenience and fast access, parents or educators direct the children to computer, television or adult activities such as music, painting and sports instead of taking risks. In this case, children are prevented from playing free play on their own. Adams (2001) states that many decisions about risk-taking are made by adults during children's research and discovery experiences. Studies have shown that adult's perceptions, attitudes and beliefs affect their practice in allowing and supporting risky play (Stephenson, 2003; Sandseter, 2012). Little et al. (2011), although the teachers and mothers of the children stated that they believe the importance of risk play in terms of learning and development, they found that they offer limited risky play opportunity to children. Cevher-Kalburan and Ivrendi (2015) examined the relationship between risky play and parenting attitudes and found that the parental consent status of the parents varied according to parental attitudes. This study indicated that as parents' scores on overprotective parenting style increase their scores on the practices and benefits of risky play decrease. Different from the practices subscale, democratic parenting was a predicting variable for and positively correlated with the benefits of risky play subscale. Existence of such positive correlation suggests that parents with democratic parenting style have supportive thoughts about benefits of risky play. Güler and Demir (2016) stated that teachers were cautious against risky plays and that the importance given to the physical health of children was an obstacle to their risk taking and that this could be caused by perceiving the concept of risk as dangerous and harmful. Alat, Akgümüş and Cavali (2012) suggested that preschool teachers and parents do not allow children to play risky plays in Turkey, while Erbay and Saltalı (2012) emphasized that mothers are concerned about their children playing outdoors. In addition, Gill (2007) emphasized that many activities are reduced in places where all risks are eliminated as a result of adult avoidance of risk in children's play environments. Many studies also support the view that independent mobility of children is limited as a result of reduced risk of children's activities and opportunities for outdoor play (Madge and Barker, 2007; Gill, 2007; MacDougall et al., 2009; Kinoshita, 2009; Tranter and Pawson, 2001). Elimination or reduction of risky play behaviors provides positive results in the short term; in contrast it was emphasized that in the long-term children may have negative consequences such as inactivity and lack of self-confidence (Little and Wyver, 2008). Eager and Little (2011) stated that children who do not play risky games may be more sensitive to problems such as obesity, mental health disorders, lack of independence, learning, perception and judgment. In this context, Fjortoft (2000) stated that children find structured play environments where they cannot easily run, jump, hop, roll, tumble, sway and they prefer natural play environments.

Current studies in the literature emphasized the importance of children playing in natural environments and focused on the importance of playing risky play after taking safety measures in these environments. In

particular, studies conducted in recent years have focused on the positive consequences and benefits for children rather than the dangerous and damaging consequences of risk play (Sandseter, 2007; Sandseter, 2009 (a, b); Little, Wyver and Gibson, 2011; Brussoni, Olsen, Pike and Sleet, 2012; Little, Sandseter and Wyner, 2012; Sandseter, 2014; Brussoni et al., 2015; Little, 2015; Güler and Iron, 2016; Brussoni, Ishikawa, Brunelle and Herrington, 2017; Coe, 2017; Harper, 2017; Nikiforidou, 2017; Ünüvar and Kanyılmaz, 2017; Brussoni, Ishikawa, Han, Pike, Bundy, Faulkner and Mâsse, 2018; Kleppe, 2018; McFarland and Laird, 2018). In this study, a scale development study was conducted in order to determine the opinions of parents about why they do not allow their children to be engaged in risky plays or how much they allow them. It is thought that this study will make an important contribution especially for researchers, educators and parents about children playing risky games.

Method

In this study, it was aimed to develop Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) for the parents of preschoolers. For this purpose, survey model was used in the study. Survey models are research approaches aiming to describe a situation in the past or present (Karasar 2005).

Sample

The population of the study was comprised of the parents whose children were attending to a nursery class and a kindergarten located in Afyonkarahisar – Turkey and affiliated to Turkish Ministry of National Education during 2018-2019 academic year. For the sampling and data collection, the researcher contacted all the preschool centers located in Afyonkarahisar provincial center and informed the parents about the use of the scale. In this process, 900 scale forms were distributed to one parent (either the mother or the father) of the child while only a total number of 742 forms from the parents, which constituted the sample, returned.

Among the children included in the developmental process of SATRPEC-Parent Form; it was found that 49.3% were female, 50.7% were male, 11.6% were single child, 88.4% had one or more than one sibling. 29.9% of the mothers of children were 29 year olds or younger, 59.4% were 30-39 year olds and 10.6% were 40 year olds and older; 64.2% were primary and 20.1% were high school and 15.8% were university graduates. Among the fathers; 7.8% were aged 29 and under, 70.2% were between 30-39 year olds and 22% were 40 year olds and above; 43.4% were primary, 33.7% were high school and 22,9 were university graduates.

Development of the Scale

In order to develop the SATRPEC-Parent Form, firstly a comprehensive literature review was performed. Studies conducted by Brussoni et al. (2018) and Sandseter (2007a, 2007b) were used in the development of the scale. The initial form included 72 five-point Likert type items which enabled the rater mark as 1-No, 2-Sometimes No, 3-Undecided, 4- Sometimes Yes and 5-Yes. A draft form consisting of pool of items was prepared in this stage. This form was presented to a total number of 13 experts including five academicians (preschool education and child development), one measurement and evaluation specialist, five teachers and two parents.

Data Analysis

In order to collect data, the scales were given to the parents by the researcher. The content validity, Cronbach alpha, exploratory factor analysis and confirmatory factor analysis were analyzed using SPSS and LISREL program. In order to determine the factor structure of the scale, exploratory factor analysis (EFA) was performed in SPSS program and confirmatory factor analysis (CFA) was performed in LISREL program to test the factor structure.

Findings

The aim of the study was to develop Scale for the Attitudes towards Risky Play at Early Childhood (SATRPEC) – Parent Form. For this purpose, the validity and reliability testing procedure of the scale is presented below.

During the development of the scale, firstly the literature was reviewed, and an item pool was created. Content validity (Thorndike and Thorndike-Christ, 2009) was tested to determine the ability of the scale to reliably predict and explain the results of other relevant variables. For the content validity of the guidelines and

evaluation criteria included in the scale, the scale was presented to experts. The experts were asked to evaluate the guidelines and evaluation criteria of the scale on the triple rating scale as “Appropriate”, “Not Appropriate”, “Appropriate in accordance with the changes”. After the expert opinions were collected, the opinions of the experts for each item in the measurement tools were combined in a single form and therefore evaluated and analyzed. In the evaluation of expert opinions, the content validity ratio (CVR) of each item was calculated.

Table 1. Results of Item Total Correlation for Scale for the **Attitudes towards Risky Play at Early Childhood (SATRPEC) – Parent Form**

Item Number	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
S1	131,4137	489,201	,602	,916
S2	131,3315	487,544	,630	,916
S3	131,3423	486,765	,633	,916
S4	132,5040	502,804	,264	,920
S5	131,3814	486,293	,623	,916
S6	131,3315	486,522	,631	,916
S7	132,6765	488,554	,601	,916
S8	131,2345	507,025	,203	,920
S9	131,1604	501,336	,315	,919
S10	131,1604	501,336	,315	,919
S11	131,2345	507,025	,203	,920
S12	131,4245	492,882	,527	,917
S13	131,4838	487,065	,639	,916
S14	131,4272	490,844	,591	,917
S15	132,4663	486,441	,595	,916
S16	132,8221	517,636	-,042	,922
S17	132,3531	484,658	,618	,916
S18	132,2372	489,204	,504	,917
S19	131,9151	483,732	,637	,916
S20	131,0000	518,795	,101	,916
S21	131,1725	418,643	,109	,916
S22	132,5243	486,800	,621	,916
S23	132,2358	488,024	,560	,917
S24	131,7803	506,709	,182	,921
S25	131,1604	501,336	,315	,919
S26	132,3086	506,027	,183	,921
S27	132,9191	507,222	,174	,921
S28	132,7116	508,354	,135	,921
S29	132,2345	485,988	,598	,916
S30	131,1213	492,701	,500	,917
S31	132,0445	484,148	,622	,916
S32	132,5485	503,290	,273	,920
S33	131,9151	483,732	,637	,916
S34	132,2013	515,450	,246	,919
S35	132,4663	486,441	,595	,916
S36	131,7803	506,709	,182	,921
S37	131,7803	506,709	,182	,921
S38	132,2992	478,215	,422	,920
S39	132,2372	489,204	,504	,917
S40	132,3679	484,581	,591	,916
S41	131,7399	521,423	-,110	,924
S42	133,0000	506,213	,263	,919
S43	132,5485	503,290	,273	,920
S44	132,5040	502,804	,264	,920
S45	131,3227	319,995	,171	,926
S46	131,9010	417,551	,175	,924
S47	132,2013	515,450	,246	,919
S48	131,1725	418,643	,109	,916
S49	132,3930	517,675	,227	,917
S50	131,0000	518,795	,101	,916

Then, the content validity index (CVI) was determined by averaging the calculated validity ratios. In line with expert opinions, the items considered to best measure the specified behavior were taken out of the pool consisting of 50 items with the selected content validity ratio below 0.75 and eventually a draft form consisting of 28 items was prepared. Content validity index was calculated by taking the average of the remaining 28 items

and its value was determined as 0.91. These values mean that all items in the scale are required and the content validity is ensured. The total correlations of items applied to the scale were between .182 and .639. Karasar (2005) stated that if the item total correlation is .30 or higher, it distinguishes the items at a good level; if it is between .20 and .30, the items can be included to the scale if deemed necessary; and items less than .20 should be removed. In line with this opinion, it was decided to remove the items in the range of .10 to .30. The scale, which eventually consisted 28 items, was analyzed in terms of construct validity..

In order to determine the degree of measurement of Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form, a preliminary application was applied to the parents of the children (n=50) who attend to a nursery school or a kindergarten affiliated to Afyonkarahisar Provincial Directorate of National Education. As a result of the preliminary application, it was concluded that the reliability coefficient perfectly differentiated for the whole measurement tool ($\alpha = 0.929$). After the preliminary application study, the scale was made ready for application in the sample group determined for the validity and reliability study and the data used in the preliminary application were included in the sample group of the study.

The validity of the structure is expressed to what extent the scale can measure the structure it wants to measure (Thorndike and Thorndike-Christ, 2009). In order to determine the construct validity of the scale, exploratory factor analysis was performed using the principal component analysis. During exploratory factor analysis, KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy), which determines whether the sample is sufficient or not, is found to be .90. According to Field (2000), .90 is considered to be excellent, .80 good, .70 moderate, .60 poor, and less than .60 bad for KMO. According to this result, it was concluded that the sample number was excellent. According to this result, it was concluded that the sample number was excellent.

The results of the exploratory factor analysis of the scale applied to the parents of preschoolers (n = 742) for the development of Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form are given in Table 2.

Table 2. Results of Factor Analysis for Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form

Item Number	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
He/She develops social skills.	.873				
He/She increases courage and self-confidence.	.870				
He/She is more curious about his surroundings.	.864				
His /Her imagination and creativity develop.	.862				
He/She learns to challenge.	.854				
He / She will be happier.	.825				
He/She does more skills on his own.	.813				
He/She learns to cope with fears.	.790				
He/She learns to establish a cause and effect relationship.	.781				
He/She the problems faced in daily life on his/her own.	.451				
He/She can jump / climb high.		.801			
He/She can slide / climb reverse from the slide.		.782			
He/She can swing standing / reversed on the swing.		.773			
He/She can ride without a helmet and knee pads.		.733			
He/She can play at home and with sharp / penetrating materials (knife, hammer, screw, needle, grater...).		.723			
He/She can play with the materials he finds on the street (wood, stone, sand).		.711			

He/She can play in the neighborhood / park with peers without an adult next to you.	.626	
Although I encourage my child to play risky plays, my child is unwilling to play.		.980
I create opportunities for my child to play risky games.		.980
I try not to interfere while my child is playing risky games.		.980
I encourage him/her to play risky games.		.980
I am worried he/she will get hurt.		.933
I do not think he/she knows how to protect himself/herself.		.933
I fear that someone will harm my child (being attacked, bullied, or abducted by his peers).		.933
I do not let him/her play risky games because of my worries and fears.		.933
When I allow, I am criticized by my neighbors and friends as being a bad parent.		.969
I am in disagreement with my partner about our child playing risky games.		.969
I think my spouse, my spouse's mother and father were overprotective to our child.		.969

As it can be seen in Table 2, the factor analysis of Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form revealed that there are five factors. In the first factor, the loads were between .873 and .451, for the second factor they were between .801 and .626, for the third factor it was .980 and the fourth factor it was .933 and the fifth factor was .969. The factors were named considering the contents of the items.

The scale's eigenvalue was collected under five factors greater than 1. The first factor (item no: 1,2,3,4,5,6,12,13,14,30) was called *Pro-Beliefs*, the second factor (item no: 29,17,31,40,22,23,38) is *Distinguishing Risky Behaviors*, the third factor (item no: 25,9,10,21) was *Supporting Children*, the fourth factor (item no: 32,33,19,34) was named as *Feeling Anxiety* and the fifth factor (item no: 36,37,24) was called *Parental Support*. In addition, total variance of first factor was 40%, total variance of second factor was 55%, total variance of third factor was 66%, total variance of fourth factor was 73%, and total variance of fifth factor was 80%.

The five-factor structure formed by exploratory factor analysis was tested with confirmatory factor analysis and the results obtained are given below.

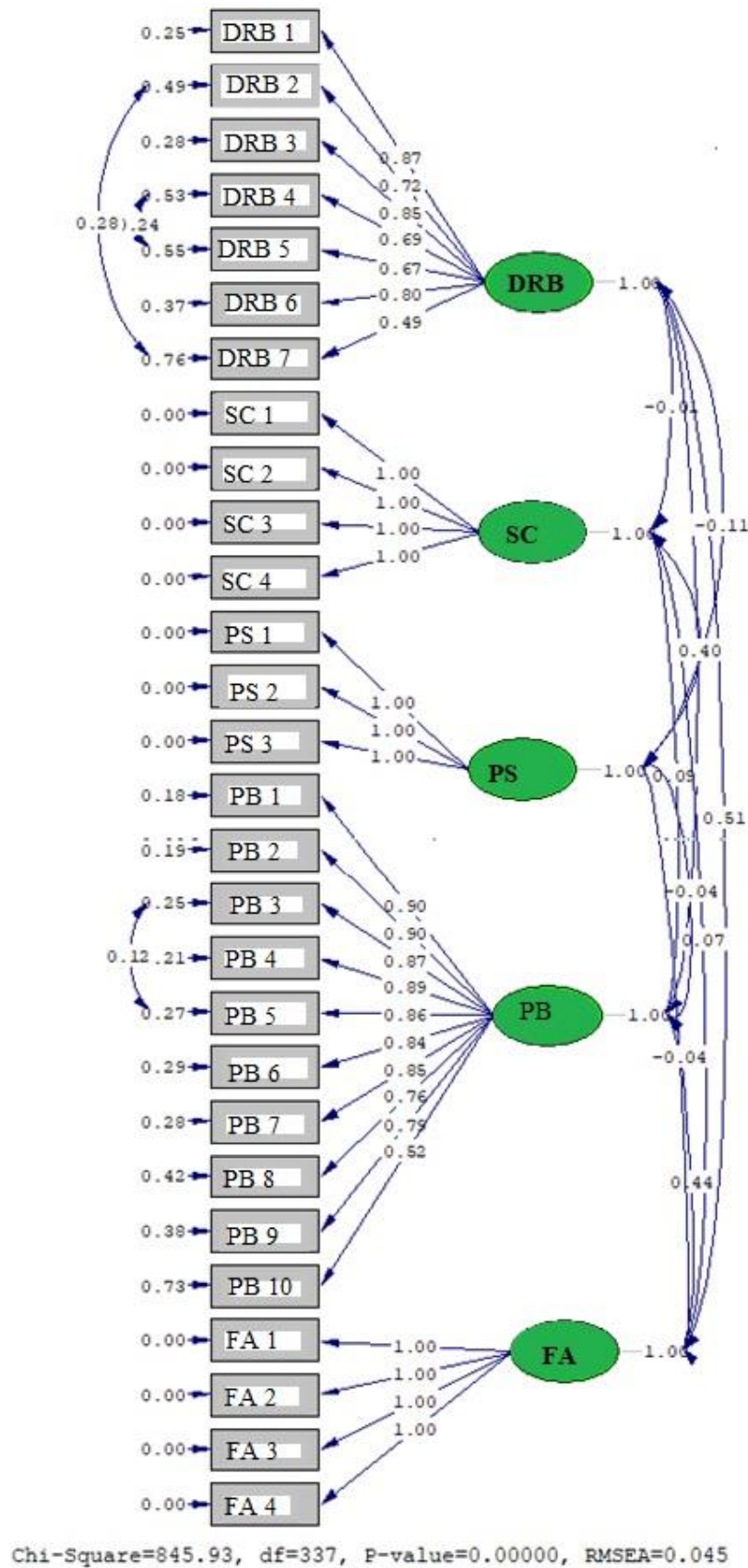


Figure 1. Pathways found as a result of confirmatory factor analysis of Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form

Table 3. Measurement model - Fit indices

Fit Indices	Perfect Fit	Acceptable Fit	Measurement Value
RMSEA	$0 \leq \text{RMSEA} \leq 0.05$	$0.05 < \text{RMSEA} \leq 0.10$	0.045
NFI	$0.95 \leq \text{NFI} \leq 1$	$0.90 < \text{NFI} < 0.95$	0.98
NNFI	$0.97 \leq \text{NNFI} \leq 1$	$0.95 \leq \text{NNFI} < 0.97$	0.99
CFI	$0.97 \leq \text{CFI} \leq 1$	$0.95 \leq \text{CFI} < 0.97$	0.99
SRMR	$0 \leq \text{SRMR} < 0.05$	$0.05 \leq \text{SRMR} < 0.10$	0.040
GFI	$0.95 \leq \text{GFI} \leq 1$	$0.90 \leq \text{GFI} < 0.95$	0.92
AGFI	$0.90 \leq \text{AGFI} \leq 1$	$0.85 \leq \text{AGFI} < 0.90$	0.91

When the fit indexes are examined as a result of confirmatory factor analysis of Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form; RMSA (.045), NFI (.98), NNFI (.99), CFI (.99), SRMR (.040) and AGFI (.91) correspond to perfect fit, and GFI (.92) corresponds to acceptable fit. In addition, according to chi-square results [(845.93 / 337) 251 <3], it can be said that the model shows perfect fit since the value found below 3 corresponds to perfect (Schermerhorne-Engel et al., 2003).

Moreover, the alpha value of the scale (n = 742) was also analyzed. The alpha coefficient is used to measure the internal consistency of a measuring instrument (Thorndike and Thorndike-Christ, 2009). The reliability coefficient of the scale was found out to be ($\alpha = .919$). The reliability coefficients of the factors were found to be as follows: $\alpha = .953$ for the first factor (PB), $\alpha = .878$ for the second factor (DRB), $\alpha = .1000$ for the third factor (SC), $\alpha = .1000$ for the fourth factor (FA), and $\alpha = .1000$ for the fifth factor (PS). In this sense, Alpar (2012) states that the reliability coefficient is between .80-1.000 shows high reliability. Therefore, Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form can be considered as a reliable tool.

Results and Discussion

The issue of children and play has been one of the most studied subjects for many years. However, the issue of risky play has recently emerged as a new discussion area. As the vital activities are important in the life of the individual, play is likewise important for the children. Children play without discrimination in any environment such as race, language, religion and gender. Play does not have a certain time because children can play at any moment with any material they find. However, in recent years, children have been confronted with restrictions on play environments and the materials they play. In the play environments, safety has been focused and arrangements have been made in the playgrounds in order to reduce the risk of injury to children. For example, in Ayan and Ulaş (2015) stated that the playing fields in Turkey in the city centers reflect the conventional structure which is characterized by high level safety precautions. In addition to the parks, there are playgrounds with the same characteristics in preschool education institutions. Also, in Turkey, the play environments in school playgrounds were determined to be sufficient in terms of natural features (Atabey, Yurt and Ömeroğlu, 2009, the Chancellor and Cevher Kalburan, 2014). However, it has been demonstrated by many researchers that it is an issue in which security becomes an exaggerated focus in order to control the risk in play. In particular, researches emphasized that taking serious precautions and forcing children to play in highly structured environments in order to protect them might very well limit the experiences and stimuli that are important for all developmental areas (Little, 2010; Little and Eager, 2010; Little and Wyver, 2008; Sandseter, 2012; Stephenson, 2003). Especially in the city centers, as a result of the increase in crime, child trafficking, peer bullying and the increasing number of overprotective parents, it is seen that children are forced to play in closed, easy-to-control areas instead of free play environments. However, children who play games in closed spaces or in environments under the supervision of adults are seen as disadvantaged today. Because these children have less contact with nature, experience less of their daily life skills, and have to spend a still life away from risk, away from natural life. Parents with especially overprotective parental attitudes do not allow children to play freely in the neighborhood environment without adulthood, compared to the past (Cevher Kalburan, 2014).

Children are affected by their parents in choosing areas to play. Children's risk-taking decisions are influenced by the way adults assess them and their parents' behavior in risk-taking situations (Sandseter, 2009a). In this context, children who are not allowed to take risks in their games are prone to be inexperienced, excessively cautious or take risks, do not act independently and even have anxiety disorders by making false evaluations about their capacity (Knight, 2012).

Today, health specialists and educators state that children are more confronted with problems such as emotion regulation, social development, behavioral problems and obesity because they live away from nature and away from movement. Wells and Evans (2003) stated that children who grew up close to nature had less psychological stress than children living far from nature in the city center and could cope with higher levels of stress on their own. Play has numerous positive contributions to children's development. The important thing is to give children a suitable environment and time to play. As a result of the research carried out by Clements (2004), it was determined that today's children spend more time on television and computer games in which they play less games outdoors. Now, instead of playing freely in the neighborhood environment, children have to meet their playing needs in the environments determined by adults, or in educational environments such as dance, music and drama under adult supervision or in structured playgrounds at shopping malls. However, there are some studies claiming that children have a common opinion that they want to play outdoors, outdoors, without strict adult supervision (Einarsdóttir, 2014; Nicholson, Kurnik, Jevgiovikj and Ufoegbune, 2011 as cited in Tuğrul et al., 2019). From this point of view, the result that children want to play freely at outdoors cannot be neglected. Free play not only supports children's creativity, decision making, planning, independent thinking, socializing, leadership skills, but also allows children to discover their own interests and skills (Tuğrul et al., 2019). It was emphasized that spending time with nature in the open air is important for health and therefore children should be allowed to play with outdoor plays and they should experience the risks themselves. Fjortoft (2004) argued that artificially colored safe playgrounds are less satisfying to children, so outdoor play environments are beneficial to children's development. At the same time, children's playgrounds in traditional schoolyard playgrounds and natural-outdoor playgrounds were compared, and there was a statistically significant increase in motor skills of children in terms of balance and coordination.

From this point, researchers have a common view that it can be beneficial for children to take risks in their games freely in the open air. For this reason, most researchers focused on the positive benefits rather than the negative outputs of risky play in the open air in their studies. Maller et al. (2006) argued that spending time in natural environments reduces mental fatigue in children, improves positive appearance and life satisfaction, copes with stress, and is effective in combating the increasing rates of obesity and diabetes. Thus, researchers focused on the positive benefits of risky play outdoors rather than the risks encountered. According to Cevher Kalburan (2014), risky play includes physical and affective benefits of movement plays played outdoor. According to Ünüvar and Kanyılmaz, children have fun while playing and at the same time they gain new experiences. They have the opportunity to retry the skills they have failed and succeed at last. They also take risks during they play and these risks play an important role in their development (Ünüvar and Kanyılmaz, 2017). In particular, according to Oktay, preschool period is the period in which the cognitive, social-emotional and motor development of children is the fastest, and the physical and social environment of the children is seen to be very important in reaching the highest limits of their potential in this period (Oktay, 2007).

In this study, it was aimed to develop Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form to determine the views of parents about their children playing risky plays. For this purpose, regarding the validity of the assessment tool; For the face and content validity, according to expert opinions CVR and CVI rates were calculated. Items of which validity value were below 0.75 were removed from the pool and a draft form consisting of 28 items was prepared. This form was first piloted and reliability coefficient was calculated. As a result of the pilot application (n=50), it was concluded that the reliability coefficient was excellent for the whole measuring instrument ($\alpha = 0.929$). For construct validity, exploratory factor analysis was performed first. As a result of the factor analysis of the scale, it was determined that there are five factors. The construct validity of the scale was also tested by confirmatory factor analysis. The 10 items in the first factor were named as "Pro-beliefs". These items evaluate parents' attitudes to how necessary risky play is for their children. The 7 items in the second factor are explained as "Distinguishing Risky Behaviors". These items evaluate what kind of risky games parents allow for their children. The 4 items in the third factor are named as "Supporting Children". These items evaluate whether parents support risky play. The 4 items in the fourth factor were named as "Feeling Anxiety". These items evaluate what feelings the parents experience if they give permission for the risky play. The 3 items in the fifth factor were named as "Parental Support". These items evaluate consensus on risky play between the parents. The highest total score that can be obtained from the scale is 140 and the lowest total score is 28. Scoring higher indicates that parents support the risky play more, and lower scores indicate that they are reluctant about risky play.

When the literature on five factors in the developed scale is examined; regarding the “Pro-beliefs and Supporting Children” factors, there are many studies that accept that risky play positively affects all areas of development of children and that children should be given the opportunity to play risky games (Gill, 2007; Ball, 2002; Sandseter, 2007; Sandseter, 2009a,b; Little, Wyver and Gibson, 2011; Brussoni, Olsen, Pike and Sleet, 2012; Little, Sandseter and Wyner, 2012; Sandseter, 2014; Little, 2015; Coe, 2017; Harper, 2017; Nikiforidou, 2017; Ünüvar and Kanyılmaz, 2017; Brussoni, Ishikawa, Han, Pike, Bundy, Faulkner and Masse, 2018; Kleppe, 2018; McFarland and Laird, 2018). However, regarding the “Feeling Anxiety and Distinguishing Risky Behaviors” factors; Cevher Kalburan (2014) reported that parents deprived their children of risky games due to their anxiety that their children could be injured, while Ball (2002) reported that parents put restrictions on risky play due to safety concerns. Little et al., (2011) suggested in his study that teacher and parents accepted the positive effects of risky play on the development areas of children, but they offered the children limited risk play opportunities. “Parental Support”, the last factor in the scale, is the factor related to parental attitudes. Parents' attitudes towards their children affect their development and are effective in their upbringing as healthy individuals in the future. If children are required to be competent individuals who can express themselves in society, parents should be understanding, democratic and flexible. Contrary to these approaches, parents who are overly oppressive, protective, overly tolerant and insensitive attitude cause their children to be inconsistent and unsuccessful individuals. (Yavuzer, 2001; Nelsen, Lott and Glenn, 2002). It is very important in the development of children that both parents think and react the same, say yes or no to the same behavior and support each other in treating children. Accordingly, it is seen that the sub-factors of the study and the studies are supported. The obtained values and studies showed that the scale is reliable and has acceptable psychometric properties.

Recommendations

In line with the findings related to Scale for the Attitudes Towards Risky Play at Early Childhood (SATRPEC) – Parent Form, following suggestions may be presented to researchers, educators and health specialists: it is possible to inform parents by organizing seminars, family training activities, panels, conferences about the advantages of risky play and outdoor play for the development of children. A similar scale developing study can be carried out to determine the views of preschool educators about risky play. The research is limited to the sample within the borders of Afyonkarahisar/Turkey province. Therefore, similar studies can be conducted in different provinces. In addition, this study is suggested to be carried out with parents with various demographic characteristics, for example with parents of different socio-cultural / socio-economic levels.

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International Journal of Contemporary Educational Research (IJCER)

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To cite this article:

Turkoglu, M. E. & Cansoy, R. (2020). School principals' opinions on the meaning and sources of workload. *International Journal of Contemporary Educational Research*, 7(1), 177-191. DOI: <https://doi.org/10.33200/ijcer.657994>

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School Principals' Opinions on the Meaning and Sources of Workload

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Abstract

The purpose of this research is to examine various factors affecting workload of principals including psychological effects and coping strategies. A semi-structured interview was conducted with 13 principals. Participants consisted of primary and secondary school principals in a province in the Western Black Sea Region, Turkey. According to the research, principals perceive workload as work that limits the time, they want to devote to improving education. Therefore, the main sources of workload were perceived as having to run errands at school, time pressure, human resource-based problems, unnecessary formal daily routines and high e-mail volume. Finally, it was found that principals' coping strategies were not effective, and that workload caused work-family conflict, stress and emotional wear and tear. Thus, this research contributes to the theoretical framework related to workload. It is suggested to organize bureaucratic procedures in schools, share leadership, establish training programs for principals, raise awareness of principals on time management, and employ assistant principals and other technical personnel where there is staff shortage.

Key words: Principals, Workload, Workload sources

Introduction

There are some factors that increase workload of principals in educational organizations such as unplanned work, school funding, formal correspondence, time allocated to solve communication problems at school (Oplatka, 2017), prolonged and poorly managed meetings, multiplicity of documents, reports to be completed, and time spent for face-to-face or telephone interviews with stakeholders (Poirel, Lapointe, and Yvon, 2012). Likewise, statutory audits, legal expansion of principals' responsibilities (Royal, 2008; Wells, 2013), some new tasks arising from education reforms (McGuinn, 2012; Miller, 2015), high level of community participation in schools (Hauseman, Pollock and Wang, 2017), dealing with uncertainty (Starr and White, 2008) and mandatory implementation of new practices through legal tasks and guidelines (Klocko and Wells, 2015) cause inflated workload. In addition, bureaucratic work (Şahin, 2007), community pressure (Royal, 2008), school-based management (Wylie, 1997), and intensive use of information technologies in school management (Pollock and Hauseman, 2019; Schiller, 2003; Crawford, 2012; Saidun, Tahir and Musah, 2015), reducing the number of assistant principals due to budgetary constraints, accountability policies and demands of local policy makers may increase workload of principals (West, Peck, Reitzug and Crane, 2014).

Perceived workload may be either objective or subjective. The number of employees' duties may be the same for all employees, but each may feel a different sense of work. Therefore, the concept of perceived workload may vary according to individuals' perceptions (Van der Doef and Maes, 1999). As a matter of fact, subjective workload expresses one's views about the relative difficulty or ease of one's own work, while objective workload includes evaluations about the quantity of work. The amount of work is related to the measurable aspect (Bowling and Kirkendall, 2012). According to the studies related to workload, the objective or subjective perception of workload can lead to different perceptions of the difficulty of the work. The most important reason for this is expressed as the similarity of perceived stress and the factors that make up the perceived workload. The presence of stress is also associated with the perceptions of the individual (Bowling, Alarcon, Bragg and

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Hartman, 2015). As a result, employees perceive their work or task as subjective. Individuals who do the same work perceive it in different ways (Oplatka, 2017).

Different factors may affect workload of employees. Uncertain expectations of managers (House and Rizzo, 1972), an extremely busy time at work (Rutherford, 2001), work behaviour standards at the workplace (Adams, Lugsden, Chase, Arber and Bond, 2000), inadequate numbers of employees and setting unrealistic targets (Rowley and Purcell, 2001), pressures stressing employees (Hsieh, 2004), and interventions in organizations (Fong, 2004) are among the reasons that increase workload. In addition, individuals' undermined sense of autonomy (Ahuja, Chudoba, Kacmar, McKnight and George, 2007) and absence of supportive cultural characteristics of organizations can lead to high perceived workload (Duxbury, Lyons and Higgins, 2008).

The important factors in high perceived workload include poor time management skills, lack of social support, working too hard, unskilled workers, negative personality traits, and work-family conflicts (Bowling et al., 2015; Bowling and Kirkendall, 2012). Moreover, unplanned business processes, use of technology, competitive environment, globalization, low autonomy in individuals' work, unhealthy organizational culture, rise in customer expectations, unclear business goals and insufficient resources in the organization increase perceived workload (Gryna, 2004).

Workload has some negative effects. These negative effects of workload have been studied in some different organizations. Workload adversely affects the well-being of employees, leads to quitting work and absenteeism, and reduces emotional commitment to work (Bowling et al., 2015). In addition, workload reduces in-role job performance and negatively affects employees' organizational commitment and productivity (Bowling and Kirkendall, 2012). It also increases the chances of developing some health problems (Zunker, 2008), leads to emotional exhaustion (Greenglass, Burke and Fiksenbaum, 2001) and causes work-family conflict (Goh, Ilies, and Wilson, 2015). Similarly, workload has some negative outcomes in educational organizations. For example, some principals tend to quit due to heavy workload (Wu, 2005), do not pay enough attention to students with special needs (Naz and Sulman, 2012) and spend more time in administrative and managerial tasks in schools instead of instructional leadership (Brauckmann et al., 2015). Moreover, workload increases burnout levels of principals (Yıldırım and Dinç, 2019), which is a source of personal stress (Borg Mark, 1993). Therefore, most individuals lose work-life balance due to heavy workload (Crawford, 2012). Thus, many principals are under heavy pressure due to their workload and have difficulty in fulfilling their duties and responsibilities.

Most workload literature examined the correlations between workload and different variables. These studies were designed by quantitative methods (Bowling et al., 2015; Zunker, 2008; Yıldırım and Dinç, 2019). Accordingly, the factors that make up the workload and the situational factors in the perception of the workload should be put forward. Thus, examining individuals' personal opinions about workload can show how workload changes on a personal level over time (Bowling et al., 2015). On the other hand, schools are in an environment where workload can be perceived differently because of their organizational characteristics and structure. In addition, it is important to broaden the theoretical knowledge of how principals perceive workload in schools. Thus, it is crucial to define types of workload in schools, understand subjective perspectives of school members and stakeholders, and expand the understanding of workload in educational organizations (Oplatka, 2017). Understanding subjective and objective workload will help to fill in the gap in the conceptual framework for how workload is perceived (French and Caplan, 1972). Consequently, identifying sources of principals' workload can contribute to improving schools (Leithwood and Azah, 2014).

The national literature demonstrates clearly that research on workload of principals is limited. For example, Demirkasımoğlu (2015) noted that sources of the workload of principals were bureaucratic and managerial work. Student affairs, teaching affairs, personnel affairs, interviews with parents, and activities related to official correspondence were found to be important factors in forming the workload. Karabulut (2015) found that workload perception differed depending on the type of school. Principals in kindergartens perceived workload at a lower level than high school principals did. Ural (2002), on the other hand, found that workload was due to lack of qualified personnel, having to do a lot of work in a short period of time, unequal school funding and allocating a long time to official correspondence. Other research shows that principals dealt with problems irrelevant to good teaching practice (Turan and Yalçın, 2015) such as repairing damaged things in schools (Özer and Kış, 2015), school funding, misbehaving students (Demirtaş and Özer, 2014), problems with education policies, and general and administrative affairs (Çinkır, 2010). In addition, time devoted to solving communication problems in schools (Aslanargun and Bozkurt, 2012), frequently requested reports by senior principals (Çelikten, 2004), lack of assistant principals (Baltacı, 2017), financial problems, school-family

conflict (Demirkasımoğlu, 2015), lack of management skills (Altun, 2011), poor time management skills (Altun, 2011), and time devoted to matters other than education and training (Aydın, 2016; Şahin, 2007) emerge as principal workload. In this respect, the national literature frequently emphasises that principals experience an overload because of external pressures, bureaucratic and unplanned work and time allocated for solving communication problems at school. The international and national literature on workload has highlighted occupational groups in different organizations rather than the school organization (e.g., Bolat, 2011; Bowling et al., 2015; Bowling and Kirkendall, 2012; Ilies et al., 2015; Keser and Gedikoğlu, 2008). In some studies conducted in educational organizations, teachers' perceptions of workload and their relationship with different variables were examined (Ballet and Kelchtermans, 2009; Cerit and Özdemir, 2015; Easthope and Easthope, 2000; Timperley and Robinson, 2000). Interestingly, however, studies on how principals perceive and manage workload are very limited (e.g. Brauckmann et al., 2015; Demirkasımoğlu, 2015; Leithwood and Azah, 2014; Oplatka, 2017; Starr and White, 2008). In addition, there are also some studies on the relationship between the workload of principals and different variables (Poirel et al., 2012; Wu, 2005), what can be done to reduce principal workload (Berntson, Wallin, and Härenstam, 2012), and the effects of activities aimed at ensuring community participation on principals' workload. (Hauseman et al., 2017). In this respect, it can be stated that there is a need for new studies examining workload perceptions of principals from different perspectives. This study seeks answers to three research questions:

- (i) What are the factors constituting the workload of principals?
- (ii) What are the effects of workload on principals?
- (iii) What are the coping strategies of principals?

Theoretical framework

Workload has several definitions. It is defined as intensity of individuals' effort to finish a job (Bowling and Kirkendall, 2012), or pressure related to completion of work-related demands in a limited time (Huey and Wickens, 1993; Ilies, Huth, Ryan, and Dimotakis, 2015). Another definition sees workload as a high level of intense mental effort spent on controlling and supervising (Curry, Jex, Levison, and Stassen, 1979). It is also defined as the perception of an individual's amount of work above his/her own capacity (Elloy and Smith, 2003). Furthermore, the concept of the workload of employees is defined as stress and pressure due to time limitation and amount of work (Demerouti, Bakker, and Bulters, 2004; Geurts, Kompier, Roxburgh, and Houtman, 2003; Ilies et al., 2007; Janssen, Peeters, de Jonge, Houkes, and Tummers, 2004; Jex, 1998). The workload literature generally refers to the concept of overload (Oplatka, 2017). Excessive workload is perceived by employees as compelling, heavy and excessive (Greenhaus, Parasuraman, Granrose, Rabinowitz, and Beutell, 1989).

According to the literature, workload is defined as a multifaceted structure because of its complex nature (Bowling and Kirkendall, 2012). Workload may be classified as qualitative or quantitative (Bowling and Kirkendall, 2012), mental or physical (Dwyer and Ganster, 1991), and objective or subjective (Caplan, 1971). Of these, qualitative workload is related to the difficulty of the work. Quantitative workload is related to the amount of work (Bowling and Kirkendall, 2012). Qualitative workload arises when employees are expected to perform complex and difficult tasks. Quantitative workload occurs when employees are expected to perform different tasks in a given time frame (Cooper and Marshall, 1976). Some classify workload as either mental or physical. Mental workload is the workload of activities that require the use of mental skills of an individual (McCormick and Sanders, 1992). It also characterizes the demand of tasks on a human's limited mental resources (Wickens, 1979, 2008). Physical workload is the energy used by the individual during the performance of a task and the amount of physical effort spent. Physical workload can also refer to short-term physical reactions of the body (de Zwart, Frings-Dresen, and van Dijk, 1996; Kuijer, Visser, and Kemper, 1999).

Method

Research Model

The aim of this research is to explore in detail how principals experience workload. This research was designed in accordance with phenomenology approach. Phenomenology explains how individuals relate to events in the world they live in. The nature of social events is complex and difficult to understand. In order to understand

social events deeply, detailed studies are needed (Patton, 1987). Schools are exposed to high demands from their environment. Therefore, principals are expected to respond to the demands of stakeholders, which increases principal workload. This paper examines workload to identify how it is perceived by principals. The meanings, and the emotions they experience in relation to this concept are revealed. Thus, it is aimed to understand the common meanings of the concept (Creswell and Poth, 2017).

Study Group

In order to find answers to the research questions, 13 primary and secondary school principals were interviewed. All the principals work in public schools. The participants of the study were all male. The age of the principals ranged from 33 to 59 years. The professional seniority of the principals was between 3 and 23 years. All the principals work in provincial schools in the Western Black Sea Region of Turkey. The number of students in the schools is between 114-850. Table 1 provides information on the qualifications of the principals.

Table 1: Participants' Demographic Characteristics

Participants	Gender	Age	Professional seniority	Number of students	School type
P1	M	46	4	802	Primary
P2	M	46	6	853	Primary
P3	M	48	16	126	Secondary
P4	M	46	6	850	Primary
P5	M	55	10	250	Primary
P6	M	52	12	457	Secondary
P7	M	35	4	320	Secondary
P8	M	33	5	114	Primary
P9	M	40	3	782	Primary
P10	M	51	16	460	Primary
P11	M	46	6	438	Primary
P12	M	59	17	302	Primary
P13	M	48	23	125	Primary

Data collection and analysis process

A semi-structured questionnaire was used in the process of data collection. Semi-structured interviews were conducted to examine the participants' thoughts about workload deeply (Patton, 1987). The researchers first searched the literature on the field of workload and obtained the first version of the research questions. The findings and questions in the study conducted by Oplatka (2017) were used in the preparation of the research questions.

Criterion sampling, one of the purposeful sampling methods, was used in the study. In this method, it is necessary to access situations and participants that meet the predetermined criteria (Yıldırım and Şimşek, 2011). 20 principals were contacted first. Principals who did not meet these criteria were not included in the study. In this respect, the participants of this study, namely 13 principals, had at least 3 years' experience and felt overloaded at school. Then, the interviews with the 13 principals were conducted. The interviews lasted 30-50 minutes on average. Before going to the interview, the principals were asked to make an appointment for a suitable period of time. Interviews were recorded and then analysed.

First, similar data were organized, and codes and categories were created. Then, the codes and categories were established independently. In addition, tests were made in accordance with the codes, categories and themes and alternative explanations were used when necessary (Marshall and Rossman, 2010). After that, the theme of the research was determined as the top component of the situations that the interviewers frequently repeated and underlined, based on the sub-categories and codes that emerged. Similar statements were given the same codes. Any coded item was compared in terms of emerging categories and sub-categories (Strauss and Corbin, 1998). In order to increase credibility, interviewer statements and direct quotations were included in the research. Thus, the level of overlap between the interpretation of the data and the expressions becomes visible. The themes, sub-themes and codes that the researchers revealed were re-examined by another researcher specialized in the field.

In addition, two experts in the field of educational management examined the given codes and themes and confirmed the consistency between the codes and themes.

Findings

In this section, three themes and sub-themes reflecting the perspectives of the principals that emerged for the purposes of the research are given. The three main themes are as follows: (i) Factors that determine principals' workload perceptions (ii) Effects of workload on principals' lives (iii) Methods of coping with workload. The principals in the research are coded as P1, P2, P3, etc., and these codes are used in direct quotations in this section.

Factors determining the workload perceptions of principals

When the workload perceptions of principals were examined, 5 different sub-themes emerged. These themes were: (i) responsibility for everything, (ii) diversity of workload sources, (iii) lack of time, (iv) problems with human resources, and (v) high e-mail volume. These sub-themes are the main factors that make up the workload.

Being responsible for everything

This factor indicates that workload limits of principals are not clear. When principals were asked about their workload, it is seen that almost everything related to school management such as paperwork, budget or physical conditions of the buildings are evaluated under the responsibility of principals' workload. Principals state that they have a wide range of responsibilities. It is mainly principals who are responsible for everything in the school:

The principal is responsible for everything; the responsibility belongs to me! When there is a negative situation in the school, all responsibility belongs to me! The principal is effective in making decisions; I have to give all the approvals. These are the things that make up the principal's workload. P3.

I can describe it as all the work and operations under the responsibility of a principal. [...] I can say anything..., responsibility to the top principals, paperwork and follow-up, that is, all the work and operations of the principal. P11.

Principals argue that many of the events that emerge as a source of workload are actually unnecessary things that make it difficult to be involved, or prevent or restrict them from being involved in educational activities. These events occur suddenly, take a long time to complete, and are related to some areas that exceed their own skills and require technical skills. Principals state that it is annoying to deal with these things that have no purpose and do not contribute to education:

Sudden events can prevent the principal from being planned. There is no money; and I have to find that resource expected from me; it's really time-consuming. However, the principal should act as a role model for students, teachers and employees. Such non-educational activities can prevent this, in terms of time. In addition to being an educator, the principal must also think like a security guard. Tasks such as security, repairs, financial resources, plumbing, and office work full of paperwork often prevent management and leadership duties. This is a tedious workload that transcends our expertise. P12.

Although some principals are busy with unclear tasks during the day, the most important and desired activities of the principals are educational activities:

Do you know what I really want to do? The implementation of the education programs based on the upbringing of these students, the follow-up of the students' gains on the basis of courses, focusing on solutions of their various problems, the follow-up of the teachers' works closely, the education of the students as well as the education of the parents. I want to do all these kinds of work for monitoring and organization of educational needs. P2.

Diversity of workload sources

This factor reveals that the workload of the principals is quite high. Principals stated that they have a wide range of different tasks and responsibilities regarding workload sources. These were identified as managerial affairs, planned and unplanned meetings, and planning for school and non-school activities. Principals linked workload

sources with 9 different responsibilities. These are: routine administrative activities, formal correspondence and reporting, school-parent association activities, parent-teacher-student communication, formal-informal meetings, relations with senior institutions, preparation for project competitions, assignments and follow-up of school staff at different activities, search for school funding, and improvement of the physical environment of school. The abundance of these sources also reveals that principals need to have different skills:

The principal needs to be versatile. He must be a carpenter, constructor, or technician. It is not always possible to call somebody and ask for help due to lack of budget. A door breaks, a water pipe bursts... The principal is trying to do everything on his own; this is workload. The workload spans many areas other than education and management. This can also prevent the principal from being planned. There is no source of money, and it is really time-consuming to find that source expected from the principal. P12.

However, when we look at the practice, reports, official correspondence, bureaucracy-oriented work, meetings, and tasks other than education and the necessity of carrying out these events on such issues, and the request of various ministries and institutions to cooperate with the Ministry of National Education, it causes us to deal with such activities. This prevents education and training from being our first priority and puts us in trouble. P4.

Lack of time

Principals have to do several jobs at the same time for different reasons for the schools they work for. Absence of staff, a crowded school and parent-student complaints are among these reasons:

Almost every day, every minute... My school is a crowded school. We are trying to do many things at the same time because it is a school where students' and parents' problems are challenging. P1.

I have to do things at the same time. Parents' meetings, paperwork, negotiating for the school's needs, etc... P3.

A principal described the time pressure as a very ordinary event and stated that at certain times this was inevitable:

I often experience this because when I think about the daily routine, the student population of the school, the number of staff, and therefore the number of parents, I constantly face complaints and demands. This is very ordinary for me, given that they are concentrated in certain hours during the day. P2.

Principals usually experience time pressure because of workload. For this reason, they have to work outside official working hours.

It's not possible for me to finish my work during official hours. That day's work piles up onto another day and increases the workload of the other day. P1.

It's hard to finish all these things during the day. Most of the time it doesn't catch up. That's why we work outside working hours. P9.

There are times when we get stuck or we can't finish things. We endeavour to do the things that must be done, we come to school at the weekend and continue to work. P10.

Principals are aware that when time pressure increases, motivation decreases. One principal said:

Most of the time, there are tasks that go beyond our capacity, exhaust our energy and break our enthusiasm. Sometimes we have to respond in a short time, and it may not be possible to catch up in the given time. P7.

Problems with human resources management

Principals do a lot of work because of the lack of both administrative and technical personnel. This naturally increases workload. A principal stated that he had to act as both primary and secondary school principal:

I can say, I have to think about the physical needs of the schools and the need to improve the quality of education, communication of the schools with the ministry, and paperwork. I have to be a mediator between parents and students. Apart from that, our school continues education both in primary and

secondary schools and it is a heavy workload for me to be the only principal for both of the schools. I am in a difficult situation. P1.

Principals also state that principals are seen as people who are expected to do every job without having assistants:

Apart from the duties specified in the regulations, I am also responsible for other work and services at the school. Principals may be forced to work without teachers, without security guards, without assistant principals. Each missing staff member brings more workload. I therefore think of it as a position with a lot of responsibility but no authority and influence. P9.

High email volume

The Ministry of National Education uses the Document Management System (DMS) due to reasons such as fast execution of transactions and prevention of paper waste. Principals state that correspondence through the Document Management System increases the bureaucratic workload and wastes a significant part of their time. Continuous emails coming through the system increase workload:

We examine the reports prepared as the principal and send them to the Ministry of National Education via the DMS. This is our routine. For example, when I come to the desk in the morning, I look at the mailbox. I check the DMS emails. I transfer the emails to the assistant principal, then open the DMS portal and check the emails from the directors of national of education and the assistant principal again. During the day, I review the reports from the assistant principal and the officer; if there are any, I send them back in order to be corrected. Then, I approve the appropriate ones and send them to the district national education board. That's something all principals experience. Everyone is constantly experiencing this. P3.

Effects of workload on principals' lives

When principals were asked about the effects of the workload, some sub-themes were found that limited their private lives.

Challenges of work and private life

When the effects of principals' workload were examined, the following sub-themes emerged: (i) lack of time to allocate to the family, (ii) pressure and stress, (iii) low motivation for the profession, and (iv) lack of time to allocate to teachers, parents and students. Principals stated that they worked long hours and worked overtime. Therefore, not being able to spend time with family members leads to reactions of family members:

I have pressure and stress every moment of the day. I can't even answer my parents' phones. I have to go home late. I don't have time for my family. I have a small child, and I haven't been able to go to the park with my child since I started here. Because of the problems here, if there is a lot of school work, our work must continue all day long. Even if I am at home, it is not possible for me to be with my family and make plans. I get a lot of complaints from my wife and son. This makes me so sad, and I feel exhausted. P1.

I have to be at school until the end of my work. I have to be at school on weekdays and on Saturdays. I can only devote my Sunday to my family. I have to arrange my private work according to my school work. Sometimes I don't have enough time for my children. I sometimes suffer from high stress. P3.

Principals state that they are tired and stressed when they cannot finish their work at school, even though they spend a lot of time inside and outside official working hours:

I try to finish things that we cannot do during the day, sometimes by working late. I go home one or two hours after the end of working hours on weekdays. At the weekends, I cannot spend time with my family. I encounter situations like questioning myself. But when I'm too busy, or when things build up, I am more reactive towards my friends and children, which makes me nervous. P10.

Furthermore, it is stated that workload is a source of intense stress:

“The workload is a source of stress for me. Stress and pressure are very intense because of my workload. P7.

Another principal stated that mental fatigue caused low motivation and that his decision-making skills as a principal were negatively affected:

Tired in mind, not body. It lowers motivation and can lead to instability in the work to be done. For example, on the report card day last week, some of my teachers had different demands and complaints. They were disappointed that I could not fulfil those demands. I had been thinking about it all day and night, so I couldn't sleep last night. I kept thinking. I didn't even want to come to this meeting today. P10.

Inability to spend time with stakeholders

Principals stated that the workload also affected them negatively from the professional point of view. While expressing the effects that limit professional life, they state that they cannot allocate sufficient time to teachers, parents and students. A principal explained his dilemma about having to carry out official duties and spending time for parents, teachers and students:

I am too busy; I have to go to meetings at the Directorate of National Education and have urgent work to be done at school at the same time. I have to make interviews for parents' problems, and also to deal with the problems of teachers and students at school and the physical problems of the school. There is a dilemma about which one I should start and which one should take priority. Parents complain. Everyone complains. Teachers say they can't see the principal. P1.

Methods of coping with the principal workload

When the principals were asked what they were doing to cope with the workload, the answers emerged in 3 different sub-dimensions. These sub-dimensions are: (i) planning the workday, (ii) delegation of workload, (iii) working overtime. It is seen that principals did not provide very detailed information on coping with workload. The explanations show that the coping methods used are far from being considered detailed strategies. Principals stated that they plan and prioritize some of the work and get help from their colleagues:

We have to do a lot of things at the same time, but I arrange them in a planned way. I won't handle them all at the same time. I share my work with my assistant principal, because when I try to handle them all at the same time, there is always confusion or disruption. I rank them in order of importance, and I take care of them in order. P10.

In order to cope with the workload in the school, I get the help of the assistant principal and teachers, provided that I have the responsibility. I put things in order of priority and spread them over time. For example, if I have some paperwork and I have to go to a meeting, I ask for help. P3.

One principal explained that he had to take over the workload, rather than getting help, and do more work on his own:

I have to work more to cope with the workload at school. So, I do a lot of things on my own. P5.

Another principal stated that he did not act in a hurry and made plans by consulting his staff first:

I try to be patient. I listen to people, try to keep them informed of the consequences. I carry out planning and division of labour. I assign employees correctly and in a planned manner. If necessary, I work overtime. P10.

Results and Discussion

In this study, how principals perceive their workloads, their opinions about the elements that make up their workloads, how they are affected by workloads, and how they cope with workload were examined.

Principals described the workload as work that restricts or prevents the time they need to devote to education and training activities. The necessity of doing a lot of work in a short time and carrying out all kinds of work or operations knowing that the principal is responsible for everything are seen as workload by the principals. Thus,

principals provide a subjective perspective on their workload. Principals state that many jobs should be carried out simultaneously and that this creates time pressure on them. In this respect, principals consider their work as difficult and complex. Similarly, Oplatka (2017) found that activities that do not contribute to the development of teaching and learning at school, having multiple and various tasks, and having limited time to finish the work, are perceived as workload by principals. Perceived workload has a subjective meaning and is often expressed as difficulty or ease in one's own work (Bowling and Kirkendall, 2012; Van der Doef and Maes, 1999). Therefore, in this study, principals place a qualitative meaning on their workloads. The perception of qualitative workload is related to perceiving the work as difficult or complex (Bowling and Kirkendall, 2012; Cooper and Marshall, 1976). Oplatka (2017) states that principals find their administrative tasks difficult and complex due to the nature of the school's operation and processes. In Turkey, principals have to undertake different responsibilities. Along with instructional leadership, they carry out work such as school funding or finding supplies for school (Aydın, 2016; Demirtaş and Özer, 2014; Turan and Yalçın, 2015). Principals are involved in executive training programs, management of personnel and student affairs and management of general and administrative services. Moreover, they have to cope with sudden problems (Çinkır, 2010). Unsurprisingly, attempts to run the school together at administrative, organizational and managerial levels cause school principals to perceive their workloads as qualitatively difficult, complex and heavy.

In this study, the factors determining the workload of principals are diversity in workload sources, lack of time, human resource problems, and high e-mail volume. These findings are similar to research findings related to the sources of workload (Aydın, 2016; Demirkasımoğlu, 2015; Oplatka, 2017; Poirel et al., 2012; Pollock and Hauseman, 2019; Starr and White, 2008; Ural, 2002; West et al., 2014). Sources of workload are general management tasks, attending scheduled or unplanned meetings, planning for school and extracurricular activities, and studies for school operation. Similarly, Oplatka (2017) found that the factors that increase the workload of principals include school funding, unplanned work and communication. Poirel et al. (2012) showed that meetings and paperwork or unplanned interviews increased the workload of principals. In addition, Demirkasımoğlu (2015) stated that student services, personnel services, parent interviews and official correspondence raise workload. Principals, moreover, are under considerable time pressure, as many administrative, administrative or business-related tasks need to be completed at the same time. The time required to solve the problems of different stakeholders (Poirel et al., 2012), the demand to complete a lot of work in a short time (Oplatka, 2017), and the timely completion of official correspondence (Demirkasımoğlu, 2015) are known as factors that increase the workload.

In addition, the principals perceive staff shortages as a big factor in workload. For this reason, some principals both assist in administrative affairs and engage in activities to solve technical problems in the school building. Ural (2002) stated that workload in the school increases with staff shortages. West et al. (2014) stated that shortage of staff for economic reasons increases the workload of the principal. Similar results have been obtained in different organizations (Rowley and Purcell, 2001). This study showed that answers to and official correspondence with the e-mails sent by the Ministry of National Education increased the workload of principals. Principals have to do a lot of work in a limited time because of the official correspondence that is required to be answered quickly. As a matter of fact, the intensive use of information technologies in school administrative work increases the workload of principals (Pollock and Hauseman, 2019; Saidun et al., 2015). A research study in Canada showed that in primary and secondary schools, intensive e-mail volume, time devoted to meetings, teachers' reluctance for school work, guidance in the profession or to new beginners, time spent during the preparation of teachers' lesson plans, efforts to solve discipline problems in the school, and the selection of the right personnel for the school increased the workload (Leithwood and Azah, 2014). Considering high e-mail volume, insufficient or inadequately qualified personnel, too many routine administrative, organizational and managerial tasks, meetings and activities unrelated to education, time spent for planning and organization, inter-institutional correspondence, school funding, and paper work, workload is composed of many different tasks.

The effects of workload on principals' lives were examined in the study. Workload causes some problems in the private and professional lives of principals. Principals do not spend enough time with their families. They also experience excessive fatigue, stress and pressure due to workload. The literature about workload emphasizes that intensity creates a feeling of burnout in principals (Yıldırım and Dinç, 2019), causes stress (Borg, 1993) and disrupts work-life balance (Crawford, 2012). As a matter of fact, workload causes work-family conflict in different organizations (Goh et al., 2015).

Moreover, principals cannot allocate sufficient time to communicate with students and parents. They experience a low sense of motivation to continue the profession. Similarly, the literature on workload reveals that principals do not allocate sufficient time to students due to work intensity (Brauckmann et al., 2015) and tend to quit the profession (Wu, 2005). Therefore, individuals' well-being is affected by their workload and their emotional commitment decreases (Bowling et al., 2015). Likewise, heavy workload decreases in-role work performance and negatively affects employees' organizational commitment and productivity (Bowling and Kirkendall, 2012). Interestingly, however, Oplatka (2017) found that principals did not talk about negative situations affecting them although they suffered from overload. Therefore, overload makes it difficult for school principals to manage their emotions. As a result of this, the feeling of not being able to do their job effectively creates stress and pressure.

However, it should be noted that the explanations made on this issue show that the coping methods used are far from being detailed strategies. However, the strategies used by principals are planned and scheduled work, delegating authority and responsibilities to assistant school principals or teachers, and working overtime. Similar to the findings of this study, Oplatka (2017) found that principals shared leadership among assistant principals in order to cope with the workload and delegated some of their powers and responsibilities. In this respect, only a limited number of strategies are used by principals in Turkey, which is inadequate. In contrast, it was found that principals in different countries use different strategies to reduce the workload. Oplatka (2017) stated that principals set priorities for the work to be done in order to manage the workload and that they participated in the meetings or activities organized by external institutions in a limited number and by selection. Principals did not work outside official working hours. Leithwood and Azah (2014) reported that school administrators worked with highly qualified assistants and teachers to tackle the workload. School principals preferred experienced assistant principals and at the same time they modelled the professional experience of experienced managers. Moreover, school principals shared tasks and leadership by effectively using their communication skills.

Above all, one of the most important results in this study is the perspectives of principals on workload. Principals consider most of the work that restricts the time they devote to improving education and training in their schools as workload. Similarly, according to Oplatka (2017), school principals perceive various tasks, projects, meetings and activities as workload when they cannot relate to education and training. Likewise, Leithwood and Azah (2014) report that school principals and deputy principals perceive meetings, staff issues, formal correspondence and instant jobs as workloads, which limit the time they devote to education and training. As a result, it can be stated that school principals perceive the activities that restrict educational leadership behaviours towards improving students' learning and that cannot be related to education as workload. Despite many cultural and structural differences, school principals' workload perceptions are similar. This result confirms the research findings in other past literature. Furthermore, it is understood that principals are emotionally worn out due to the effects of workload, so they carry out routine work instead of innovating their work. In this respect, in today's education systems where innovative behaviours are at the forefront, routine behaviours will have a negative impact on school development. Therefore, school management has turned into a profession that is emotionally wearying and negates job satisfaction.

However, principals' strategies for managing their work are very limited and they refrain from distributing authority and responsibility. Strategies used by principals to reduce workload are extremely important (Leithwood and Azah, 2014; Oplatka, 2017). The centralized bureaucratic structure of education in Turkey has limited principals' use of different strategies. This is because the work that the school principals can do is determined within the framework of the legislation. Therefore, school principals cannot share authority and responsibility. Otherwise, they may face legal sanctions if unintended consequences occur.

Recommendations

According to the findings of the research, some measures can be taken to reduce the workload of principals. Principals should be encouraged to share leadership. For this purpose, by making legal arrangements, coordinating units can be set up in schools where teachers can be assigned directly. In addition, the number of personnel for the auxiliary services in the school can be improved or measures can be taken to ensure that these personnel work more effectively. The Ministry may evaluate and reorganize inefficient, bureaucracy-based work and procedures that prevent principals from performing their duties. A limit can be imposed on the number of incoming e-mails via official channels, since the workload of principals is increasing due to the e-mails sent by many different institutions at the same time. New and realistic plans should be made for school budgets. The

physical conditions of schools should be improved. Instead of crowded schools, fewer students should be placed in schools. Therefore, school principals may be offered opportunities for more autonomous work in managing the school. Additional leave may be given to school principals periodically to minimize family-work conflict. In this way, it can be ensured that they both deal with their immediate surroundings and can emotionally renew themselves. Experience-sharing programs can be planned for school principals to obtain advice from school principals who are experts in time management. In addition, time management training can be organized for school principals to be assigned to tasks. Incentives can be made to ensure that experienced school principals work for a long time in their schools. However, despite all the suggestions of the authors, it is seen that expectations from principals will increase. In this regard, it is suggested that school management in Turkey is made into a profession. Therefore, the necessary legal regulations should be prepared as soon as possible. Otherwise, it may be difficult to respond to changing world demands and expectations.

As the research is qualitatively designed, it is very difficult to generalize. However, some suggestions may be made. More studies can be carried out on what principals perceive as workload and sources of workload. These studies can be carried out at urban and suburban schools. Thus, factors causing workload can be explained more clearly. The negative effects of workload on principals' lives can be examined deeply in interviews and observations. For, although the effects of workload on principals in different organizations are examined, it is seen that the studies on school principals are quite limited and the effects of workload should be explained more clearly. This is similar in the national and international literature. Using quantitative research designs, the extent to which principals and assistant principals perceive the workload can be investigated in larger sample groups. The effects of document management systems on workload can also be examined. In addition, the past literature on workload of assistant principals is very limited. Assistant principals quit their jobs for different reasons, including heavy workload. Therefore, further research is needed (Demirbilek & Bakioğlu, 2019).

Limitations of the study

This research was conducted with a limited number of principals. Therefore, it is limited to the opinions of 13 participants. Moreover, because the survey was conducted in a province in the Western Black Sea Region, the regional and cultural context should be considered. For example, the demands and expectations of parents and students in central schools may vary in terms of increasing the workload. The last limitation is the Turkish Education System, which has a centralized structure. This should be taken into consideration when making comparisons with different systems in different countries.

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International Journal of Contemporary Educational Research (IJCER)

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Mediating Role of Empathy in the Relationship between Emotional Intelligence and Thinking Styles

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To cite this article:

Korkman, H. & Tekel, E. (2020). Mediating role of empathy in the relationship between emotional intelligence and thinking styles. *International Journal of Contemporary Educational Research*, 7(1), 192-200. DOI: <https://doi.org/10.33200/ijcer.659376>

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Mediating Role of Empathy in the Relationship between Emotional Intelligence and Thinking Styles

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Abstract

The aim of the study is to examine the mediating role of empathy in the relationship between rational and experiential thinking styles and was designed in a correlational design. The sample of the study consists of 593 university students who were determined by simple random sampling method. Emotional Intelligence Questionnaire–Short Form, Empathy Quotient Scale, and Rational-Experiential Thinking Styles Scale were used for data collection. Bootstrapping method and Pearson product moments analysis were used to analyze the mediating role of empathy. Results indicated that there are significant relationships between the variables. In addition, empathy is a full mediation in the relationship between emotional intelligence and experiential thinking style and empathy is a partial mediation in the relationship between emotional intelligence and rational thinking style.

Key words: Emotional Intelligence, Thinking Styles, Empathy, Bootstrapping.

Introduction

Emotional intelligence is one of the most studied topics in recent years. Emotional intelligence (EI) is expressed as the ability to understand and evaluate one's own and others' emotions (Salovey & Mayer, 1990). EI was defined as a subset of social intelligence, which includes the ability to track one's feelings and feelings of himself and others, distinguish between them, and use this knowledge in their thoughts and actions (Mayer & Salovey, 1993). Within the scope of this definition, opinions about the structure of EI and what features it has been put forward. In this context, Davies, Stankov and Roberts (1998) explain that EI is a four-dimensional structure that is related to understanding and expressing emotions, understanding and recognizing the feelings of others, organizing their own emotions and using their own emotions to improve their performance. Therefore, it is thought that people require emotional quotient (EQ) more than IQ (intelligence quotient) in order to be successful in life (Cumming, 2005). Mayer, Salovey and Caruso (2000) imply that people with higher EI levels can manage their emotions, are more successful in solving the emotional problems they experience and managing stress, demonstrate more constructive and positive reactions in family and social relations when compared to people with lower EI. In addition, people with high EI levels have higher coping skills in solving the problems they experience, and they are more successful in emotional awareness and the control of emotions (Zeidner & Matthews, 2000). Goleman (2011) states that emotional intelligence is an ability to mobilize the person, to sit pat even if he experiences mishaps, not to lose hope, to delay his satisfactions by controlling his impulses, to regulate his mood, not to let his problems spoil his thoughts in addition to ability to empathize. As a matter of fact, in addition to social skills, problem-solving, self-respect, satisfaction with life (Deniz, Öztürk, & Hamarta, 2007; Ergin, Kaynak, Pınarcık, & Arslan, 2013), attribution complexity, and self-control (Fitness & Curtis, 2005) many studies have shown that emotional intelligence is related to empathy (Fitness & Curtis, 2005; Ioannidou & Konstantikaki, 2008; Mayer, DiPaolo, & Salovey, 1990; Mayer, Salovey, Gombert-Kaufman, & Blainey, 1991).

Empathy is an important concept as the capacity of understanding and sharing the mental status or emotions of other people (Ioannidou & Konstantikaki, 2008). Empathy is generally known as the ability to understand what the other person feels and thinks by putting ourselves in someone's place. It is possible to encounter different definitions due to different approaches. Freud stated that ego requires empathy in understanding another person

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and it is a special identification method based on certain similarities between subject and object (Özbay & Canpolat, 2003). Ferenczi (1949) who is one of the followers of Freud, suggested that instead of oedipal complexes, lack of empathy in early childhood is important in the emergence of neuroses. Kohut (1971) who is another psychoanalyst states that individuals use introspection in self-understanding and empathy in understanding other people. Today, empathy is considered as a supporting factor in the relationship between the counselee and consultant in the cognitive-behavioral approach (Altınbaş, Gülöksüz, Özçetinkaya, & Oral, 2010). In recent years, especially the biological aspect of empathy has been emphasized. Because the conducted studies indicate that empathy is closely related to mirror neurons. Findings obtained from the loss of empathy in the degeneration of mirror neurons are regarded as one of the most important indicators of this relationship (Altınbaş et al., 2010; Keysers, 2011). Furthermore, it was observed in several studies that oxytocin which is a neuropeptide hormone observed in mammals is closely related to empathy. It was demonstrated in experimental studies that interest and compassion given to the newborns increase the secretion of oxytocin and decrease the secretion of cortisol which is the stress hormone (Erbaş, 2013). Referring to the biological dimension of empathy, Herbst and Maree (2008) state that empathy is directly related to thinking styles. People use a number of thinking styles when making inferences. These inferences are also influenced by other people's feelings and thoughts. This affection occurs by empathizing. Similarly, information processing in brain, which has an important role in the formation of thought, is also associated with empathy. Keltner, Gruenfeld and Anderson (2003) advocates that people who use local processing style increase their empathic tendencies by focusing more on details, whereas Schmid Mast, Jonas and Hall (2009) defend that people who use global processing style have more empathetic tendencies since they focus on the whole instead of details.

People use specific thinking styles in order to solve the problems they encounter. Thinking style is defined as the preferred way of the performed work or thinking and a way of preference in the use of a skill that individuals possess (Sternberg & Zhang, 2005). However, it is not possible to mention a standardized thinking style for people, moreover, the same individual uses different thinking styles for each problem he/she encounters (Sternberg, 1997). Although there are several different theories and approaches in related literature, two types of thinking styles as rational and experiential thinking styles (Buluş, 2003; 2006) are focused on this research. Experiential thinking style consists of affective and experiential learning. Rational thinking style, on the other hand, consists of culturally conveyed knowledge and inferential rules. The system of experiential information processing is automatic, fast, holistic, automatic and has invocative connections and emotions. Experiential thinking is a system that processes information first, and the errors that will occur in this system affect the rational information processing, that is, the rational thinking style. The rational thinking system, on the other hand, has an analytical, optional-conscious, logical structure (Buluş, 2000, 2006; Epstein, Pacini, Denes-Raj, & Heier, 1996).

To sum up, there are many studies which show that there is a relationship between EI and empathy (Fitness & Curtis, 2005; Mayer et al., 1990), empathy and thinking styles (Herbst & Maree, 2008; Keltner et al., 2003; Schmid Mast et al., 2009), and EI and thinking styles (Moore, Snider, & Luchini, 2012; Murphy & Janeke 2009). Nonetheless, there isn't any study that examines the mediating role of empathy in the relationship between emotional intelligence and thinking styles. In this respect, it is considered that the current study would fill the gap in the literature.

Method

Research Model

This study was designed in a correlational design to reveal whether the mediating role of empathy in the relationship between rational and experiential thinking styles. The correlational design is used to determine whether there is a relationship between two or more variables, and if so, what level it is (McMillan & Schumacher, 2006). The dependent variables in the research are thinking styles, independent variable is emotional intelligence and empathy is a mediating variable.

Population and Sample

The population of the study consists of 26,584 students studying at Afyon Kocatepe University in the spring semester of 2018-2019. The sample of the study consists of 593 students who were determined by simple random sampling method. According to Krejcie and Morgan (1970) 377 units are enough as a sample group for 20.000-unit population and 379 units are enough for 30.000-unit population. Therefore, it can be said that the

number of samples in this research reached represents the population (Krejcie & Morgan, 1970). Demographics about the sample was presented in Table 1.

Table 1. Demographics of Sample

		Female	Male						Total
Gender	f	397	196						593
	%	66,9	33,1						100
Faculty		Applied Sciences	Education	Engineering	Science and Literature	Economics and Administrative Science	Veterinary Medicine	Fine Arts	Total
	f	72	161	175	79	67	24	15	593
	%	12,1	27,2	29,5	13,3	11,3	4,0	2,5	100
Education Level		Freshman	Sophomore	Junior	Senior				Total
	f	151	83	113	246				593
	%	25,5	14,0	19,1	41,5				100

As it can be seen on table 1, the sample was consisted of 397 females (%66,9) and 196 males (%33,1). Also 72 participants (%12,1) were in applied sciences faculty, 161 participants (% 27,2) were in education faculty, 175 participants (%29,5) were in engineering faculty, 79 participants (%13,3) were in science and literature faculty, 67 participants (%11,3) were in economics and administrative science faculty, 24 participants (%4,0) were in faculty veterinary medicine faculty and 15 participants (%2,5) were in fine arts faculty. Besides, 151 participants (%25,5) were freshman, 83 participants (%14,0) were sophomore, 113 participants (%19,1) were junior and 246 participants (%41,5) were senior.

Data Collection Tools

Three scales were used for the study. First scale is Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) developed by Petrides and Furnham (2000) and adapted in Turkish by Deniz, Özer and Işık (2013). Second scale is Empathy Quotient (EQ) Scale which was developed by Lawrence, Shaw, Baker, Baron-Cohen and David (2004) and adapted in Turkish by Kaya and Çolakoğlu (2015). The last scale is Rational-Experiential Thinking Styles Scale developed by Epstein et al. (1996) and adapted in Turkish by Buluş (2000).

Emotional Intelligence Questionnaire–Short Form (TEIQue-SF)

Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) was developed by Petrides and Furnham (2000) and adapted in Turkish by Deniz et al. (2013). TEIQue-SF has 20 items and four factors such as *well-being*, *self-control*, *emotionality* and *sociability*. Exploratory factor analysis and confirmatory factor analysis were performed for the adaptation process. For exploratory factor analysis, rotated component matrix was examined, and 10 items were loaded on two or more factors, therefore these ten items were eliminated from the scale. At the end, the TEIQue-SF which has originally 30 items, has 20 items. Total variance explained following factors, well-being 27%, self-control 10%, emotionality 8%, sociability 7%, and the total was %53. To test whether this new model fit the structure of the scale, confirmatory factor analysis was performed, and the fit indices were found as $\chi^2/df= 2.46$, GFI=.95, AGFI=.92, CFI=.91, RMSEA=.056 and SRMR=.060. Findings showed that TEIQue –SF fit the data well. Reliability of internal consistency was calculated by Cronbach alpha coefficient. According to reliability values for factors were between .66 and .72 and for total scale .81

Empathy Quotient (EQ) Scale

Empathy Quotient (EQ) Scale was developed by Lawrence et al. (2004) and adapted in Turkish by Kaya and Çolakoğlu (2015). EQ consists of 13 items and 3 factors such as *social skills*, *emotional reactivity* and *cognitive empathy*. Exploratory Factor Analysis was performed for the first step of validity of the scale and 27 items were eliminated from the original form. According to the results of exploratory factor analysis, total variance explained following factors, *social skills* 15,3%, *emotional reactivity* 13,6% and *cognitive empathy* 9,95% and the total was 38,41%. As a second step Confirmatory Factor Analysis was conducted in order to confirm the

factorial structure and fit indices were found as $\chi^2/df = 2.81$, GFI=.92, AGFI=.88, CFI=.91, RMSEA=.078 and RMR=.066 which indicated that the model fits well. For testing the reliability of EQ, Chronbach's alpha coefficients for total scale and three subscales are respectively .86, .61, .75, .74.

Rational-Experiential Thinking Styles Scale

Rational-Experiential Thinking Styles Scale was developed by Epstein et al. (1996) and adapted in Turkish by Buluş (2000). The original form of the scale has 31 items and two factors such as *cognition (rational thinking)* and *faith in intuition (experiential thinking)*. To adapt the scale into Turkish, Exploratory Factor Analysis was conducted. As a result of Exploratory Factor Analysis, one item was excluded, and the final version of Turkish form has 30 item and two factors as in original. For testing the reliability of the scale, Chronbach's alpha coefficients for *cognition* was .75 and .80 for the *faith in intuition*.

Data Collecting Process

Google Forms was used for data collection process. The link which was generated via Google Forms was shared with only relevant participants. The researchers visited classes and they shared the link in classes' whatsapp groups. The link contains the purpose of the research, how data privacy will be ensured and will only be used for the purpose of the research, how the data should be filled in, brief information about the researchers and instructions for the measurement tools. Seven missing and incorrectly filled data were not included in the study. The data collection process covers June and October, 2019. It took approximately 20-25 minutes for individuals to complete the data collection tools.

Analysis of Data

IBM SPSS 21 was used for analyzing data. Descriptive statistics were conducted for analyzing demographic information of participants and Bootstrapping method (Preacher & Hayes, 2008) was used to analyze the mediating role of empathy in the relationship between emotional intelligence and thinking styles. Bootstrapping is used frequently to test the significance of direct and indirect effects in the established model by increasing the number of samples (MacKinnon, 2008) and is used frequently in mediation models (see Norr, Albanese, Boffa, Short, & Schmidt, 2016; Deniz, Erus, & Büyükcebeci, 2017). In the established model, emotional intelligence is independent variable, thinking styles is dependent variable and empathy is a mediating variable.

Findings

To examine the mediating role of empathy in the relationship between emotional intelligence and thinking styles Bootstrapping method was used. Before this analysis, the relationships between the variables the Pearson product moments analysis was conducted and presented in Table 2.

Table 2. The relationships between thing styles, empathy and emotional intelligence and descriptive statistics

Scales	Correlations				Descriptive statistics		
	1	2	3	4	N	\bar{X}	Std.deviation
1.Rational thinking	1				593	56,38	8,41
2.Experiential thinking	.131**	1			593	48,10	8,48
3.Empathy	.257**	.465**	1		593	52,17	6,48
4.Emotional Intelligence	.287**	.114**	.339**	1	593	18,37	4,65

p<.01

According to Table 2, there are significant positive relationship between emotional intelligence and empathy ($r = .339$), empathy and rational thinking style ($r = .257$). In addition, there are significant positive relationship between empathy and experiential thinking style ($r = .465$). Because both the a-path (the path from emotional intelligence to empathy) and b-path (the path from empath to experiential thinking) were significant, mediation analyses were conducted using the bootstrapping method with bias-corrected confidence estimates (Preacher & Hayes, 2004). In the study, the 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples (Preacher & Hayes, 2008). Two models were designed in this study. In the first model experiential

thinking style is the dependent variable, emotional intelligence is independent variable and empathy is a mediating variable. The results of bootstrapping analysis of Model 1 was presented in Table 3.

Table 3. Path values and indirect effect as a result of mediating model

	Path coefficient		Bootstrap indirect affect		
	To empathy	To experiential thinking	Standard Error Values	95% Confidence intervals level	
				LLCI	ULCI
Model 1					
From emotional intelligence	.47**	.29**			
From empathy		.63**			
$EI \rightarrow E \rightarrow ET$ <i> $p < .01$, EI= emotional intelligence, E= empathy, ET= experiential thinking, $LLCI$=lower limit of confidence interval, $ULCI$= upper limit of confidence interval </i>			2.53 (.07)	.21	.39

According to Table 3, results of the mediation analysis confirmed the mediating role of empathy in the relation between emotional intelligence and experiential thinking style ($B = .29$; $CI = .21$ to $.30$). In addition, results indicated that the direct effect of emotional intelligence on experiential thinking style became non-significant ($B = -.09$, $t(591) = -1.28$, $p = .19$) when controlling for empathy, thus suggesting full mediation and Figure 1 displays the results.

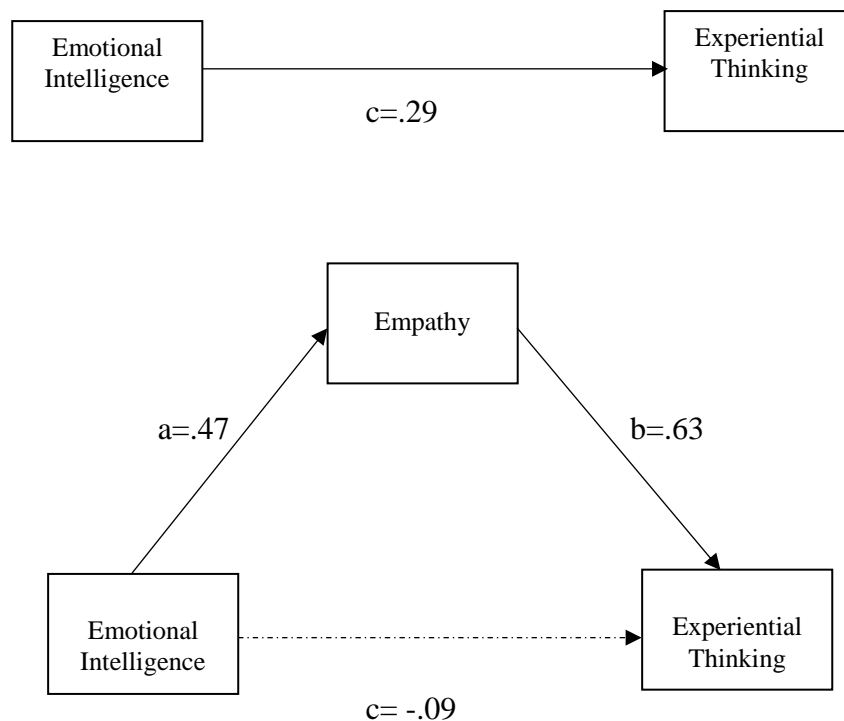


Figure 1. Indirect and direct effect of emotional intelligence on experiential thinking style

According to Figure 1, students' emotional intelligence can increase their empathy and this raise can affect their experiential thinking styles. Variables explain 21% of the variance of experiential thinking style and the Model 1 is significant [$F = 82.22$; $p < .000$].

In the second model rational thinking style is the dependent variable, emotional intelligence is independent variable and empathy is a mediating variable. The results of bootstrapping analysis of Model 2 was presented in Table 4.

Table 4. Path values and indirect effect as a result of mediating model

	Path coefficient		Bootstrap indirect affect		
	To empathy	To rational thinking	Standard Error Values	95% Confidence intervals level	
				LLCI	ULCI
Model 2					
From emotional intelligence	.47**	.40**			
From empathy		.23**			
$EI \rightarrow E \rightarrow RT$ <i>p</i> < .01, EI= emotional intelligence, E= empathy, RT= rational thinking, LLCI=lower limit of confidence interval, ULCI= upper limit of confidence interval			2.68 (07)	.05	.16

According to Table 4, results of the mediation analysis confirmed the mediating role of empathy in the relation between emotional intelligence and experiential thinking style ($B = .40$; $CI = .05$ to $.30$). In addition, results indicated that the direct effect of emotional intelligence on rational thinking style became decreased ($B = .40$, $t(591) = 5.46$, $p = .000$) when controlling for empathy, thus suggesting partial mediation and Figure 2 displays the results.

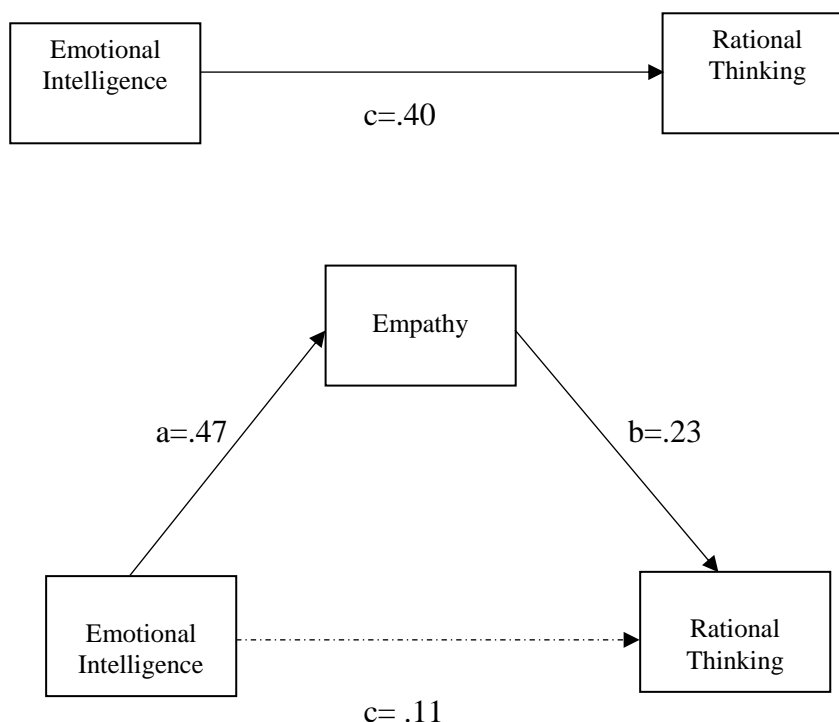


Figure 2. Indirect and direct effect of emotional intelligence on rational thinking style

According to Figure 2, students' emotional intelligence can increase their empathy and this increase can affect their rational thinking styles. Variables explain 11% of the variance of rational thinking style and the Model 2 is significant [$F = 36.91$; $p < .000$].

Conclusion

The aim of this study is to examine the mediating role of empathy in the relationship between emotional intelligence and rational and experiential thinking styles. Baron and Kenny (1986) suggested that before the mediating analysis, some conditions should be fulfilled: There is a relationship between an independent variable and a mediating variable, (ii) there is a relationship between the mediating variable and dependent variables.

Therefore, before the mediating analyses, the relationships between the variables were examined and according to results there is a significant relationship between emotional intelligence (independent variable) and empathy (mediating variable). In addition, significant relationships were found between empathy (mediating variable) and both rational and experiential thinking styles (dependent variables). After that mediating role of empathy in the relationship between emotional intelligence and experiential thinking styles were analyzed. Results indicated that the direct effect of emotional intelligence on experiential thinking style became non-significant when controlling for empathy, thus suggesting full mediation. According to Baron and Kenny (1986) when mediating variables are included in an analysis, the effect of the independent variable on the dependent variable totally disappears, which indicates the full mediation. Accordingly, as students' emotional intelligence scores increase, their tendency to empathy increases and this increase causes experiential thinking style to increase. According to the other result of the study, the direct effect of emotional intelligence on rational thinking style became decreased when controlling for empathy, thus suggesting partial mediation.

When related studies are examined, it is seen that EI is associated with empathy (Boyatzis, Goleman & Rhee 1999; Faye et al., 2011; Fitness & Curtis, 2005; Ioannidou & Konstantikaki, 2008; Jokić & Purić, 2019). As a matter of fact, according to Çetinkaya and Alparslan (2011) the empathic sensitivity dimension, one of the sub-dimensions of emotional intelligence, influences the communication skills. In this context, it is unlikely to think of emotional intelligence and empathy separately. In sum, individuals with high empathy skills have the ability to understand the feelings of other people. Emotional intelligence is related to the ability to understand and manage their own emotions. A person who can understand and manage his own feelings can also understand the feelings of others. It is known that empathetic people use their emotional intelligence better (Fitness & Curtis, 2005; Ioannidou & Konstantikaki 2008; Mayer, et al. 1990; Mayer et al., 1991) and people with high emotional intelligence also experience their rational and rational thinking skills better (Jokić & Purić, 2019).

It is seen that emotional intelligence is related with thinking styles. Goleman (2011) mentions two types of intelligence as IQ (Intelligent Quotient) and EQ (Emotional Quotient). Although these two types of intelligence are different from each other, they interact with each other. IQ is our conscious side and is a way of understanding that we are often aware of. EQ is an impulsive, powerful, and sometimes irrational comprehension system. Though emotions contribute to the study of IQ, IQ sometimes ignores emotional data. Both reflect the functioning of different but interconnected circuits in the brain. Although EQ and IQ are generally in equilibrium, in the event of a life-threatening situation, the balance between the two is disrupted and EQ is able to neutralize IQ by dominating (Goleman, 2011). As can be seen, rational thinking is related to IQ rather than EQ. Rational thinking takes place primarily at the level of consciousness; purposeful, analytical, and verbal thinking. It is relatively independent of emotional influences. IQ refers to an individual's capacity to understand, learn, remember, rational thinking, problem-solving, and practice what they have learned (Atkinson, Atkinson & Hilgard, 1995). Experiential thinking style, on the other hand, is automatic, associative, holistic, essentially non-verbal, and very influenced by instant emotions (Buluş, 2003, 2006; Epstein, Lipson, Holstein, & Heier, 1992). Accordingly, it can be said that empathy and emotional intelligence are much more related with experiential thinking style, as students' emotional intelligence scores increase, their tendency to empathy increases and this increase causes experiential thinking style to increase. On the other hand, as students' emotional intelligence scores increase, their tendency to empathy increases and this increase causes rational thinking style to partially increase. However, it can be said that empathy is a mediating variable in the relationship between emotional intelligence and thinking styles as rational and experiential.

There are limitations in this study. The first one is that most of the participants are female which may affect the results. Since according to Sladek, Bond and Phillips (2010) females preferred more experiential thinking styles than males. It is similar for Turkish culture in which gender role is strong. According to Buluş (2006) in Turkey females are perceived as more cautious, dependent, fault-finding, shy and males as more adventurous, enterprising, individualistic, tentative, independent and progressive which means gender difference can affect thinking styles. Therefore, similar studies can collect data from males and females equally. Another limitation is that mediating role of empathy in the relationship between emotional intelligence and thinking styles was tested by bootstrapping method in this study. Similar study can be tested by structural equation model.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Kaya, S. & Ok, A. (2020). The Antecedents influencing the implementation and success of the middle school English language curriculum. *International Journal of Contemporary Educational Research*, 7(1), 201-214. DOI: <https://doi.org/10.33200/ijcer.660386>

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The Antecedents Influencing the Implementation and Success of the Middle School English Language Curriculum**

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Abstract

The purpose of the present study was to explore the antecedents influencing the implementation and the outcomes of the middle school English language curriculum. Case study was adopted to deeply explore a phenomenon, which can be the processes, events, persons, curricula, or things of interest to the researcher. The phenomenon, in this study, is the middle school English language curriculum. Four English teachers teaching different grade levels from a middle school located in Ankara were participants of the study. The data collection instrument was a semi-structured interview developed by the researchers. The interview schedule included 11 main questions and some probing questions to explore the antecedents that might have influence on the implementation of the curriculum. Data collected through interviews were analyzed with content analysis. Content analysis revealed four categories (themes) which were named as “teacher characteristics”, “student characteristics”, “school characteristics”, and “teachers’ views about the curriculum”. Findings indicated that rather than one factor, the combination of the four factors influence teacher and student behaviors which in turn influence the implementation process and the overall success of the curriculum.

Key words: Middle school English language curriculum, Antecedents, Case study, Teacher views

Introduction

Due to the fast changes and improvements taking place in science, technology and communication, “which have a global impact” (Ornstein & Hunkins, 2004, p. 142), every society is obliged to turn into a knowledge society through education (Yüksel & Sağlam, 2014), as education is one of the distinguishing factors for the prosperity of one country in the world (Erdem, 2009).

Education, the process of creating change in an individual’s behaviors (Yüksel & Sağlam, 2014), occupies the most important place to transform any society. In contrast to informal education which is “incidental [and which] everyone gets from living with others, as long as he lives” (Dewey, 2004, p. 7), formal education is provided at an institution called school and “in every school where teachers are instructing students, a curriculum exists” (Oliva, 1997, p. 3), in other words, “the institution of education is activated by a curriculum” (Oliva, 1997, p. 22). To this connection, “success in education is almost never the result of sheer luck. It is, instead, the outcome of careful planning” (Steller, 1983) and “the quality of education mostly relies on [how] the curricula [are] implemented” (Erdem, 2009, p. 529).

“The education system is a social institution which should be expected to change along with other institutions. It would be more surprising, not to say disturbing, if the education system were to stand still while all else changed” (Kelly, 2004, p. 1). As stated in TED report (2005), in many countries, program reforms are executed and paradigm changes are experienced once in ten years (as cited in Gelen & Beyazıt, 2007). To this connection “it is important to continuously reappraise and revise existing curricula” (Ornstein & Hunkins, 2004, p.150) as education “does not possess a reality apart from the time, place, and mores in which it exists” (Ornstein &

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** This study was produced from the corresponding author’s PhD Dissertation titled “*Evaluation of middle school English language curriculum developed in 2012 utilizing Stake’s countenance evaluation model*” submitted to Middle East Technical University.

Hunkins, 2004, p. 133). Especially, the dizzy improvements in science, technology, and communication channels necessitate continuous curricular developments (Demirel, 2012).

In addition to the other disciplines such as math, science and history, foreign language education has been gaining more and more importance and attention in Turkey due to the fast changes and improvements experienced all around the world. When the close history of English language teaching policies of Turkey is examined, it is recognized that foreign language curriculum has been exposed to 3 curriculum reforms since 1997. The first one came into being in 1997, the second one followed in 2005, and third one was developed in 2012.

To start with the first curriculum reform in 1997, “Turkish educational system underwent a number of fundamental changes with respect to the English teaching policy at all levels of education” (Sarıçoban & Sarıçoban, 2012, p.31). This reform increased the duration of compulsory primary uninterrupted education from 5 to 8 years (Akinoğlu, 2008; Akşit, 2007; Bulut, 2007; Eraslan, 2013; Gözütok, 2014; İnal, Akkaymak & Yıldırım, 2014; Sarıçoban & Sarıçoban, 2012), so it necessitated an eight-year unified curriculum (Gözütok, 2014). With this reform, English language teaching started to be offered from the 4th grade onward as a standard compulsory school subject (Kırkgöz, 2008). With this new curriculum, students started to learn a foreign language at younger ages. As stated by Kırkgöz (2005), this curriculum introduced the concept of communicative approach into English language teaching in Turkey for the first time (as cited in Kırkgöz, 2007a). However, research conducted on this curriculum revealed that the communicative language teaching did not seem to result in the expected influence on teachers’ classroom practices because classroom activities were largely based on traditional methods of teaching structure (Kırkgöz, 2007a). As a results, this curriculum couldn’t be a solution to failure in foreign language learning, especially speaking component, despite all arrangements and in-service training (Yaman, 2010).

Depending on the research studies and particularly the one conducted by the Department of Research and Development of Education (EARGED) (2006), the second curriculum was developed in 2005 (Soğuksu, 2013). Some international studies, such as Pisa (2003), Prills (2001), and Timms-R (1999) indicated that Turkey was one of the least successful countries in language teaching (Şahin, 2007), and the justification to prepare this curriculum was declared to be Turkey’s failure in the international examination results in TIMMS and PISA (Gözütok, 2014). In the 2004–2005 academic year, the second curriculum was piloted in nine cities and 120 schools; textbooks were prepared for the trial period, and the curriculum was started to be implemented in 2005 and 2006 education period (Gözütok, 2014). The changes introduced in this curriculum were part of a government policy in response to the efforts to join the EU through standardization of English language teaching (Kırkgöz, 2007a). However, this curriculum couldn’t be a solution to the problems related to foreign language education; either, and it was criticized by researchers a lot.

In spite of “continuing efforts to improve the effectiveness of foreign language teaching in Turkey, a significant percentage of students left school without the skills to communicate successfully in an English-language medium” (Ministry of National Education [MoNE], 2013, p. ii), although the main purpose was to develop students’ communicative competence in those curricula. Therefore, the third curriculum was developed on March 30, 2012 (Gözütok, 2014), as the Turkish education/schooling system went through another transition from the 8+4 schooling model to the new 4+4+4 model. The first four, in this model, refers to elementary school period; the second four refers to middle school period and the third four refers to high school. With respect to the English language curriculum, it adopted communicative language approach and the principles of the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR), and it was put into practice in 2013-2014 academic year. As a result of this curriculum reform, students began to be provided with foreign language education from the 2nd grade onward. However, “no matter how desirable language policies may be, unless they are backed by the will to implement them, they cannot be of any effect” (Bamgbose, 2003, p.428), because teachers’ resistance to change is one of the most important obstacles hindering a curriculum’s success (Ornstein & Hunkins, 2017):

Often, teachers have not been able or willing to keep up with scholarly developments. They have not stayed abreast of the knowledge explosion, which would allow them to feel committed to curriculum change and the implementation of new programs. Teachers frequently view change as simply signaling more work—something else to add on to an already overloaded schedule for which little or no time is allotted (Ornstein & Hunkins, 2017, p. 266).

In addition, “teachers’ understandings of the principles of an innovation and their background training play a significant role in the degree of implementation of a curriculum innovation” (Kırkgöz, 2008, p. 1860).

Therefore, teachers' perceptions of a new curriculum, their characteristics, their will to implement a new curriculum, and their proficiency and/or capacity to implement it should be investigated in detail. In addition to teachers, the influence of other variables including students, schools and education system are to be examined before any curricular change. Stake (1967) names these variables as "antecedents" which refer to the background conditions, Ornstein and Hunkins (2004) name them as entry behaviors, while they are also called inputs by some evaluators (Gredler, 1996). No matter how they are named, they refer to any conditions that exist prior to teaching and learning that may influence outcomes (Fitzpatrick, Sanders & Worthen, 2004; Gredler, 1996; Ornstein & Hunkins, 2017, Stake, 1967) before the curriculum is run (Wood, 2001). They include characteristics of the students prior to their lessons (Fitzpatrick, Sanders & Worthen, 2004; Gredler, 1996; Ornstein & Hunkins, 2004; Woods, 1988) such as student aptitudes, prior experiences (Stake, 1967), "previous achievement scores, psychological profile scores, grades, discipline, and attendance" (Ornstein & Hunkins, 2017, p. 307). They also include teacher characteristics such as years of experience, type of education, and teacher behavior ratings (Ornstein & Hunkins, 2017) and characteristics of the schools.

To this connection, the purpose of the present study is to explore the factors available before the implementation of the middle school English language curriculum which influence the implementation and the outcomes of the curriculum. To this connection, the following research question was formulated:

1. What antecedents influence the implementation and outcomes of the middle school English language curriculum based on teachers' views?

Method

Research Design

This is a qualitative research aiming to find out "how meaning is constructed, how people make sense of their lives and their worlds" (Merriam, 2009, p. 24). As suggested by Merriam (2009), the primary goal of a basic qualitative study is to uncover and interpret these meanings. Among the different types of qualitative research methodologies, case study was chosen as it can be conducted to "shed light on a phenomenon, which is the processes, events, persons, or things of interest to the researcher" (Gall, Gall, & Borg, 2003, p. 436). Programs, curricula, roles and events can be listed as examples of a phenomenon (Gall, Gall, & Borg, 2003). A case study generally specifies the unit or units of analysis to be studied (Gall, Gall, & Borg, 2003; Merriam, 2009; Patton, 2002). Unit of analysis can be people, clients or students (Patton, 2002). To this connection, the phenomenon is the middle school English language curriculum, while the unit of analysis involves the teachers implementing the curriculum.

Participants

Four volunteering teachers from a public middle school located in Ankara participated as interviewees. Each of the four teachers was teaching in a different grade level. The teacher teaching the 5th graders (T5) was female, she graduated from the Department of English Language Teaching (ELT) and had two years of experience in public schools. With four years of experience, the teacher teaching the 6th graders (T6) was male and he graduated from the Department of English Language and Literature (ELL). The teacher teaching the 7th graders (T7) was female and an ELT graduate with 11 years of experience. Lastly, with seven years of experience in public schools, the teacher teaching the 8th graders (T8) was female and a graduate of ELL.

Data Collection Instruments

An interview schedule, developed by the researchers, was the data collection instrument. It was used to explore the antecedents that could influence the implementation and the ultimate outcomes of the middle school English language curriculum.

During instrument development process, related literature was examined through document analysis. In order to find out whether the questions satisfy content validity, the first draft of the interview was sent to three experts, from different universities, working at the Curriculum and Instruction Division. Based on their opinions and suggestions, necessary changes were applied. To illustrate, the summative questions were turned into open-ended questions. Then, the interview was administered to two English teachers in order to check the clarity and understandability of the interview questions. As a result, some negligible changes were applied to the interviews. To illustrate, more probing questions were added so that the teachers could give more information.

Finally, they were pilot tested with two English teachers in an administrator's room in order to see whether it worked as planned and calculate how long it would last. The pilot administration for the interview lasted for an average of 40 minutes and a few more probing questions were added to the interview schedule to collect more in-depth information.

The final version of the semi- structured interview schedule, at the end of these processes, included 11 main questions and some probing questions to explore the antecedents that might influence the implementation and success of the curriculum.

Data analysis

For the analysis of the qualitative data, content analysis, a generic analysis of data (Creswell, 2007), was utilized to find out "core consistencies and meanings" (Patton, 2002, p. 453) in the data. Indeed, "all qualitative data analysis is content analysis in that it is the content of interviews, field notes, and documents that is analyzed" (Merriam, 2009, p. 205). "The process involves the simultaneous coding of raw data and the construction of categories that capture relevant characteristics of the document's content" (Merriam, 2009, p. 205).

In the present study, tips suggested by Creswell (2009) were followed. Data analysis started with transcription of the tape-recorded data. After reading the the raw data for a few times to "obtain a general sense of the information and to reflect on its overall meaning" (Creswell, 2009, p. 185), coding process, which involves "taking text data or pictures gathered during data collection, segmenting sentences or images into categories, and labeling those categories with a term" (Creswell, 2009, p. 186) started. Lastly, the findings were reported after generating the themes/categories from the codes.

An inductive category development approach was followed as no preliminary codes were used. Coding was not done with one specific style. Words, phrases, and sentences were used as the representative unit of analysis depending on the data.

Intercoder reliability was used to measure the reliability of the data analysis. In this sense, a randomly selected interview was sent to two independent coders who have used content analysis in their works before. The intercoder reliability was calculated using the following formula (Miles & Huberman, 1994, p. 64):

$$\text{Reliability} = \frac{\text{number of agreements}}{\text{total number of agreements} + \text{disagreements}}$$

Using this formula, the agreement between coders of the interview was found to be 94% which satisfies the reliability.

Trustworthiness of the Study

There are many perspectives in literature with respect to the importance of validation in qualitative research, its definition, terms to describe it, procedures to satisfy it and these perspectives view qualitative validation in terms of quantitative equivalents using qualitative terms that are different from quantitative terms (Creswell, 2007). The validity and reliability issues as discussed in quantitative research corresponds to trustworthiness in qualitative research (Seale, 1999). Lincoln and Guba (1985) have proposed different terms to satisfy trustworthiness. To illustrate, they use (1) confirmability which refers to objectivity in conventional terms (in quantitative research); (2) transferability instead of external validity in conventional terms; (3) dependability instead of reliability in conventional terms; and (4) credibility instead of internal validity in conventional terms (Lincoln & Guba, 1985; Miles & Huberman, 1994). LeCompte and Goetz (1982) have suggested similar terms that apply more to naturalistic axioms as those proposed by Lincoln and Guba (1985) such as internal validity, external validity, reliability and objectivity.

In the present study, some strategies were used to satisfy the trustworthiness of the qualitative findings. Although, qualitative research "does not claim to be replicable" (Marshall & Rossman, 2006, p. 204) as "this assumption of an unchanging world is in direct contrast to the qualitative/interpretative assumption" (Marshall & Rossman, 2006, p. 203), attention was paid on reliability as well.

There are many strategies that can be used to satisfy the validity, which refers to "truth value" (Miles & Huberman, 1994, p. 278), "accuracy of findings" (Creswell, 2007, p. 206), and the credibility and authenticity (Miles & Huberman, 1994). Lincoln and Guba (1985) suggest the strategies like prolonged engagement,

triangulation, expert review, peer debriefing, and member checking to satisfy validity for qualitative data. The strategies applicable for the present study that were used to satisfy internal validity (credibility) and external validity (transferability) include member checking, prolonged engagement, and thick description.

Creswell (2007) suggest use of at least two strategies in any qualitative research. In the present study, more than two strategies were utilized. To illustrate, member checking, the process of going back to the participant to determine whether the participant agree with the researcher (Creswell, 2009), was used to determine the accuracy of the findings in order to satisfy interpretative validity and increase credibility of the findings. Further comments by the participants were used in the analysis if any. Second, the fact that researcher was also a teacher working in the school satisfied prolonged engagement strategy, which helped the researcher to build trust with participants and be aware of the culture (Lincoln & Guba, 1985). Last but not least, thick description, was utilized for transferability that refers to the external validity and fittingness of the study (Miles and Huberman, 1994).

Reliability, “the extent to which the research findings can be replicated” (Merriam, 2009, p. 220), questions “whether the results are consistent with the data collected” (Merriam, 2009, p. 220), and it refers to dependability in qualitative research (Lincoln & Guba, 1985). The audit trial was utilized to satisfy dependability (Merriam, 2009). In the present study, the supervisor of the researcher was the auditor whom was informed about the study in detail. He was informed about “how data were collected, how categories were derived, and how decisions were made throughout the inquiry” (Merriam, 2009, p. 223).

Results and Discussion

The purpose of the present study was to explore the antecedents that influence the implementation and the overall outcomes of the middle school English language curriculum. Interviews were conducted to find answers for this purpose and data were analyzed through content analysis. The results of content analysis yielded 4 themes (categories). The first theme was called as “teacher characteristics”, the second one was named as “student characteristics”, the third one was labelled as “school characteristics”, and the last one was called as “teachers’ views about the curriculum”. What is to add, these themes yielded some sub-themes. These themes and their sub-themes are presented in Table 1.

Table 1. The Themes and Sub-themes Regarding Antecedents

Themes	Sub-themes
1. Teacher Characteristics	1.1. Attitude towards job 1.2. Awareness 1.3. Teacher preparation before teaching 1.4. Strategies, methods and techniques 1.5. Knowledge about the curriculum
2. School Characteristics	2.1. Class size 2.2. Materials
3. Student Characteristics	3.1. Positive characteristics 3.2. Negative characteristics
4. Teachers’ Views about the Curriculum	4.1. Positive views 4.2. Negative views

As seen in Table 1, the first sub-theme, teacher characteristics, yielded five sub-themes which were named as “attitude towards job, awareness, teacher preparation before teaching, strategies, methods and techniques, and knowledge about the curriculum, respectively.

Table 2 summarizes the sub-themes and their corresponding codes with respect to teacher characteristics. The findings regarding teacher characteristics, as seen in the table, revealed that the teachers had positive attitudes towards their jobs (T5, T6, T7, T8), they valued their job (T5, T6, T7, T8), they loved their professions (T5, T6, T7, T8) and they were happy (T5, T7, T8) and were satisfied with their job (T5) despite some difficulties encountered. One of the teachers stated that

I love my job very much. The people close to me, like my father and my husband, think that this is the most appropriate job for me. My husband thinks that I can forget about any problems encountered in the classroom the moment I leave the classroom. I think that the job is suitable for me, so I am happy and I love my profession very much (T5).

Table 2. The Sub-themes and the Corresponding Codes for the Teacher Characteristics

Sub-Themes	Codes
1. Attitude Towards job	1.1. Love for English 1.2. Valuing the job 1.3. Difficulty of the job 1.4. Happiness with job 1.5. Satisfaction with the job 1.6. Love communication with students 1.7. Necessity of patience 1.8. Hate for paper work 1.9. Too much work load
2. Awareness	2.1. Failure to express themselves 2.2. Aware of their incompetence 2.3. Plan for professional development 2.4. Failure to apply some curriculum standards 2.5. The skill to be developed first 2.6. Realizing students' inability to learn 2.7. Failure to reach all students 2.8. Failure to reach her aims 2.9. Teaching English in a wrong way
3. Teacher preparation before teaching	3.1. Materials 3.2. Books 3.3. Worksheet 3.4. Reproduction of materials 3.5. No lesson plan 3.6. Reviewing the existing materials
4. Strategies, Methods and Techniques	4.1. Question-answer 4.2. Grammar translation method 4.3. Expository teaching 4.4. Giving examples
5. Knowledge about the curriculum	5.1. Insufficient or no knowledge about some tenets of curriculum 5.2. No knowledge about CEFR 5.3. No participation in in-service training 5.4. Internet sources 5.5. Colleague 5.6. Following no publication 5.7. No participation in seminars

Pointing to the difficulties encountered in the teaching process, another teacher stated that

I graduated from teacher's high school. I preferred this profession as I love English very much. Teaching profession is a holy job, and especially teaching English necessitates a great deal of devotion. It is something related to love. It is a must to love English and teaching profession. We have difficulties from time to time, this profession has many difficult parts. It necessitates a great deal of patience. Still, I am happy despite everything (T7).

The second sub-theme revolved around the teachers' awareness of themselves and the curriculum. The findings related to this sub-theme indicated that the teachers were aware of their incompetence (T5, T7, T8) such as failure to express themselves (T5, T7), failure to apply some standards of the curriculum (T5, T6, T7, T8), and they were able to recognize students' inability to learn or attain objectives (T5, T7). Being aware of their needs, they expected some opportunities to develop themselves as stated by one of the teachers:

I am aware of some of my incompetence, it may result from my inexperience, I do not know, but I want to improve myself. Unfortunately, I have a little daughter, so I do not have sufficient time. Still, I want to improve myself (T5).

With respect to her incompetence, this teacher continued saying that:

I wish I had my education in an English-medium university, because except for one teacher, all of our teachers were taught in Turkish. That is why, I cannot say that I have improved my English sufficiently. I cannot even say that I use English a lot. Everybody expects us to speak English, but we did not have such an education, there are some lacks somewhere. I wish to go abroad very much to get rid of this incompetence (T5).

When they were asked which skill should be developed first, one of the teachers replied that “Indeed, we need to put weight on speaking skills, but I focus on reading and writing skills” (T5). And she continued with an example from her experience:

I guess, it is time to focus on listening now. My daughter is three years old, for example, watched she “abcd” video with my students last week. She met English in this class for the first time. She memorized the song very quickly, and she can sing it now. I mean, the students should be exposed to listening first, then they can speak, after that they can develop their reading and writing skills (T5).

Another important finding about teacher characteristics was the kind of preparation they did prior to teaching process. The findings revealed that they did not prepare lesson plans (T5, T6, T7, T8), however, they prepared their materials (T5, T7, T8), books (T5, T6, T7, T8), and worksheets (T5, T7). They also reproduced some materials (T5, T7) and checked the curriculum and the topic to see where they were (T5, T8). One of the teachers stated that

I check my archive related to the subject matter before entering the classroom. I prepare the materials that I will use, but I have not developed a system yet. After constructing an archive, I will enter my classrooms in a more planned way. I do not prepare lesson plans, because I follow teacher’s guide book (T5).

The other important topic regarding teacher characteristics revolved around the kind of strategies, methods and techniques they utilized during the teaching process. Findings indicated that they mostly used expository teaching (T5, T6, T7, T8), question-answer technique (T5, T6, T7, T8), grammar translation method (T5, T6, T7, T8), and drill (T7). Regarding teaching methods, a teacher reported that “I usually have to use expository teaching. If I prefer discovery learning, I cannot finish the topic” (T8) and she accused the students and the country as presented below:

As the students are used to expository teaching in the other lessons, they do not like communicative methods, so we cannot provide them with variety. Maybe, I should change myself, I don’t know. Language teaching is something prisoned to the classroom. As the students know this, they expect to sit and listen to the teacher’s lecture. They see English as a lesson to be learned such as mathematics and science, they don’t see it as a communication tool (T8).

The fifth sub-theme was about the teacher’s knowledge about the latest curriculum. The findings related to this sub-theme revealed that they haven’t participated in in-service training about the new curriculum (T5, T6, T7, T8), so they had insufficient or no knowledge about some tenets of curriculum (T5, T7, T8), and no knowledge about CEFR (T5, T6, T7, T8) as explained with the following utterances below:

First of all, I did not participate in any in-service training about the new curriculum. I know nothing about CEFR. We should have some information about the curriculum first. As far as I follow in the press, the curriculum has been designed to develop students’ listening and speaking skills, the books have been prepared in parallel to this aim, but I guess we are not ready for this as teachers. That is because, we had a traditional education (T5).

In addition, they stated that their knowledge about the curriculum was limited to internet sources (T6, T8), and their conversations with their colleagues (T6, T7) as explained by one of the teachers, “I haven’t heard about CEFR and I have not participated in in-service training. We, as teachers, always talk about the curriculum. There is a lot of information about it in internet sources” (T6).

The second theme, student characteristics, yielded two sub-themes and they were labelled as “positive characteristics” and “negative characteristics”. The sub-themes and their corresponding codes are presented in Table 3.

The positive characteristics of the students indicated that especially females had positive attitudes towards English (T5, T7), they had the capacity to learn anything (T5), and they wanted to learn English (T5, T7). Furthermore, these students were reported to make such efforts as asking questions continuously (T5, T7), studying willingly (T5) and buying supplementary books (T5). One of them stated that, “Generally, the students want to learn English. Except for a few students, all students buy the supplementary books that I advise. They ask me questions about some subjects although I do not assign any homework” (T5).

Table 3. The Sub-themes and the Corresponding Codes for the Student Characteristics

Sub-themes	Codes
1. Positive Characteristics	1.1. Positive attitudes towards English 1.2. Capacity to learn anything 1.3. Desire to learn English 1.4. Buying supplementary books 1.5. Asking questions frequently 1.6. Studying willingly
2. Negative Characteristics	2.1. Lack of competence in mother tongue 2.2. Lack of prerequisite knowledge 2.3. Difficulty in comprehending some grammatical subjects 2.4. Inability to understand what they listen 2.5. Lack of interest in a different culture 2.6. Irregular study 2.7. Dislike speaking activities 2.8. Used to expository teaching 2.9. Seeing English as a subject to learn 2.10. No interest in listening and speaking activities 2.11. Demotivation

In contrast to the positive characteristics, the findings with respect to the other sub-theme, negative characteristics, indicated that students had lack of competence in their mother tongue (T5, T6, T7, T8), they had lack of prerequisite knowledge (T5, T6, T7, T8), they had difficulty in comprehending some grammatical rules (T5), they were unable to understand what they listened (T5, T7). In addition, they had lack of interest in a different culture (T6, T8), they did not study regularly (T6, T7, T8), they disliked speaking activities (T6, T7, T8), they were used to expository teaching (T8), they regarded English as a subject to be learned (T8), they did not have any interest in listening and speaking activities (T8), and they had lack of motivation (T8).

A teacher reported his complaints about the students as shown in the following utterances:

The students are never aware of the importance of English. The biggest problem of the students is their mother tongue. Their mother tongue is very bad. Their failure in mother tongue influences the foreign language a lot. The children are very ignorant about culture. They are not open to another culture, so we cannot do anything (T6).

The third theme, school characteristics, yielded two sub-themes which were labelled as “class size” and “materials”. The sub-themes and their corresponding codes are presented in Table 4. The findings regarding class size indicated that due to the crowded classrooms, the teachers faced many difficulties. To illustrate, this issue caused inappropriate seating arrangement (T5, T6, T7, T8), too much noise (T5, T6, T7, T8), insufficient space for movement (T5, T7). In addition, it was found to be inappropriate for games (T5, T6, T7, T8), pair works (T5, T7) and group works (T5, T7, T8).

Furthermore, the large class size made it difficult to manage the classroom (T5, T6, T7, T8), which resulted in loss of control. It also led to inability to reach each and every individual student (T5, T7), it caused the teachers to skip listening and speaking activities (T5) and student-centered activities (T5, T7, T8). Touching upon the classroom characteristics, a teacher expressed the the following lacks, but accepted that the smart boards are enough to get rid of these lacks. She stated that

It is possible to say that the school has necessary opportunities, but there must be a language laboratory as well. Likewise, availability of headphones could help us do listening activities better, because

listening in a laboratory with headphones would be very different from listening from the smart board in the classroom. I wish we had such an environment, but the smart boards satisfy our need (T8).

Table 4. The Sub-themes and the Corresponding Codes for the School Characteristics

Sub-themes	Codes
1. Class size	1.1. Difficulty of classroom management 1.2. Failure to reach all students 1.3. Inappropriate seating arrangement 1.4. Difficulty in listening and speaking activities 1.5. Skipping listening and speaking activities 1.6. Unsuitable for games 1.7. Unsuitable for pair works 1.8. Unsuitable for group works 1.9. Too much noise 1.10. Cancelling student-centered activities 1.11. Insufficient space for movement
2. Materials	2.1. Smart board 2.2. Internet 2.3. Course book 2.4. Worksheets, tests 2.5. Technical problems 2.6. Lack of language laboratory 2.7. Lack of headphones

The other sub-theme was related to the materials available for teaching such as smart board (T5, T6, T7, T8), internet (T5, T6, T7, T8), course book (T5, T6, T7, T8), worksheets, tests (T5, T8) and these materials were found to be sufficient for teaching despite technical problems with the smart board (T5, T6), lack of language laboratory (T8), and lack of headphones (T8) as stated by one teacher: “We have no problem except for the crowded classrooms. We have smart boards, internet and our books” (T5).

The last theme, teachers’ views about the curriculum, yielded two sub-themes and they were labelled as “positive characteristics” and “negative characteristics”. The sub-themes and their corresponding codes are presented in Table 5.

The findings with respect to the teachers’ positive views about the curriculum indicated that the objectives were appropriate for students’ level (T5, T6, T7, T8), it had appropriate sequence of the skills (T5), it included appropriate speaking topics for students’ interests (T5, T6, T7), there was congruence between content and objectives (T6), it included appropriate texts for students’ level and interest (T7, T8), it included interesting themes (T7, T8), and it had easy topics (T7, T8). One of the teachers stated that

Frankly, the texts are appropriate for students’ level and they draw their attention. The topics like Arda Turan draw their attention more. Honestly, the topics are not boring, and they are appropriate for their level...Indeed, the objectives are appropriate for the level of the ones who have sufficient prerequisite knowledge, while they are more difficult for the ones who have lack of prerequisite knowledge and who do not study regularly (T7).

The findings regarding the other sub-theme, teachers’ negative views about the curriculum, indicated that the curriculum necessitated more time (T5, T8) as it was overloaded (T5, T6, T8), and it necessitated prerequisite knowledge for objectives (T5, T7, T8). One teacher reported that “I think that there must be less to learn now, the content must be given in more detail. Some subjects are difficult for the students to understand, so the students can be more successful if they learn them in the upcoming years” (T5).

In addition, some subjects were found to be above students’ level (T5), listening texts were reported be above students’ level (T5, T6), likewise speaking activities were told to be above students’ level (T5, T6), writing activities were stated to be difficult (T8) as explained by a teacher: “Frankly, the listening activities are above the students’ level, they speak too fast, and also the sounds are not clear enough. Likewise, the students are not at the level of speaking although the speaking topics attract them” (T5).

Table 5. The Sub-themes and Their Corresponding Codes for the Teachers' Views About the Curriculum

Sub-themes	Codes
1. Teachers' Positive Views	1.1. Spiral curriculum 1.2. Appropriate objectives for students' level 1.3. Appropriate sequence of the skills 1.4. Appropriate speaking topics for students' interests 1.5. Congruence between content and objectives 1.6. Appropriate texts for students' level and interest. 1.7. Interesting themes 1.8. Easy topics
2. Teachers' Negative Views	2.1. Necessitating more time 2.2. Necessity of prerequisite knowledge for objectives 2.3. Overloaded 2.4. Some subjects above students' level 2.5. Listening texts above students' level 2.6. Speaking activities above students' level 2.7. Inappropriateness of CLT for the country 2.8. Difficulty of writing activities 2.9. Uninteresting speaking activities 2.10. Inappropriate books 2.11. Too general objectives

Furthermore, communicative language teaching was found to be inappropriate for the country (T5, T6), the objectives were found to be too general (T8), speaking activities were found to be uninteresting, and the books were stated to be inappropriate (T8). In relation to communicative language teaching, a teacher stated that

It is impossible to implement communicative language teaching under these circumstances. The teachers' inefficacy influences this as well. The students are problematic; their mother tongue is problematic. The ones having problems in their mother tongue can never communicate in a foreign language (T6).

Discussion

The findings obtained through the content analysis revealed that there were four themes observed before the implementation of the curriculum. These variables were teacher characteristics, student characteristics, school characteristics, and curriculum characteristics.

The findings with respect to teacher characteristics indicated that they had many characteristics which were incongruent with curriculum standards. First of all, the findings with respect to the teacher characteristics revealed that the teachers who were interviewed did not participate in any in-service training about the new English language curriculum, so they had insufficient knowledge about the curriculum, and they had no knowledge about CEFR. This finding indicates that these teachers had to implement the curriculum without any change in their preferences of strategies, method, and techniques. As stated by Ornstein and Hunkings (2017),

Teachers must become highly knowledgeable about the new curriculum content; they must perfect new instructional approaches; they must know how to manipulate the educational environment, taking into consideration the backgrounds and learning styles of their students. Such support often takes the form of in-service training or staff development. (260)

Actually, the curriculum does not provide any information about the necessary teacher qualifications, but as stated by Stake (1967), unavailable standards must be estimated. To this connection, the teacher to implement any curriculum has to know almost everything about this curriculum first, however these teachers had very limited knowledge about the curriculum they were to implement. As stated by Tekişik (2005), the success of a

curriculum depends on the training of the implementers of the curriculum (as cited in Tekin-Özel, 2011). Furthermore, it was found out that they made no preparation before entering the classroom except for following the teacher's guide book. As a result, they mainly preferred question-answer technique, and expository teaching while implementing the curriculum thus they ignored communicative language teaching. To this connection, they mostly preferred to focus on reading skills and grammar skipping listening, speaking and writing activities, although the teachers were recommended that "the focus of learning should be on communication, rather than on completing curricular items within a given period of time" (MoNE, 2013, p. vii). Indeed, they admitted that they even did not know how to apply communicative approach and they were not so good at these skills due to their insufficient pre-service/university education. Therefore, they had to find their own way mainly by taking their previous teachers in middle school or high school as models. In other words, they were used to teaching in the way they were taught years ago. As concluded in the study of Tekin-Özel (2011), the present study showed that the teachers have not left their old habits while implementing the curriculum.

Despite all these negative and incongruent characteristics, however, the teachers mainly had positive attitudes towards their job in that they loved English, valued their job, and they were happy and satisfied with their job despite the difficulties encountered throughout the process. In addition, it was found that the teachers were aware of some of their incompetence such as failure to express themselves, failure to apply some standards of the curriculum, and they were aware of the fact that they needed to develop themselves with the changing time. Therefore, they need to be provided with opportunities by the policy makers to cope with their incompetence, otherwise these problems found by the present study will never end.

The findings related to student characteristics yielded both positive characteristics congruent with the curriculum standards, and negative and incongruent ones. To start with the congruent and positive characteristics, they had positive attitudes towards English, they wanted to learn English. On the other hand, they were incompetent in their mother tongue, they had lack of prerequisite knowledge, and they were poor at listening, speaking and writing skills as put forward by their teachers. Considering the spiral nature of this curriculum which advocates that students frequently encounter content and activities that have previously been covered in order to reinforce what they already know (Oliva, 1997; Ornstein & Hunkins, 2017; Tyler, 1949), lack of prerequisite knowledge may cause great problems that can be encountered during the implementation process of this curriculum. That is because, it may cause the teacher to spend more time on the subjects at which the students are poor.

The third variable taken as antecedent was the school characteristics. The findings with respect to this variable indicated that the materials available to use were smart boards, the internet, and the students' course books, which shows that the school did not provide the teachers with many materials suggested in the curriculum. In addition, the classrooms were found to be crowded which caused so much noise, failure to reach all students and inappropriate seating arrangement. As a result, it caused the teachers to skip listening and speaking skills, and it hindered student-centered activities such as games, pair works, and group works. In parallel to the study of İnceçay (2012), the present study indicated that the schools lacking necessary resources, materials and insufficient number of well-qualified teachers will make it difficult to put this curriculum into practice as intended.

The last variable influencing the implementation of the curriculum was found to be the curriculum characteristics. The findings regarding curriculum characteristics revealed that the curriculum had appropriate texts for students' level and interest, interesting themes, easy topics, attainable objectives, and objectives that are applicable in students' real life. On the other hand, the findings also revealed that the writing, and speaking activities were difficult to conduct, and the curriculum was overloaded.

Conclusion

To wrap up, the present study showed how the combination of above mentioned factors influenced teacher behaviors and student behaviors which in turn influenced the implementation process and the success of the curriculum. To put it more concretely, when the findings of the present study are examined, it is seen that some variables come together and influence each other a great deal. In other words, one factor on its own did not lead to a specific classroom practice and thus an outcome. To illustrate, such teacher-related factors as teachers' lack of knowledge about the curriculum and CEFR, their incompetence in the target language caused the teachers to spend most of the time on grammar and reading skills ignoring listening, speaking, and writing skills. They preferred to teach English in this way because they learnt English similarly while they were students, which shows that their university education or the new curriculum has caused no change in the way they teach. These factors, in turn, led the teachers to use lecture, dictation and expository teaching most of the time with the help

of the board, and the students' books as the only materials. In addition to teacher-related factors, insufficient time to cover the overloaded curriculum, students' lack of prerequisite knowledge, low self-confidence, large class size, and lack of materials were found to cause the teachers to use teacher-centered instruction. They also hindered student-centered, listening, speaking, and writing activities. As a result of these classroom practices, only students' reading skills were measured through written exams, while their competence in listening, speaking, and writing skills were never assessed.

Consistent with the study conducted by Ersen-Yanık (2007), the present study showed that the main problems encountered in the implementation process resulted from lack of materials and resources, the course-book, the learners, the classroom environment and the curriculum, and these problems influenced the classroom practices, the assessment procedures, and the attainment of goals. As concluded by Kırkgöz (2007b) in her study, the present study revealed that communicative language teaching proposed by MoNE "did not seem to have made a real and expected impact on teachers' beliefs or on classroom practices, because it was not used, and that a gap between the objectives proposed by the curriculum and the actual classroom instructional practices of teachers existed" (p. 184). This finding was also consistent with the study conducted by Liao (2004) who claimed that as teachers are used to traditional teaching methods and due to structural tests and crowded classrooms, communicative language teaching is inhibited in Asian countries and China. As stated by Kırkgöz (2007b), "teachers' methods of English language teaching have been inspired largely by traditional language learning theories that consider linguistic knowledge as something to be internalized rather than meaning to be socially constructed through communicative activities such as games, songs and dialogues" (p. 184).

As stated by Shapiro (1985), depending on the results of an evaluation study, a policymaker would either have to develop a new program to attain the given goals or modify the goals in terms of feasible outcomes for a given conceptual program model; program failure, in contrast, does not imply the need to modify program conceptualization or goals; rather, the problem is one of implementation. When all these findings are taken together, it is possible to put forward the idea that the observed antecedents were not congruent with the curriculum standards. Therefore, it is possible to say that it is the antecedents leading to failure rather than the curriculum. In other words, there is no "theory failure" but a "program failure", as there is lack of congruence between the planned curriculum and the implemented one (Suchman, 1976 as cited in Collis & Moonen, 1988; Shapiro, 1985).

Recommendations

The following suggestions can be stated based on all these findings:

1. It is necessary for the policy makers to take actions to provide the intended antecedents before any curricular change.
2. As stated by Gözütok, Akgün and Karacaoğlu (2005), a curriculum needs to be developed in the light of curriculum development principles suitable for the realities of a country, characteristics of the people, and the society; a curriculum with even these characteristics have no chance of bringing about better results than the older curriculum considering incompetent teachers, crowded classrooms, and bad physical conditions (cited in Tekin-Özel, 2011). The implementation of this curriculum without paying attention to these prerequisites and/or antecedents seems to be the main reason behind the failure of this curriculum. To this connection, the policy makers are recommended to make a decision about whether to develop a curriculum which is applicable by the available teachers and conditions or an ideal curriculum which is difficult to implement as planned due to the reasons aforementioned.
3. Further research can include observations schedules, achievement tests, and the views of students, administrators and parents.

Limitations of the Study

The findings may not be generalized to Turkey as it is limited to one city, Ankara; however, it is expected to give insights about the foreign language education in the country at the middle school level. The conclusions arrived at with this study is limited to teachers' views, so further research can include the views of the students, the parents and administrators to compare the results. Likewise, observations schedules can be conducted to see how the curriculum is being implemented. Last of all, students' proficiency level can be measured to see whether the suggested objectives have been attained by the students.

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International Journal of Contemporary Educational Research (IJCER)

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To cite this article:

Dere, İ. & Aktaşlı, İ. (2020). Conscious consumerism education in social studies courses: Reflections of an action research. *International Journal of Contemporary Educational Research*, 7(1), 215-227. DOI: <https://doi.org/10.33200/ijcer.666525>

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Conscious Consumerism Education in Social Studies Courses: Reflections of an Action Research^{*}

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Abstract

This paper aims to reveal the effectiveness of conscious consumerism education about increasing and changing students' awareness and perceptions of conscious consumerism. In the study, the action research method, one of the qualitative research methods, was used. The study included 23 students studying in a public secondary school in Konya, Turkey. Data were collected by using structured interviews, teacher observations, teaching activities and video recordings. The data were evaluated by the content analysis method. Firstly, a "prior knowledge assessment form" was applied to the students to measure their knowledge about conscious consumerism. Then, considering the students' missing or incorrect knowledge, teaching activities about conscious consumerism were designed and implemented. The results obtained in the study have revealed that action research activities positively affect students' awareness and perception of conscious consumerism. In addition, these activities have enabled students to perceive "conscious consumption" as responsible, sustainable and thoughtful consumption.

Key words: Social Studies Courses, Economics Education, Conscious Consumerism, Consumer Rights

Introduction

Consumption is one of the indispensable activities of human life. Especially with the increase in the number of shopping methods, consumption has increased rapidly in many areas such as food and drinks, education, transportation, entertainment, clothing and technology. However, the increase in consumption has also posed various risks and threats to consumers. Hence, learning basic knowledge related to consumption and consumer rights has become an important need for consumers (Mazlan, Redzuan & Bakar, 2014).

Although many legal regulations on consumer rights have been made worldwide, various problems are still encountered concerning purchased goods or services. In fact, the lack of adequate knowledge and education underlies these problems (Ersoy & Sariabduhahoglu, 2010; Bugday & Babaogul, 2016). In this context, children with basic consumer rights need to be educated on conscious consumption to make informed and conscious purchasing decisions (Consumer Affairs Victoria, 2003; Sánchez, Campa & Hernández, 2008). This education also aims to ensure that children engage in responsible consumption and use their economic resources responsibly, to improve their consumption-related knowledge and skills, to raise their awareness of sustainable consumption and to teach them how to claim their rights as consumers (Makela & Peters, 2004; McGregor, 2005; Kayali, 2008; Kaynak & Akan, 2011).

School education plays a vital role in providing children with skills and habits for conscious consumption. Schools, where children spend the most time apart from their families, not only offer important opportunities for children to learn about consumer rights but also help them develop critical skills (OECD, 2009). Moreover, the introduction of basic economic concepts in schools lays the groundwork for knowledge and skills related to consumption and consumerism (Atesoglu & Turkkahraman, 2009). To take advantage of these opportunities in schools, teachers need to have sufficient knowledge and teaching resources on consumer and consumption-related topics. In this way, teachers can create learning environments that will attract students' interest. Besides, effective integration of consumer education with other areas is crucial (OECD, 2009).

^{*} This study is part of a master dissertation by İbrahim Aktaşlı submitted to Educational Sciences Institute at Necmettin Erbakan University in 2019. A preliminary version of this paper was presented at the VIth International Eurasian Educational Research Congress (EJER 2019) that was held in Ankara University, Turkey on 19-22 June 2019.

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Consumer education in schools can fail to provide desired outcomes due to various reasons including a lack of teaching materials, that existing teaching materials do not attract students' attention, that they are not consistent with the learning outcomes specified in the curriculum, that they are not well-structured, and that they do not address different learning styles. To overcome these problems and provide effective consumer education, it is necessary to produce interactive teaching materials. Besides, continuous involvement of stakeholders such as teachers, parents, students and NGOs should be encouraged (Consumer Affairs Victoria, 2003).

Consumer education, which is one of the crucial topics in education, has been addressed in various studies. In related studies, consumer education was found to be effective in raising students' awareness of consumer rights and responsibilities (Makela & Peters, 2004; McGregor, 2010; Danilane & Marzano, 2014) and preventing conspicuous consumption (Unay, 2012). In addition, it has been reported that children whose awareness is raised during consumer education at school are effective in their parents' purchasing decisions (Ekström, 2007). Despite the fact that consumer education has been proved to produce positive outcomes, schools other than vocational and technical schools (Board of Education and Training [BET], 2018) in Turkey do not offer compulsory or elective courses for consumer education (Sert, 2002). On the other hand, within the framework of legal responsibility for raising conscious consumers, some courses include topics related to conscious consumerism education.

Conscious Consumerism Education in Social Studies Courses

In Turkey, the social studies course is one of the courses in secondary schools that contain content about conscious consumerism education. The curriculum of the social studies course (Ozturk, 2015), which has been taught at various educational levels in Turkey since 1968, aims to ensure that students are raised as citizens who know and exercise their citizenship rights and fulfill their responsibilities. It also aims to raise environmentally-aware individuals who know that most natural resources are limited and try to protect them (Ministry of National Education [MONE], 2018). These objectives and topics related to conscious consumerism are reflected in the curriculum and, therefore, in textbooks. For example, the "Production, Distribution, and Consumption" learning area of 5th-grade social studies textbooks contains topics of "Economic Activities in Our Environment; Professions, Economic and Social Life; Network of Production, Consumption, and Distribution; Let's Produce New Ideas" and a specific heading of "Conscious Consumer" (Sahin, 2018). In addition, the curriculum aims to develop skills such as cooperation, innovation, entrepreneurship, and research, as well as values such as responsibility, saving, solidarity and helpfulness within the scope of conscious consumerism education (MONE, 2018; Dere & Aktasli, 2019).

Various studies have been conducted on conscious consumerism education, which is one of the essential topics of the social studies course. These studies mostly examined topics such as consumer behaviors (Altıok, 2010; Uysal, 2017; Araboga, 2018), consumer awareness levels (Ersoy & Nazik, 2006; Akyuz, 2009; Saglam, 2010; Malbelegi & Saglam, 2013; Uyanik, 2015; Alimcan, 2018; Toy, 2019) and conscious consumerism education (Makela & Peters, 2004; McGregor, 2005, 2010, 2011; Pinarci, 2007; Malbelegi, 2011; Süle, 2012; Unay, 2012; Ozkaya, 2013; Danilane & Marzano, 2014; Ersoy & Papatga, 2015; Cavalcante, Silva, & Tavares, 2017).

Although various studies have been carried out on conscious consumerism education, no action research has so far been conducted to examine the topic in-depth and to propose interventions to the problems encountered in the process. Also, when the related studies were examined, the need for up-to-date teaching activities to be used in social studies courses emerged. After evaluating the current situation in the literature, it was decided to conduct action research with a class of 5th graders in a secondary school (we chose the 5th grade as it contains the highest number of topics related to conscious consumerism education). In short, the present study aims to reveal the effectiveness of conscious consumerism education about increasing and changing students' awareness and perceptions of conscious consumerism. To this end, answers to the following questions were sought:

- 1- How do the students perceive the concept of "conscious consumer?"
- 2- Do the students see themselves as conscious consumers?
- 3- Do the students see their parents as conscious consumers?
- 4- How did the conscious consumerism education contribute to the students?

Method

Research Model

The action research method is one of the most powerful research models used, especially in the field of education (Glesne, 2012; Berg & Lune, 2015), and it helps to change and improve school and classroom

environments (Ekiz, 2003). In action research, classroom practices or activities are designed and implemented through participation and cooperation to eliminate various problems encountered in the teaching process. These practices constitute a cyclical or spiral process consisting of planning, action-taking, development and projection (Gurgur, 2019). Considering these properties of the action research model, we preferred to use it in this study to improve the quality of conscious consumerism education by finding solutions to the problems encountered.

Action Research Process

First, the topic of the research was determined. Then, action and study groups were formed. The action group, which consists of one academician and one social studies teacher (researcher), exchanged views on how to improve students' success in conscious consumerism education and planned a 3-week action process (April 4-April 25, 2019). Then, various teaching activities based on active learning and teaching methods were implemented. Throughout the process, the lessons were video recorded. The action research process is detailed in Table 1 below:

Table 1. Action research process

	Preparation	Implementation	Post-Implementation
Dates	March 20-April 3, 2019	April 4-29, 2019	April 30, 2019
	Literature review	Application of prior knowledge assessment form	Computerization of the data
	Creating an action group	Evaluating the results of prior knowledge assessment form and identifying problems	Presentation and interpretation of the findings
	Creating a working group	Preparation of the action plan and planning of the activities	Writing conclusion, discussion, and suggestions
Actions	Writing research questions	Conducting the activities and evaluating the results	Reporting
	Obtaining permissions	Carrying out additional activities for students' missing knowledge	
	Preparation of prior knowledge assessment form	Application of final knowledge assessment form	
	Editing the contents	Comparison of the results of prior and final knowledge assessment forms	
	Supplying a video recorder and getting it ready for recording	Obtaining students' views about the applications	
Data Analysis (Throughout the Process)			

Working Group

The study group consists of 23 5th-graders (thirteen girls and ten boys) studying in a public secondary school in Konya, Turkey. The study group consisted of 5th-graders because the 5th-grade social studies curriculum contains a separate heading of "Conscious Consumer." To comply with ethical considerations, permission was obtained from the parents of the students, and codes (S1, S2, S3 ...) were used instead of their real names.

Data Collection Tools

The co-researcher, who is also a social studies teacher, collected all data in his own classes. To obtain more comprehensive, diverse and reliable data, the triangulation method was used. The triangulation method is described as the application and combination of several research methods. Hence, the data were diversified by means of documents, interviews and observation notes. The data collection tools used in the research are shown in Figure 1:

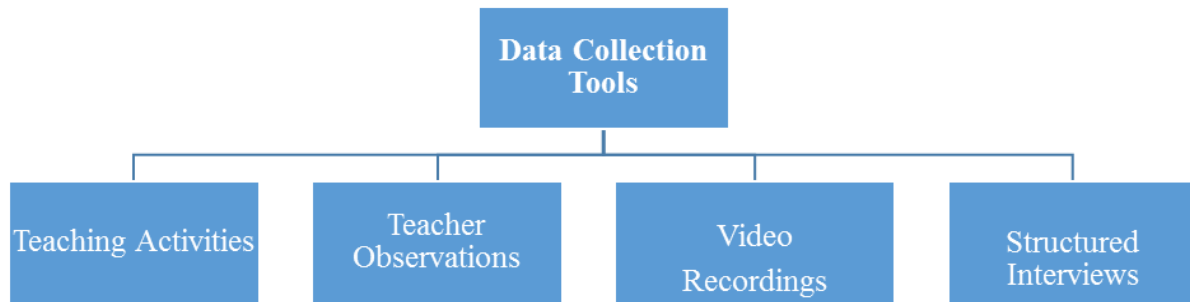


Figure 1. Data collection tools

Teaching Activities

In order to teach the students conscious consumerism more effectively, 23 teaching activities were implemented. The constructivist-learning model and the 2018 Curriculum of the Social Studies Course were taken into consideration while preparing the classroom activities. In addition, the characteristics of the school and classroom and students' needs were taken into consideration. The teaching activities aimed to eliminate the problems indicated by the Prior Knowledge Assessment Form. The teaching activities are presented in Table 2:

Table 2. The teaching activities conducted in the action research process

Teaching Activities	Implementation location	Implementation type
A Need or A Want?	Class	Group
Requirement List Preparation	Class	Group
Making a Family Budget	Home	Individual
Market Research	Market	Individual
Questions to Identify Students' Conscious Consumption Habits	Home	Individual
Interviews with Parents (to identify their consumption habits)	Home	Individual
Characteristics of Conscious Consumers	Class	Group
Logo and Emblem Work	Class	Group
Conscious Consumerism Visual Interpretation	Class	Group
Interpreting Caricatures related to Conscious Consumerism	Class	Group
Conscious Consumerism Puzzle (Finding Concepts)	Class	Group
Concept Cards	Class	Group
Conscious Consumerism Concepts (Anagram Puzzle)	Class	Group
Characteristics of Conscious Consumers (Structured Grid)	Class	Group
Interpreting the Caricature Depicting Defective Goods	Class	Group
Making a Telephone Conversation with 174 Food Hotline	Class	Group
Drama Work	Class	Group
Conscious Consumerism Mind Map	Home	Individual
Preparation of Brochures and Slogans	Home	Individual
Board Work	Class	Individual
Conscious Consumers' Cycle of Claiming Rights	Class	Group
Completion of an Incomplete Scenario	Class	Group
Writing a Petition to the Consumer Arbitration Committee	Class	Group

The data obtained from the teaching activities presented in Table 2 were used to find answers to the research questions.

Teacher Observations

One of the three key data collection methods of qualitative research is observations. Depending on the purpose and questions of the research, the physical environment, participants, conversations and the observer's own behavior can be monitored during the observation process. In addition, observations provide in-depth descriptions of the event, phenomenon, and situation that is being studied. Unstructured observations, which are

one of the types of observations, are performed in the natural environment with the participation of the researcher (Yildirim & Simsek, 2008). The teacher, who is also the researcher of this research, observed the classroom activities, students and the whole process. All observations provided an important source of data used to describe the research process.

Video Recordings

All the classroom activities related to conscious consumerism education were recorded with a video recorder. First of all, test recordings were made in the classroom. Then, the video recorder was positioned at a location in the classroom that best viewed the classroom. The data obtained with the video recorder were computerized at the end of each day. These video recordings enabled the researcher to monitor the classroom activities and use them for the subsequent application and data analysis process. In addition, these recordings provided an opportunity for a realistic analysis of the classroom interaction, classroom environment and performances of the researcher and the students.

Structured Interviews

Interviews allow researchers to learn about the behaviors and feelings of participants of a study and to reveal what they know about and how they feel about a certain topic, phenomenon, etc. (Merriam, 2018). So, the purpose of interviews is to reveal what is going on in other people's minds and to learn about their perspectives (Patton, 2018). The structured interview, which is one of the interview types, involves asking a series of predefined questions to reveal participants' thoughts and attitudes on the topic of interest (Berg & Lune, 2015). Although we planned to use semi-structured interviews when designing the research, we had to use structured interview forms due to some obstacles (some of the students had to catch the school bus after the school, they had to attend the school ceremonies, and some of them were absent from school on some days). The interview form consists of four basic questions prepared to evaluate conscious consumerism education.

Data Analysis

In line with the action research model, data analysis was conducted throughout this study. Also, content analysis was used to analyze the collected data and to evaluate the whole process in detail (Berg & Lune, 2015). Furthermore, in order not to miss important details, meanings, and links (Lavrakas & Roller, 2015; Leavy, 2017), the data were coded manually instead of using a program. The data obtained were first read meticulously. Subsequently, similar data were grouped under specific concepts and themes. These data were then arranged and interpreted in a way that the reader can understand. However, since different categories emerged outside the predetermined framework of analysis, new themes were also created. Although the data was collected from many data collection tools in the research, only the sections that reveal students' perceptions and thoughts were added to the data analysis.

Reliability and Validity Studies

The triangulation method (Berg & Lune, 2015; Silverman, 2018) was used to ensure the validity and reliability of this study. To this end, we used three forms of data: documents, interviews and observations. Moreover, direct quotes were included to describe the students' answers in detail (Baskale, 2016) and to present them as evidence to the readers. In addition, a video recorder was used to record and observe the action research process. Throughout the research process, the opinions of two academicians with expertise in their fields were taken.

Findings

At the end of the data analysis, the findings for the research questions were presented, respectively.

Students' Perceptions of Conscious Consumerism

This section includes the findings obtained from structured interviews with the students. To determine the students' perceptions of the conscious consumer concept, the students were asked: "What comes to your mind when you hear 'conscious consumer'?" Students' perceptions of conscious consumers are presented in Table 3:

Table 3. Students' perceptions of conscious consumer concept

Students' Perceptions	<i>f</i>
Being aware of and exercising consumer rights	17
Paying attention to the packaging of products	16
Prioritizing their needs	10
Shopping on a budget	9
Saving money	9
Avoiding wasting money	5
Healthy Eating	4
Getting receipts, invoices, or warranty certificates	4
Preferring domestic products	2
Pricing research	2
Social studies	1
Economy	1
Quality products	1

As can be seen in Table 3, to the question “What comes to your mind when you hear ‘conscious consumer’?” the most frequently stated answer (17) was “Being aware of and exercising consumer rights.” For example, S6 described “conscious consumers” as follows: *“Responsible, aware of their rights, know when to call 174 and 175 consumer helplines.”* This student sees conscious consumers as individuals who are aware of their consumer rights and who exercise them when necessary.

It is noteworthy that the students describe conscious consumers as responsible individuals. Relating responsibility to being a conscious consumer, S14 said: *“(conscious consumers) get receipts, invoices, or warranty certificates when they buy a product.”* Relating the skill of researching to being a conscious consumer, S23 described conscious consumers as follows: *“(conscious consumers) do pricing research.”* These findings prove that conscious consumerism education helped achieve the objectives of the social studies course curriculum.

The views of the students were not limited to the skills and values included in the curriculum. The students also emphasized saving money as well as self-control, decision-making, and financial literacy, which are not among the skills in the relevant learning area at the 5th-grade level. For example, S7 defines conscious consumers as *“...those who buy something when they need it.”* The student’s answer shows that he/she makes a connection between self-control skills and the concept of conscious consumerism.

On the other hand, to the question “What comes to your mind when you hear ‘conscious consumer’?” the second most frequently stated answer (16) was “Paying attention to the packaging of products.” The students think that conscious consumers take care that the packaging of products is not open and examines carefully the packaging of the product they buy. Here are some sample excerpts from the students' responses:

S9: *“They (conscious consumers) examine the packaging of products and prefer packed products.”*

S13: *“They pay attention to the expiration date, production date, and TSI (Turkish Standards Institute) stamp.”*

S22: *“They examine the ingredients of food products and consume reliable food.”*

In addition to these, the students described conscious consumers as “Being aware of and exercising consumer rights,” “Paying attention to the packaging of products,” “Prioritizing their needs,” “Shopping on a budget,” “Saving money,” “Avoiding wasting money” and “Healthy Eating.” This shows that the students explain the concept of conscious consumerism by emphasizing both healthy and sustainable consumption and consumer rights.

Students' Perceptions of Themselves as Conscious Consumers

The second research question aimed to determine whether students perceive themselves as conscious consumers. According to the findings, a great majority of the students (18) see themselves as conscious consumers. In contrast, three students do not see themselves as conscious consumers, while two students think that they are partly conscious consumers. The students were asked why they thought so. The reasons expressed by the students who see themselves as conscious consumers are as follows:

Table 4. Reasons stated by the students who see themselves as conscious consumers

Reasons	<i>f</i>
I pay attention to production and expiration dates.	11
I examine the packaging of the products that I buy.	10
I save money.	7
I know and exercise my consumer rights.	7
I prioritize my needs.	5
After buying something, I get a receipt, invoice, or warranty certificate.	5
I make a list of needs.	4
I eat healthy food.	3
I shop on my budget.	2
I prefer domestic products.	2
I pay attention to the prices of the products.	2
I do not waste anything.	2
I do pricing research.	1
I pay attention to buying quality products.	1

To the question of why they perceive themselves as conscious consumers, the most frequently expressed answer was, "I pay attention to production and expiration dates." Besides, the students think that one needs to examine the packaging of the products to be a conscious consumer. Some sample excerpts are as follows:

S12: "...because I examine the production and expiration dates of food products and drinks."

S21: "...because I check whether the packaging of the products is open or closed."

The fact that students examine the packaging of the products is an indication that they try to buy healthy products because product-packaging descriptions concern consumers' health. In addition, one of the reasons the students expressed why they perceive themselves as conscious consumers is that they avoid wasting money. For example, S10, who considers saving money as one of the requirements of being a conscious consumer, said: "*I don't spend much. So, most of my money stays in my pocket.*" In addition to saving money, the students regarded "knowing and exercising consumer rights," "getting a receipt, invoice, or warranty certificate," "making a list of needs," and "preferring domestic products" as the requirements of being a conscious consumer. In line with these findings, it is possible to associate students' reasons for considering themselves as conscious consumers with their desire for healthy consumption.

It has also been found that some students (3) do not see themselves as conscious consumers. Students who do not see themselves as conscious consumers said that they "do not sometimes eat healthy food or look at the expiration dates on the packaging of products." S16, who does not consider himself/herself to be a conscious consumer, emphasized the relationship between healthy eating and being a conscious consumer: "*No (I am not a conscious consumer) because I buy very little healthy food.*" In addition, two students who consider themselves partly conscious consumers stated that although they shop on their budgets and prefer domestic products, they sometimes buy things that they do not need, or they sometimes do not check the expiration dates of the products they buy. Overall, the findings in this section indicate that all the students see conscious consumerism closely related to healthy consumption.

Students' Perceptions of Their Parents as Conscious Consumers

After evaluating students' perception of themselves as conscious consumers, their perceptions of their parents as conscious consumers were examined. The findings show that all but one of the students perceive their parents as conscious consumers. The reasons expressed by the students about their perceptions of their parents as conscious consumers are presented in Table 5.

Table 5. Reasons stated by the students who perceive their parents as conscious consumers

Reasons	<i>f</i>
They look at the expiration date of the products they buy.	8
They prioritize our needs.	6
They make a list of needs.	6
They shop on a budget.	5
They do pricing research.	4

They do not waste money.	4
They prefer domestic products.	3
They prefer healthy products.	3
They pay attention to the TSI stamp on the packaging of the products they buy.	3
They spend money carefully.	3
They follow the rules.	2
They make sure that the packaging of the product is not open.	2
They get a receipt, invoice, or guarantee certificate after buying a product.	2

According to Tables 4 and 5, the reasons why the students perceive themselves and their parents as conscious consumers are similar. One of the most frequently stated reasons is that they "pay attention to the expiration dates." According to S5, his/her parents are conscious consumers "...because they look at the expiration date of the products they buy." Looking at this excerpt, we can say that students think that examining the expiration dates of products is important to be a conscious consumer. One of the reasons expressed by the students as to why they see their parents as conscious consumers is that their parents prioritize their needs. Here are some sample excerpts from the interviews with the students who believe that their parents are conscious consumers:

S7: "...because they don't buy more than they need. They shop on their budget."

S8: "...because my mother cooks only enough food for us, and my father buys bread only as much as we need."

S21: "...they first buy what they need and then what they want."

As it is seen, the students see their parents as conscious consumers because their parents prioritize their needs. In addition, according to S2, making a list of needs is an indicator of being a conscious consumer: "Yes (they are conscious consumers) because every time they go shopping, they make a list of needs and prioritize our needs." Furthermore, some students see their parents as conscious consumers because they "shop on a budget, do pricing research, do not waste money, prefer domestic and healthy products, and pay attention to the TSI stamp on the packaging of the products they buy."

It can be said that the interviews that the students made with their parents were effective in assessing whether their parents are conscious consumers or not. When this activity was evaluated in the classroom, the teacher asked the students the following question: "How did the interview with your parents contribute to you? What did you learn from this interview?" The students expressed that thanks to these interviews, they could find about their parents' shopping behaviors and whether they were conscious consumers. Based on the findings in this section, we can conclude that the students see both their parents and themselves as conscious consumers. To support their views, the students included consumer rights in their explanations. On the other hand, only one student (S1) does not see his father as a conscious consumer: "My father is not a conscious consumer because he buys whatever I want. He doesn't save money." Although S1's father buys whatever he/she wants, S1 does not approve of his/her father's behavior and states that he should save money as a conscious consumer.

Contributions of Conscious Consumerism Education to Students

In the last part of the findings, the contributions of conscious consumerism education to students were evaluated. The findings are presented in Table 6:

Table 6. Students' views on conscious consumerism education

Students' Views	<i>f</i>
It helped us learn about the characteristics of conscious consumers.	23
It helped us learn about and exercise our rights as consumers.	18
It helped us understand the importance of expiration dates.	7
It helped us understand the importance of making a list of needs.	4
It helped us recognize the importance of prioritizing needs.	3
It helped us learn the importance of the TSI stamp.	3
It helped us understand the importance of getting receipts, invoices, or warranty certificates.	2
It helped us recognize the importance of saving money.	1
It helped us recognize the importance of avoiding wasting money.	1
It helped us learn to make a budget.	1
It contributed a great deal to our success in the exams.	1

According to the results in Table 6, all of the students stated that they learned about conscious consumerism with the conscious consumerism education they received. In this regard, S1 stated, *"It enabled me to easily answer the question of what a conscious consumer does. I also learned about the characteristics of conscious consumers."*

The second important contribution of conscious consumerism education to students was that "it helped them to learn about consumer rights" (18). The students mostly emphasized their rights as consumers after purchasing a product. For example, S18 stated, *"I have learned better and in more detail the rights I have as a consumer, as well as the ways of claiming my rights."* In addition, S5 referred to the right to product returns and to file a complaint: *"I have learned that if the products we buy are defective, we can return them and if there is a problem, we can file a complaint to the consumer arbitration committee."* Also, the students stated that although they were aware of some of the consumer rights, they started to shop more carefully after the conscious consumerism education. For example, S10 said, *"I didn't use to look at the expiration dates of products, but now I do. I am more careful about it."* This shows that conscious consumerism education raised the students' awareness of shopping more consciously.

Results and Discussion

This study examined the views of 5th-grade students about the concept of conscious consumerism and conscious consumerism education provided employing various classroom activities. Overall, the results of the research show that teaching activities increased the participating students' awareness of conscious consumerism. In parallel with this general result, it was determined that the students associated the concept of "conscious consumers" with healthy and responsible consumption. It was also found that the students thought that conscious consumers are those who know and exercise their consumer rights, pay attention to the packaging of the products they buy and get receipts, invoices, or warranty certificates for the products they buy.

These results are consistent with the findings of Uyanik (2015). The students who participated in Uyanik's study defined conscious consumers as those who spend money on what they need, who save money, who do not waste money, who do exercises, who eat healthy food, who know their consumer rights, and who protect the environment. Similarly, Purutcuoglu (2003) found that students perceive conscious consumers as someone who spends money in a planned manner and claims their consumer rights. These results, as in other studies in the literature (Makela & Peters, 2004; McGregor, 2005, 2010, 2011; Süle, 2012; Mazlan, Redzuan, & Bakar, 2014; Cavalcante, Silva & Tavares, 2017), reveal the importance of responsible, sustainable and thoughtful consumption for conscious consumers.

The definitions of the students who associated the concept of conscious consumers with healthy and responsible consumption are similar to those made by Gulmez (2006) and Bugday (2015). The researchers described the concept of conscious consumers as individuals who know and exercise their consumer rights, who prioritize their basic needs, who prefer healthy, high-quality and reliable products, who are not deceived by ads, who save money, and who avoid wasting money. The answers of the students in this study, therefore, are consistent with the above-mentioned definitions.

In addition to all these, students' perceptions of conscious consumers reveal that the present study was successful in achieving the learning outcome specified as *"Exercises his/her rights as a conscious consumer."* in the 2018 Curriculum of the Social Studies Course. It has particularly been determined that the classroom activities carried out in social studies classes yield positive outcomes about raising students' awareness of their rights as consumers. Finally, while explaining the concept of conscious consumers, the students mentioned financial literacy, researching and decision-making skills as well as values such as saving, responsibility, justice, and patriotism, which are specified as learning outcomes in the curriculum.

This is valuable in terms of proving that action research activities are compatible with the learning outcomes of the curriculum. On the other hand, the students participating in this study, like the students who participated in other studies in the literature (Saglam, 2010; Malbelegi & Saglam, 2013; Uyanik, 2015; Uysal, 2017), see themselves as conscious consumers. Also, the students perceive their parents as individuals who make conscious consumption for the same reasons. When asked why they see them as conscious consumers, they stated reasons such as, "they pay attention to the expiration dates of the products that they buy," and "they examine the packaging of the new products they buy." Therefore, it can be said that the students already exhibit such behaviors when shopping. In fact, according to Akhan and Kilicoglu (2014), students understand the concepts of money and needs better than other economic concepts because they use these concepts more frequently in their

daily lives. In addition, Akhan (2013) argues that various experiences of students in daily economic activities affect their related skills, values and behaviors.

Finally, it has been found out that conscious consumerism education given to students has contributed to them a great deal. The students' statements about consumer rights show that they mostly emphasize their rights as consumers after purchasing a product. In addition, the students mostly stated that the conscious consumerism education helped them "learn about the characteristics of conscious consumers," "learn about and exercise their rights as consumers," "understand the importance of making a list of needs" and "understand the importance of expiration date." The students even stated that they started to pay more attention to shopping more consciously after this education. The use of various teaching activities for conscious consumerism education has played an important role in ensuring these contributions. Similarly, Pinarci (2007) and Malbelegi (2011) emphasized that the topics taught by using different methods contributed positively to students' knowledge about consumerism. Besides, Makela and Peters (2004) underlined that consumer education provided to adolescents helps students learn their rights and responsibilities as consumers. Furthermore, McGregor (2010) noted that consumer education given to secondary school students improves their conscious consumption-related knowledge, skills and attitudes. Finally, Unay (2012) found that consumer education given by means of classroom activities in accordance with the Theory of Multiple Intelligences increased students' knowledge about conspicuous consumption. The results of the mentioned studies and the current research are valuable in terms of showing that the conscious consumerism education given to students using different methods and classroom activities can and will make positive contributions to students.

Like many studies, this study also has its own strengths and weaknesses. The strongest aspect of this research is that it is the first action research on conscious consumerism education. In addition, in order to fully reflect the research process and eliminate the weaknesses of the research, the triangulation method was adopted, and various data collection tools were used. Finally, 23 teaching activities designed within the scope of conscious consumerism education are also among the strengths of the research.

The weakest aspect of the study was that some of the data were obtained through structured interviews. Semi-structured interviews, on the other hand, could have provided us with richer and deeper information by asking different questions to the students. Nevertheless, video recordings and teacher observations performed throughout the implementation process provided rich and detailed data. One final weakness of the study is that it was conducted in only one classroom of only one school.

Recommendations

Based on the results of the research, it is necessary to make various recommendations for the stakeholders of social studies education. As is known, consumption has increased rapidly in recent years in many fields such as food, education, transportation, entertainment, clothing and technology, which has caused various problems for consumers. This makes it even more important to educate students as conscious consumers. Therefore, based on the results of this study, we can make the following recommendations for social studies teachers and researchers:

- Teaching activities should be designed in which students can experience purchasing firsthand.
- Parents should also be a part of the education process through interviews to identify their consumption habits.
- Researchers who are interested in conscious consumerism should aim to solve the existing problems faced by social studies teachers. Their research designs should be shaped after interviewing social studies teachers, and opinions of experts from different fields should be obtained to provide scientific infrastructure.
- Finally, future research should design teaching activities that address different intelligence areas and learning styles as much as possible and make these teaching activities available to social studies teachers.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Gökdağ Baltaoğlu, M. & Güven, M. (2020). Views of prospective teachers on learning responsibility. *International Journal of Contemporary Educational Research*, 7(1), 228-239. DOI: <https://doi.org/10.33200/ijcer.669055>

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Views of Prospective Teachers on Learning Responsibility

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Abstract

This study aims to reveal the views of prospective teachers, who study at the faculty of education, on learning responsibility. This study is performed on the basis of the basic qualitative research method. The study group of the research is composed of a total of 48 prospective teachers whose views are received on a voluntary basis and who are enrolled in the Psychological Counseling and Guidance Department of the faculty. 29 of prospective teachers participating in the research are females and 19 of them are males. In the research, data are collected through an open-ended survey design to identify the views of prospective teachers on learning responsibility. Research data are analyzed through content analysis technique. Views of prospective teachers are grouped under certain categories by two researchers upon reading each answer for open-ended questions. The frequency of views/responses expressed by prospective teachers for each category is specifically demonstrated. At the end of the study, it is concluded that, firstly, definitions of prospective teachers for learning responsibility are on themes of study skills, learner's independence, responsibility-awareness; secondly, their views on how learning responsibility is supposed to be achieved are on themes of the association of the learner with himself/herself, with the family and with the teacher, and lastly, their views on duties of teachers are on themes of sensational skills, method & technique, raising awareness about learning responsibility and academic skills.

Key words: Learning responsibility, Prospective teachers, Active learners, Self-regulatory learning

Introduction

The most general purpose of contemporary education is to raise individuals who are physically, mentally, socially and psychologically fit and able to fulfill themselves. The knowledge base constantly develops in the current information age, and certain information becomes out of date in a short period of time along with this fast development. Besides, the knowledge which is acquired almost every day is getting even more diversified with each passing day. Hence, it becomes impossible to achieve the general purpose of education just by providing a limited amount of information in crowded classrooms of schools in a restricted time period. Departing from this need which arises from these problematic situations, endeavors of students to learn how to learn increasingly gain more importance for the purpose of assuring that students become effective and active learners both inside and outside the school and ensuring that the quality of education is raised. Cognitive strategies, super-cognitive strategies, learning styles and self-regulatory learning are issues constantly discussed and analyzed together with the concept of learning to learn (Gökdağ Baltaoğlu & Güven, 2019). However, nowadays, another important concept associated with these concepts is learning responsibility.

Learning responsibility can be described as the case in which the learner takes responsibility for his/her own learning or defined as his/her own skill in solving problems in relation to learning process. Learning responsibility can be described as setting out to study by making efforts to learn, maintaining this responsibility, and reviewing the process of learning by evaluating its results in this respect. In this sense, characteristic features possessed by learners who have learning responsibility can be elucidated as identifying objectives in relation to learning, knowing their own learning attributes (learning styles) with respect to learning process, motivating themselves to learn and be interested in learning, being in cooperation with their peers, making new arrangements when faced with failure to achieve their objectives specified in the learning process, making the best use of time, making efforts to fulfill their duties and responsibilities to the fullest extent possible (Felder & Brent, 2009; Conzemius & O'Neil, 2001; Giorgis & Johnson, 2001; Warton, 1997).

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Learning responsibility enables the encouragement of learning process and plays an active role in ensuring that the process is successfully carried out. Moreover, learning responsibility can be explained as recognizing of learning needs by the individual alone or in a group, meeting these needs by using the applicable learning methods and resources and planning and managing the learning by making the best use of presented opportunities in order to achieve personal, social and professional development. Furthermore, students who are equipped with learning responsibility have the skill in self-regulation. Self-regulated learners assume the responsibility to learn, utilize strategies in order to reach their objectives, and also know whether they learnt a topic or acquired a skill (Banarjee & Kumar, 2014; Zimmerman & MartinezPons, 1986). In light of all these explanations, Figure 1 introduced skills possessed by individuals who are endowed with learning responsibility.

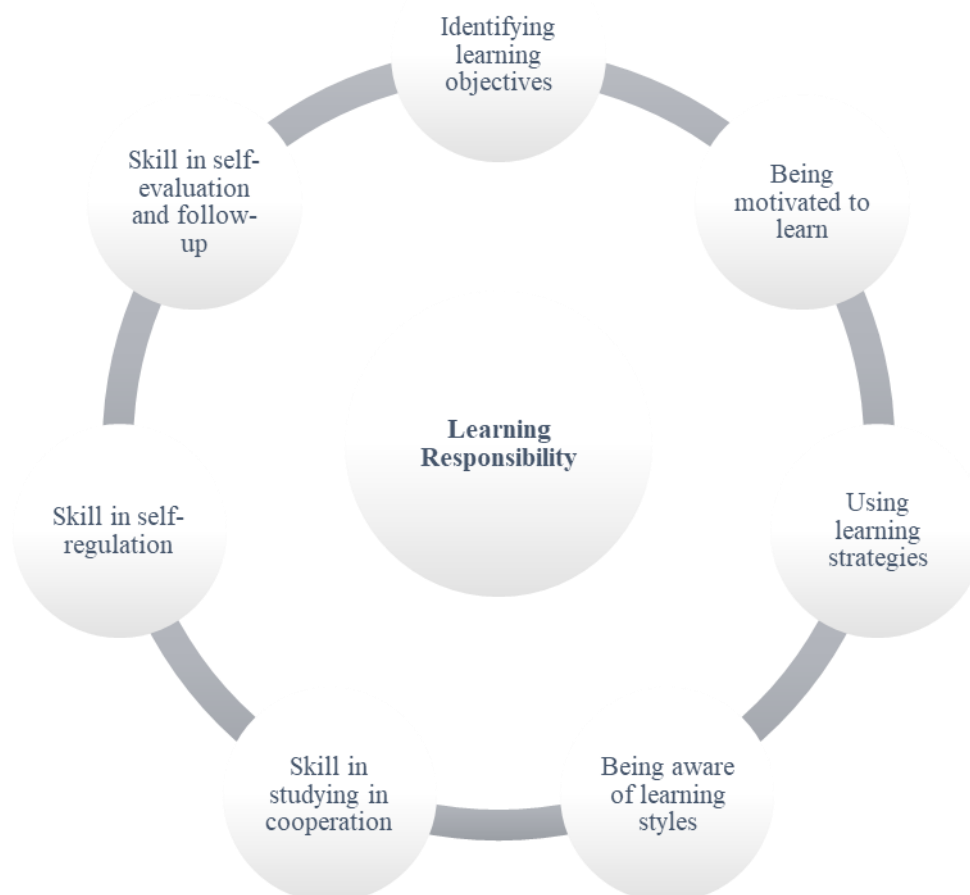


Figure 1. Skills in Relation to Learning Responsibility

As indicated in Figure 1, students who have learning responsibility have a skill in several concepts which are related to and serve as the basis of learning, and there exist connections between these concepts. Additionally, it can be asserted that learning responsibility includes activities both inside and outside of the classroom. Learners depend more on teacher for specifying what they will learn or by which means they will learn in the conventional learning setting (Turchi, 2004, p. 5); on the other hand, if they are given the opportunity for learning, they are able to use their skills in managing their own learning processes. In this respect, instead of waiting for students to learn after making every type of information available to them, a teacher is anticipated to provide guidance and directions which will enable students to assume their own learning responsibilities in the learning process. Undoubtedly, in this process, it is important and essential that prospective teachers should be raised particularly with such type of education or get to know how to equip learners with learning responsibility. In this regard, the basis of this study rests on identifying how prospective teachers perceive or define the concept of learning responsibility, and, as prospective teachers, what they think about duties imposed on them. The review of studies in literature on learning responsibility both abroad and in Turkey demonstrated that there existed studies designed to develop scales intended for different levels of students (Erişti, 2017; Kaya & Doğan, 2014; Özen, 2013), studies on teachers' learning responsibility or researches analyzing concepts related to learning responsibility (Yakar, 2017; Yeşil, 2014; Çam, Ünal & Oruç, 2014; Yeşil, 2013; Qian, Youngs & Frank, 2013; Yural & Yontar, 2006). Moreover, the study performed by Allan (2006) inquired into what

students understood from the concept of learning responsibility. It was discerned that there existed no study analyzing the views of prospective teachers on learning responsibility. On the basis of all these points, the objective of this research is to reveal the views of prospective teachers, who studied at the faculty of education, on learning responsibility.

Methodology

Research Model

Aimed at revealing the views of prospective teachers, who study at the faculty of education, on learning responsibility, this research was performed on the basis of the basic qualitative research method (Merriam, 2015).

Study Group

Study group was composed of 48 prospective teachers who were enrolled in the Psychological Counseling and Guidance Department of the faculty. The views of 29 female and 19 male prospective teachers who took the course on *Effective Learning and Studying Method* offered by the department of educational sciences in the fall semester of 2015-2016 academic year were received on a voluntary basis.

Data Collection Tools

In the research, data were collected through an open-ended survey. In the survey, there existed three questions intended for identifying the views of prospective teachers on learning responsibility. Based on the literature review, open-ended survey questions were presented to the opinions of four experts in the field of educational sciences, and their views were utilized to decide whether the survey was compatible with the research objective, clear, understandable and applicable. Accordingly, small adjustments were made in the way the questions were expressed. The questions which were developed on the basis of expert opinions are as follows: What is the learning responsibility? How does the student at the school get equipped with learning responsibility? What are the roles to be played by teachers for the promotion of learning responsibility?

Analysis of Data

Data collected through open-ended survey in the research were analyzed through content analysis technique. In content analysis, a framework is created for analyzing data on the basis of research questions. In this type of analysis, participant views are directly cited so as to ensure that they are reflected in a striking manner. In the analysis of data, answers given to open-ended survey questions were examined by researchers and a data inventory form was created, and then open-ended survey and data inventory form were submitted to a specialist for the purpose of controlling whether there was any inaccurate or unsatisfactory part. After making inventory of data, a key for data coding was prepared on the basis of survey questions and by including options which covered answers to these questions. In this respect, collected data were coded under certain themes. Prospective teachers who were research participants were coded as K1, K2, K3, ... Validity of the research was reinforced often through direct citations made from views expressed by participants. Upon the finalization of the process of coding by researchers on a one-on-one basis, researchers came together with a specialist in the field, compared their analyses, and identified items which they agreed or disagreed. In this process in which data analysis was finalized, reliability formula which was developed by Miles and Huberman (1994: 64) was utilized for calculating reliability of the research. If the result calculated through reliability formula is above 70% (Gay, 1987: 217; Miles & Huberman, 1994: 64), then it is assumed that reliability between evaluators is the case. Along with calculations performed in this research, reliability of research was found to be 90% and the research was acknowledged to be reliable. Data processed according to the coding key were supported with direct citations which were made in the context of research questions, and findings were presented, and then these findings were explained and interpreted by researchers.

Findings

Aimed at finding out the views of prospective teachers, who studied at the faculty of education, the study firstly examined what learning responsibility was on the basis of views of prospective teachers. Table 1 displayed themes and sub-themes of views expressed by prospective teachers on this topic and their frequencies.

Table 1. The prospective teachers' answers to the question "What is learning responsibility?" (f, %)

	F	%
Studying Skills		
Having preparations prior to the course	7	7.69
Repeating lessons learned after the course	5	5.49
Listening effectively during the course	4	4.39
Reviewing topics which were learned insufficiently	3	3.29
Raising questions	2	2.19
Ensuring the permanency of learning responsibility	2	2.19
Preventing the knowledge from being forgotten	1	1.09
Participating in the course actively	1	1.09
Knowing what is supposed to be done in the process of obtaining knowledge and moving in this direction	1	1.09
Being master of a topic	1	1.09
Learning what we are supposed to learn	1	1.09
Learning the things that are indispensable for reaching a specific target	1	1.09
Learner's Independence		
Making efforts to learn something assuming it would be useful	3	3.29
Efforts made by the student to learn	3	3.29
The person takes action to learn something with his/her own willpower and feeling of responsibility, not upon being instructed to do so by someone else.	2	2.19
It acts as a type of control mechanism.	2	2.19
Upon sensing that a human being sees himself/herself as inadequate about a topic, it is the need felt for learning through research and questioning.	2	2.19
It is the sense that a student sees himself/herself prepared for learning.	2	2.19
It means enjoying learning.	2	2.19
It is an essential responsibility for each student.	1	1.09
It is about getting infused with learning responsibility by the learner himself/herself.	1	1.09
Learning responsibility is unique to the student.	1	1.09
Enabling students to do something on their own makes up the learning responsibility.	1	1.09
The situation coming to the forefront in the process of absorbing lessons required to be learned by raising the learning interest which emerges when borders of the obligation to learn are specifically clarified.	1	1.09
Responsibility-Awareness		
Carrying out certain duties and responsibilities imposed on the individual	9	9.89
Raising students' awareness about responsibility for what is supposed to be done in the context of learning-teaching process	9	9.89
Actions of the person in relation to learning and assumption by the person of the responsibility for outcomes of these actions	6	6.59
As student's development level increases, his/her responsibility level is enhanced.	3	3.29
The responsibility to take what is supposed to be learnt	3	3.29
Giving students certain responsibilities such as fulfillment, facilitation and reinforcement of self-learning by the individual	2	2.19
It is the source of motivation necessary for constant self-renewal of students and teachers, that is to say, almost everyone.	2	2.19

It means to be conscious of what is supposed to be done for reaching a target after specifying it.	2	2.19
Responsibility assumed by the person to perform the profession properly and by using his/her full potential	1	1.09
Taking responsibility for self-learning	1	1.09
It is to comprehend why learning the topic of a lesson is essential.	1	1.09

As indicated in Table 1, when the question “What is learning responsibility?” was raised, answers of prospective teachers were concentrated on *themes of studying skills, learner’s independence and responsibility-awareness*. Under the ‘theme of studying skills’, ‘having preparations prior to the course (7.69%)’ and ‘repeating lessons learned after the course (5.49%)’ were definitions with the highest frequencies. On the other hand, definitions such as ‘being master of a topic (1.09%)’ and ‘learning what we are supposed to learn (1.09%)’ had the lowest frequencies. With respect to this theme, K48 stated that “*Refreshing constantly the pieces of information which we learnt by repeating and consolidating them is the learning responsibility.*”, while K2 provided a detailed definition for learning responsibility with his/her explanation commenting that “*Learning responsibility can be listed as getting prepared for the topic to be studied in the class before the course, listening effectively and raising questions during the course, and repeating the lesson learned, undertaking assignments and responsibilities given after the course, and also, if there exist topics learnt insufficiently, reviewing them.*”.

Under the ‘theme of learner’s independence’, most frequently used definitions by prospective teachers pertained to the benefit of learning or efforts to learn such as ‘learner’s efforts to learn the thing assuming it would be useful (3.29%)’ and ‘efforts made by the student to learn (3.29%)’ whereas the least frequently used definitions were ‘learning responsibility is unique to the student (1.09%)’ and ‘It is about getting infused with learning responsibility by the learner himself/herself (1.09%)’. In this respect, K6 underlined that “*the assumption of certain responsibilities by students such as fulfilling, facilitating and reinforcing their own learning*” and K20 underscored that “*the assumption of responsibility for learning by students themselves*” and so K6 and K20 developed definitions highlighting the importance of assuming self-responsibility. K17 emphasized the need for learning by expressing “*the need for learning felt along with researching and questioning because of the self-perception of incompetence regarding a topic*”. K22 remarking that “*learning responsibility is about making of efforts by a student to learn*” and K18 stating that “*it is to try to learn under the assumption that the lesson learnt would be useful in the future*” explained learning responsibility as efforts and endeavors. Of these definitions, a definition presenting a different perspective to learning responsibility was again by K22 declaring that “*It is the situation coming to the forefront in the process of absorbing lessons required to be learned by raising the learning interest which emerges when borders of the obligation to learn are specifically clarified*”. In the context of learning responsibility, this definition referred to learner’s own personal efforts as well as learner’s independence.

Under the ‘theme of responsibility-awareness’, it was discerned that the most frequently-used definitions were ‘carrying out certain duties and responsibilities imposed on the individual (9.89%)’, ‘raising students’ awareness about responsibility for what is supposed to be done in the context of learning-teaching process (9.89%)’, and ‘actions of the person in relation to learning and assumption by the person of the responsibility for outcomes of these actions (6.59%)’. On the other hand, it was ascertained that the least frequently-used definitions were ‘taking responsibility for self-learning (1.09%)’ and ‘comprehending why learning the topic of a lesson is essential (1.09%)’.

K3 who expressed views on this theme developed a definition as to the limits of learning responsibility by stating that “*It is to assume the responsibility for actions intended for learning and their outcomes*”. K8 presented a definition as to the scope of learning responsibility by remarking that “*... Learning responsibility covers the entire span of life. It is not limited to the school period... Learning responsibility differs in tandem with each level of education, and it progresses in parallel to the development and age characteristics of learners*”. Again K25 highlighting that “*Learning responsibility is to set a target for ourselves and to be self-aware of what is supposed to be done for reaching this target*” and K15 underlining that “*Learning responsibility is the source of motivation necessary for constant self-renewal of students and teachers, that is to say, everyone*” defined learning responsibility as the source essential to the self-renewal of individuals.

Table 2 shows themes, sub-themes and frequencies of views expressed by prospective teachers on how students were equipped with learning responsibility at the school.

Table 2. The prospective teachers' answers to the question "How is a student to be equipped with learning responsibility at school?" (f, %)

	F	%
The learner himself/herself		
By aspiring to learn	10	6.89
By studying regularly / on time and in a continuous framework	5	3.45
By attending the course with necessary preparations	4	2.76
By Making assignments eagerly and determinedly	3	2.07
By recognizing its benefit in life	3	2.07
By making efforts by individual to research, test and learn	3	2.07
Knowing/being aware of their own personal characteristics	3	2.07
By connecting the lesson taught with daily life	2	1.38
By repeating, solidifying	2	1.38
Individual's perceiving himself/herself as an active player/playing an active role in learning	2	1.38
Participating in a course	2	1.38
Listening to the topic/focusing on the topic	2	1.38
Specifying targets for primary objectives	1	0.69
Determining what is supposed to be done	1	0.69
Programming what is supposed to be done	1	0.69
Identifying the links in relation to what is supposed to be done	1	0.69
Seeing the personal deficiencies	1	0.69
Enjoying the area related to the profession to be assumed in the future	1	0.69
Being aware of the necessity of learning	1	0.69
Hobbies enjoyed by the student	1	0.69
Ideals of the student	1	0.69
Self-respect	1	0.69
By taking action in the direction of personal decisions	1	0.69
Learning how to cope with an encountered problem	1	0.69
Expressing interest in a topic	1	0.69
Establishing association with the family		
The family should raise awareness and task children with the responsibility.	15	10.34
The family should impose certain responsibilities on children in each phase of life	9	6.21
It is essential to provide children with settings in which they can take decisions freely.	6	4.14
The family should encourage children and provide them with supportive feedbacks	5	3.45
Expectations of the family	1	0.69
Establishing association with the teacher		
Acquired through schools/acquired through education/teacher	14	9.65
The teacher should require students to fulfill assignments/projects/assignments for the purpose of measuring performance	9	6.21
The teacher should raise the awareness of students about courses	7	4.83
The individual must be motivated/importance of learning must be explained.	6	4.14
By making students active in the learning process	4	2.76
By establishing the link between the lectured topic and the real life	3	2.07
By studying in groups	2	1.38
It is achieved by assigning topics to students and asking them to explain the topics.	1	0.69

By giving responsibilities	1	0.69
By encouraging and providing supportive feedbacks	1	0.69
Cooperative learning approach must be developed.	1	0.69
By giving assignments and responsibilities which are likely to develop social intelligence such as organizing theaters and events	1	0.69
Establishing association with social environment (friend etc.)		
The sense of responsibility is acquired through socialization (from friends)	2	1.38
Being guided by the social environment	2	1.38

As indicated in Table 2, answers given by prospective teachers to the question “How is the student equipped with learning responsibility?” were concentrated on themes of the learner himself/herself, establishing association with the family, association with the teacher, association with the social environment (friend etc.). Under the theme of the learner himself/herself, the most frequently used explanations were ‘by aspiring to learn (6.89%)’, ‘by studying regularly / on time and in a continuous framework (%3.45)’ whereas the most frequently used explanations were ‘if how to deal with an encountered problem is learnt (%0.69)’ and ‘by taking action in the direction of personal decisions (%0.69)’.

K25 who expressed views on the ‘theme of the learner himself/herself’ defined in detail what was supposed to be done by the learner in the context of learning responsibility by stating that “*We need to set our targets for our primary objectives, we need to devise programs on this basis, and specify the connections related to them.*”. K26 saying that “*It is acquired by virtue of having interest in learning*”, K30 commenting that “*studying in the framework of a plan and regularly*”, K33 declaring that “*Knowing the self is made possible through the increase in self-awareness.*” and K36 highlighting that “*Learning responsibility is acquired if there is interest in learning.*” made explanations by referring to further details about a specific aspect of learning. K38 explained how learning responsibility would be acquired on the basis of a causation by stating that “*Learning responsibility begins with having the curiosity in learning lessons. Acquisition of learning responsibility is made possible in conjunction with being interested in learning*”.

In terms of the ‘theme of establishing association with the family’, the most frequently expressed view by prospective teachers was ‘raising of awareness by the family (10.34%)’ whereas the least frequently expressed view was ‘expectations of the family (0.69%)’. In this respect, K37 stating that “*Learning responsibility is acquired in the family in particular*”, K44 commenting that “*It can be acquired with the help of family and through the follow-up by teacher*”, K8 saying that “*This responsibility is a process beginning with the family*” and K4 telling that “*In my opinion, the biggest responsibility falls on families on this issue..., approach of parents is very important to the acquisition of sense of responsibility by children*” expressed views revealing the priorities of families.

In terms of the ‘theme of establishing association with the teacher’, the most frequently expressed views by prospective teachers were ‘it is acquired through schools/education (9.65%)’, ‘it is acquired by requiring students to fulfill assignments/projects/assignments to measure performance (6.21%)’ whereas the least frequently expressed views were ‘by giving responsibilities (0.69%)’ and ‘it is achieved by assigning topics to students and asking them to explain the topics (0.69%)’. In this regard, K33 telling that “*It is acquired under the guidance of a teacher*”, K34 saying that “*Learning responsibility is acquired at schools*” and K5 declaring that “*Important duties are imposed on teachers and the school for equipping students with this responsibility*” placed the emphasis on the school and the teacher. K37 asserting that “*Later on, it can be developed through assignments given by the teacher at the school*” and K6 alleging that “*In this connection, responsibility can be imposed on students by frequently urging them to perform activities such as researches, projects, assignments and group studies*” explained how teacher would fulfill this endeavor.

In terms of the ‘theme of establishing association with social environment’, there existed prospective teachers suggesting that learning responsibility would be acquired through social environment (1.38%). In this context, K31 stating that “*They are the responsibilities that we adopt in every second of life under routine conditions*” and K7 telling that “*... Firstly, it is the environment, person tends to adapt to people around. If, around a person, there are people who study or if the person is in a very hardworking class, then the person will be urged to acquire this responsibility*” put emphasis on the environment.

The study also examined what the duties of teachers were in terms of learning responsibility. Table 3 shows themes, sub-themes and frequencies of views expressed by prospective teachers in this respect.

Table 3. The prospective teachers' answers to the question "What are the roles to be played by teachers in the promotion of learning responsibility?" (f, %)

	F	%
Sensational skills		
Teacher should be the guide/role model.	13	8.61
Teacher should reinforce positive behaviors/awarding	12	7.95
Teacher should keep the student in the class and not allow him/her to be disoriented from the course	9	5.96
Teacher should convince to learn by talking about positive sides of the learning	5	3.31
Teacher should arouse the curiosity of students on the topic to be learnt.	4	2.65
Teacher should not behave patronizingly.	3	1.99
Teacher should be like or does his/her profession fondly.	2	1.32
When students make the wrong choice, teacher should let them face the consequences.	2	1.32
Teachers should pay attention to students.	2	1.32
Teacher should support students	2	1.32
Teacher should receive the ideas and opinions of students	2	1.32
Teacher should punish students.	1	0.66
Teacher should not humiliate the student	1	0.66
Teacher should not have high level of achievement supposed to be expected from each student.	1	0.66
Teachers should be patient and understanding.	1	0.66
Teacher should abstain from punishing students.	1	0.66
Teacher should enable students to enjoy the feeling of achievement.	1	0.66
Teacher should know their students.	1	0.66
Methodology, Techniques and Tactics		
Teacher should deliver the lecture by paying respect to individual differences of students.	8	5.30
Students should take part in the course actively.	4	2.65
Teacher should tell students how they would learn more effectively.	3	1.99
By applying different strategies and methods, teachers should raise students' interest.	2	1.32
Student-centered/constructivist approach should be utilized.	2	1.32
Teacher should encourage students to learn through research and exploration rather than letting students directly obtain ready-made knowledge.	1	0.66
By exhibiting holistic approach, teacher should enable students to assume responsibility.	1	0.66
Teacher should provide students with a cooperative learning environment.	1	0.66
Raising awareness about learning responsibility		
The importance of learning responsibility should be explained in detail.	20	13.24
Students should be permitted to assume responsibility.	7	4.63
Teacher should help the production of programs/Tables by students	4	2.65
Teacher should be knowledgeable about learning responsibility.	2	1.32
Teacher should help students set targets.	1	0.66
Learning efforts of people successful in academic, social and cultural areas should be presented as examples.	1	0.66
Teacher should identify and follow up to what extent students adopt learning responsibility.	1	0.66
Academic skills		
Teacher should give assignment (project, responsibility etc.)/follow up	19	12.58

The importance of the subject and its relationship with real life should be established.	6	3.97
There should be oral exams and written exams at different time intervals.	4	2.65
Teacher should be specialist in his/her area of study and be competent enough to provide information out of text book.	1	0.66

As indicated in Table 3, answers by prospective teachers to the question “What are the roles to be played by teachers for the promotion of learning responsibility?” were concentrated on themes of sensational skills, method and technique, raising awareness about learning responsibility and academic skills. Under the ‘theme of sensational skills’, the most frequently used explanations were ‘Teacher should be the guide/role model (8.61%)’ and ‘Teacher should reinforce positive behaviors (7.95%)’ which emphasized roles to be played by teachers in the context of teacher competencies whereas the least frequently used explanations were ‘Teacher should punish students (%0.66)’ or in the opposite ‘Teacher should abstain from punishing students (%0.66)’.

K10 who expressed views on this topic highlighted the guiding role of teachers by stating that “*In this process, playing of the role of a guide by teachers and encouraging students to take their teachers as role models and to take responsibility through attitudes and behaviors...*”. *K48* telling that “*Teacher tries to persuade students that studying is enjoyable and entertaining.*”, *K17* declaring that “*By talking to students about positive sides of the learning, by persuading them that learning will be useful, the teacher should raise the interest of students*”, *K22* highlighting that “*Teacher should encourage the student*”, and *K45* asserting that “*First and foremost, it is essential that teacher deliver the lecture in a way to make the student enjoy it*” expressed more openly what roles to be played by teachers for promoting learning responsibility were.

Under the ‘theme of method and technique’, the most frequently used explanation was ‘Teacher should lecture by paying respect to individual differences of students (5.30%)’ whereas the least frequently used explanation was ‘Teacher should encourage students to learn through research and exploration rather than letting students directly obtain ready-made knowledge (%0.66)’. *K13* telling that “*In order to infuse students with learning responsibility, teachers should encourage students to be active, not passive. Teachers should adopt student-oriented education approach*”, *K27* saying that “*providing cooperative education and instruction*”, *K39* mentioning that “*... Through holistic approach rather than classical and neoclassical methods, teacher can equip students with learning responsibility*” and *K8* asserting that “*By taking into consideration the learning style of each student, teacher should deliver lectures by employing several strategies... Student-oriented constructivist approach should be utilized*” argued that teachers using student-oriented approaches which paid attention to individual differences of students would help students to adopt learning responsibility.

Under the ‘theme of raising awareness about learning responsibility’, the most frequently used explanation was ‘The importance of learning responsibility should be explained in detail (13.24%)’ whereas the least frequently used explanation was ‘Teacher should identify and follow up to what extent students adopt learning responsibility (0.66%)’. In this respect, it was found that *K12* telling that “*In this sense, teachers can explain to students what learning responsibilities are*”, *K11* declaring that “*Teacher can help students to prepare Tables highlighting responsibilities and what are supposed to be done*” and *K47* saying that “*to ensure that students become responsible individuals with the assignment of responsibilities that can be achieved by them*” offered concrete examples as to how to equip students with learning responsibility.

Under the ‘theme of academic skills’, the most frequently used explanation was ‘Teacher should give assignment (project, responsibility etc.)/follow up (%12.58)’ whereas the least frequently used explanation was ‘Teacher should be specialist in his/her area of study and be competent enough to provide information out of text book (0.66%)’. *K11* stating that “*Also, if an assignment is given to the student, it should be followed up... At different time intervals, oral exams and pop quizzes should be utilized for follow-up*”, *K18* telling that “*Teacher should give students certain responsibilities such as assignments and projects*”, *K40* asserting that “*Teacher should give assignments and check if these assignments are beneficial to students, and also make necessary arrangements if it is deemed that assignments are not beneficial*” and *K8* mentioning that “*Assignments should be at difficulty level appropriate to the student. Utmost attention should be paid to performance assignments and they should be expected from each student*” offered explanations about assignments and their properties while *K28* declaring that “*Teacher should talk about why the topic is supposed to be learnt and raise awareness about where we will benefit from it in life*” put emphasis more on the promotion of awareness.

Conclusion and Discussion

This research was carried out to reveal the views of prospective teachers, who study at the faculty of education, on learning responsibility. Learning responsibility was defined mostly by prospective teachers as to induce the adoption of learning responsibility by students and fulfillment of responsibilities by students. Alan (2006) argued that the concept of learning responsibility could be associated with three themes as (i) individual autonomy and personal learning control, (ii) active participation into the learning and (iii) evaluation and adoption of results. These themes are compatible with study skills, learner's independence and responsibility-awareness themes of this current study in relation to learning responsibility. As a matter of fact, it is often emphasized that students who are inclined to take their own personal learning responsibilities during the learning process enter into an effective learning process (Sierra, 2009) by setting their own targets (Barr & Tagg, 1995).

It was discerned that the most frequently expressed view on the issue of encouraging students to adopt learning responsibility was the one emphasizing its association with the learner himself/herself, and next came those highlighting the association with teacher and family. Marzona (1992) stated that students should be encouraged to be leading their own learning processes in order to make themselves feel responsible for learning and argued that this approach aimed to ensure that students became independent learners who could continue to learn all through their lives. Findings of studies indicating that there is a statistically significant relationship between learning responsibility and academic achievement (Laurillard, 1997) support this view. In light of findings demonstrating that students are not competent enough to benefit from learning responsibility in practice even though they successfully define it, the study by Allan (2006) shows that students need guidance for the promotion of learning responsibility. This guidance refers to the teacher. However, it is discerned that it is essential that teachers create settings for students to put this process into practice through experience, that teacher and students work together for designing the learning and teaching process (CookSather & Luz, 2015) and cooperation-based approaches serve as the basis.

One of the primary ways advocated by teachers and legal guardians of students for the infusion of students with learning responsibility pertains to assignments, however, the study by Baltaoğlu et al. (2017) asserted that teachers never took a course about giving assignments to students in their entire educational lives and only certain university lecturers made personal efforts to refer to assignments in this connection to some extent in certain professional content knowledge courses.

Again in the same study, it was found that all teachers gave assignments as they felt like doing. In this respect, it is thought that, in light of age groups of learners and the way assignments were given, assignments are supposed to be restructured in order to enable students to adopt learning responsibility and offer flexibility on the basis of individual differences of learners, and moreover, assignments will be more effective for enabling students to adopt learning responsibility if assignments are devised in compliance with learner-based learning process (active learning process) (Sierra, 2009) and not at a difficulty level that will be highly exhausting learners especially in primary school age.

Another result of this current research pertains to prospective teachers' views that teachers need to inform students especially about learning responsibility, motivate students and give them responsibilities. Other points emphasized by prospective teachers in this context pertain that the learner should set targets so that he/she can achieve in acquiring the learning responsibility, make plans and have attributes such as being interested and curious. It is discerned that these points tend to be sensational. It is well-acknowledged that the effect of sensational strategies on the success of learners is significant (Güven, 2004). Considering that both the family and teacher had effect on the formation of sensational strategies, answers offered by prospective teachers also had effect on the development of family and teacher themes. Moreover, it is argued that methods and techniques used by teachers should be learner-oriented, and it is important that learners feel themselves as effective actors in the development of learning responsibility in the learning process (Güvenç, 2010; Carnell, 2005).

On the basis of all these results, prospective teachers alleged that, although they argued that learners themselves should have the responsibility, necessary guidance should be provided by their teachers in this respect. This situation led to the judgment that, even if learners were familiar with the definition of the concept, they did not necessarily have experience in putting it into practice. It is suggested as a crucial proof that adopting especially the conventional understanding that any type of in-class activity is supposed to be performed under the guidance of a teacher is challenging even for prospective teachers who are still faced with different learning approaches and get prepared to be a teacher. In this regard, it can be recommended that arrangements regarding practical aspects of all educational programs including but not limited to curricula for raising teachers should be reviewed.

Acknowledgements or Notes

This study was presented as an oral presentation in the organization organized by INTE International Conference On New Horizons In Educations July 13-16, 2016.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Bingölbali, E. & Bingölbali, F. (2020). Divergent thinking and convergent thinking: Are they promoted in mathematics textbooks? *International Journal of Contemporary Educational Research*, 7(1), 240-252. DOI: <https://doi.org/10.33200/ijcer.689555>

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Divergent Thinking and Convergent Thinking: Are They Promoted in Mathematics Textbooks?

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Abstract

This study explores whether mathematics tasks in primary school mathematics textbooks provide opportunities for divergent and convergent thinking. Four mathematics textbooks (one from each of first to fourth grades) are examined for this purpose. A task is divided into three segments for the analysis and the segments are named as the beginning, the intermediary, and the end. These segments are analysed in terms of the numbers of entry points, solution methods, and correct outcomes respectively. The modes of the segments enable us to identify six different tasks. Tasks that definitively have an open-ending (multiple correct outcomes) are considered to have divergent thinking features and those which have only one correct outcome are deemed to have convergent thinking characteristics. The study reveals that the textbooks provide opportunities for both divergent and convergent thinking, yet more chances are particularly given for convergent thinking. The findings are discussed in relation to divergent and convergent thinking alongside creativity and some implications are provided for textbooks studies.

Key words: Divergent thinking, Convergent thinking, Mathematics textbook analysis, Creativity, Open-ended tasks

Introduction

Divergent thinking (DT) and convergent thinking (CT), which are often associated with creativity, are desirable skills for student learning in all disciplines including mathematics education. These two terms (together, separately or only DT) sometimes are used to describe creativity as creativity is also linked with “original thought and divergence from the norm” (Bennevall, 2016, p. 1; Cropley, 2006). DT is generally associated with multiple and alternatives outcomes while convergent one is linked with a single correct answer in responding to a posed question (Cropley, 2006). Alongside their descriptions and features, ideas about how to cultivate and foster them in students have also drawn attention. One aspect that has drawn particular attention is the tasks and their features. Open-ended tasks are one such type that has received more attention.

Given that cultivating and fostering DT and CT in students are closely related to tasks to which students are exposed, it is then important to examine school textbooks in terms of types of the tasks that they present. It is of great importance to examine textbooks in this respect as the research shows that textbooks, their contents and their structures have influences on both student learning and teacher teaching (Valverde et al., 2002; Haggarty and Pepin, 2002; Eisenmann and Even, 2011; Olsher and Even, 2014). It appears, however, that an examination of textbook tasks in terms of DT and CT has not been the focus of much research in mathematics education. With this gap in mind, this study sets out to examine the extent to which primary mathematics textbooks present tasks with DT and CT features.

After this brief introduction, this paper is structured as follows. First, literature review on DT and CT is provided in connection with creativity. Then, DT and CT are examined in close relation with the task issue and a particular attention is paid to open-ended tasks. Afterwards, the theoretical framework of the study is presented. Methodology, results, discussion, conclusions and educational implication sections follow this section respectively.

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Literature Review

This section presents features and definitions of DT and CT first and then provides a concise review on how these two have been studied. They are particularly examined in connection with the research on the tasks studies.

DT and CT are considered to be the two key important cognitive processes for creative thinking and Joy Paul Guilford (1967) is often given credit for making distinction between these two processes (Japardi, Bookheimer, Knudsen, Ghahremani & Bilder, 2018). Based on the relevant literature, Japardi et al. (2018, p. 59) describe DT as “the ability to disengage from prevailing modes of thought and expression to generate novel ideas and solutions” while CT as “the recruitment and interaction of different cognitive processes to find a common solution to a given problem.” Similar to the description of Japardi et al. (2018), Cropley (2006, p.391) defines DT as one “involves producing multiple or alternative answers from available information”. By the contrast, he defines CT as being “oriented toward deriving the single best (or correct) answer to a clearly defined question”. Similar descriptions of DT and CT are put forward by many different researchers (e.g., Brophy, 2011; Kwon, Park and Park, 2006; Balka, 1974) and common to all is that DT is associated with *variability* and CT is linked with *orthodoxy* (Cropley, 2006).

As far as research on DT and CT is concerned, it seems that they have mainly been researched in relation to the issues of creativity, personality traits, cognitive processes, mathematics learning performances, and tasks types and features. First and most noticeably, creativity is the main factor that DT and CT have received a close attention in research. Even though there are different views, it is mainly DT that is being associated with creativity. For instance, based on a meta-analysis, Kim (2008) found that a significantly higher relationship do exist between creative achievement and DT test scores. Cropley (2006) approaches creative thinking in terms of novelty and associates DT with generation of the novelty while CT with the evaluation of the novelty. He emphasizes the important role of CT and notes that without CT, DT may not be fruitful for the production of effective novelty.

In terms of personality traits, the question of “Why do some people like to come up with multiple possibilities, whereas others stick to the first solution that comes to their mind?” is raised by Wronska, Bujacz, Gocłowska, Rietzschel & Nijstad (2019) and these contrasting preferences are examined in the light of theoretical lens of ‘need for cognitive closure (NFC)’. DT and CT tasks are used to see how participants in high or low in NFC perform and the findings show that participant high in NFC demonstrated more negative emotion and felt less capable while solving divergent task. Shen, Hommel, Yuan, Chang & Zhang (2018) examined the relationship between risk-taking and CT and their findings revealed that low risk takers demonstrated better achievement in CT and also there was no significant connection between risk-taking and DT. Brophy (2001) examined performance, creative problem solving activities and attributes of participants inclined to CT or DT and tested several hypotheses about the personality and cognitive traits in relation with DT and CT. Divergent performance was, for instance, found to be significantly higher than convergent performance for participants with high ambiguity tolerance and similarly divergent performance was found to be significantly higher than convergent performance for participants with an extraversion inclination.

With regard to cognitive processes, DT and CT also have received attention in a discipline such as neuropsychology as a part of studies on “cognitive and physiological processes underlying creativity” (Japardi, Bookheimer, Knudsen, Ghahremani & Bilder, 2018, p.59). In such studies, functional magnetic resonance imaging (fMRI) is used to evaluate brain function in the course of DT and CT while participants undertake tasks such as the Alternate Uses Task (AUT) and Remote Associates Task (RAT). For instance, the meta-analysis of neuroimaging investigations and fMRI studies by Wu et. al. (2015, p.1) showed that “distributed brain regions were more active under DT tasks (DTTs) than those under control tasks”.

DT and CT have been the focus of attention in terms of mathematics learning and teaching as well. For instance, Kwon et al. (2006) developed a program based on open-ended problems for cultivating DT, applied it to 7th grade middle school students and measured its effect through pre- and post-testing. The findings showed that those students who received treatment on DT performed better than those who did not get the treatment on fluency, flexibility, and originality components of DT. In another study, Imai (2000) examined DT in relation with overcoming fixation through mathematical open-ended problems. The researcher found that overcoming fixation was related to DT in terms of its flexibility and originality components and showed that diverse and novel ideas came from those students who could overcome fixation.

Lee (2017) examined secondary mathematics teacher candidates' modifications of textbook tasks for DT and CT during a university course on learning to teach mathematics, which also had a focus on task features for creativity education. Only 23.9% of modified tasks were considered to be appropriate for creativity and these tasks were mainly categorized as following convergent-divergent model (CDM) and divergent-convergent model (DCM), which are proposed by Foster (2015). In the CDM, the beginning of the task has a closed entrance and the later phase is more open to the other possibilities. In the DCM, it is the other way around. In line with many other researchers (e.g., Cropley, 2006), Lee (2007) associated DT with "creating variability" and CT with "exploring variability" and noted that CT was the most effective one in modifying textbook tasks as it was used in the beginning as an enticer and in the end as an elaborator.

The issue of task undoubtedly is the most important aspects of studies on DT and CT. Different task types and tasks with various features have been used to both assess and develop creative thinking. As this study is specifically concerned with tasks, this aspect of the literature review is separately presented below.

Tasks, Divergent Thinking and Convergent Thinking

The issue of the task has always been essential to any discussion on creativity, DT and CT. Task and its features have been especially considered to be important for assessing, characterising and fostering creativity, DT and CT. For instance, the ability to overcome fixation and the ability for divergent production are two constructs which are generally employed to both assess and recognise creative thinking (Haylock, 1985; Haylock, 1987; Haylock, 1997). Divergent production is linked to originality and flexibility in mathematical tasks and that this type of task provides opportunity for many possible acceptable responses. Problem-solving, problem-posing and redefinition tasks are considered to meet the criteria that divergent production tasks require (Haylock, 1997).

In the study of Leikin and Lev (2007), multiple solution tasks are connected with creativity in mathematics and used to assess the creativity of the responses. Drawing from related studies in the literature, fluency, flexibility and novelty are taken as components of creativity; the numbers of solutions are linked with fluency, the pace of procedure solving and switches between alternative solutions are related to fluency and the conventionality of solutions are associated with novelty (*ibid.*). Silver (1997) also emphasizes the use of problem-solving and problem-posing tasks and argues that the use of these tasks can contribute to fluency, flexibility and novelty dimensions of creativity. The utilisation of ill-structured and open-ended problems is especially emphasised in this regard. Balka (1974) also refers to the role of divergent and open-ended items in identifying mathematical creativity in classrooms.

Based on a literature review on tasks for creativity, Benneval (2016) provides some examples of creative open-ended tasks which are classified as insight, problem-solving, problem-posing, redefinition, open-classical analogy and generative tasks. Kwon et al. (2006, p.53) also refer to the importance role that open-ended problems can play in the development of DT and note that "in the course of searching for diverse solutions and various approaches, students can put forward many ideas freely (fluency), and make other attempts to devise new strategies to tackle the problem where others fail (flexibility), and think up very clever and unexpected ideas (originality)." They further note that open-ended problem was very effective in fostering mathematical creativity and DT, and employed the following types of open-ended problems to foster DT in students through a program adopted an open-ended approach: (1) overcoming fixations, (2) multiple answers, (3) multiple strategies (4) strategy investigations, (5) problem posing, (6) active inquiry tasks, and (7) logical thinking. These problems show not only how open-ended problems are classified but also reveal what types of tasks are considered to develop DT.

While the aforementioned researchers focus on open-ended problems and their roles in fostering creativity, DT and CTD, Foster (2015) directly introduces the terms of convergent and divergent task and provides definitions for them. Foster (2015, p.14) defines convergent task as "the one which has a single, correct answer, which may be arrived at by a range of different methods" and defines divergent task as "is more open-ended and provokes a more diverse range of outcomes." He also introduces a two-phase Convergent-Divergent Model (CDM). The idea behind the CDM is that the task starts with a safer beginning and then provides the opportunity for a divergent phase. Foster (2015) notes that alternative models are also possible and that a task can start with a divergent phase and then directs the learners for more convergent lines of activities.

All these studies suggest that tasks and their features are crucial for both assessing and fostering creativity and the associated cognitive process such as DT and CT. With particular regard to the focus of this study, it is hence important to examine whether curriculum materials provide opportunity for such tasks or not. An overall

examination of textbook research studies show that textbooks have been subjected to the analysis in terms of problem types or task types and the results show that the textbooks of many countries mainly provide closed-ended problems or tasks (Zhu and Fan, 2006; Han, Rosli, Capraro and Capraro, 2011; Yang, Tseng and Wang, 2017; Glasnovic Gracin, 2018; Bingolbali, 2019). The literature also shows that textbook tasks have not been the focus of particular attention in terms of DT and CT and this study is aimed to fill the gap in this respect. The theoretical framework of the study presented below is helpful to show how this aim is intended to be realised.

Theoretical Framework

This section presents the theoretical framework of the study and explains how tasks with DT and CT features are conceptualized in this study.

As outlined above, tasks with DT features are often associated with open-ended tasks or problems while tasks with CT features are often linked with close-ended tasks or problems. In alignment with the extant literature, in this study, we also take tasks with CT features as “the one which has a single, correct answer, which may be arrived at by a range of different methods” and consider tasks with DT features as “more open-ended and provokes a more diverse range of outcomes” (Foster, 2015, p.14). This description of divergent and convergent tasks by Foster mainly focuses on the outcomes, yet the process of reaching to the outcomes is not particularly emphasized. More clarifications are hence needed to conceptualise tasks with DT and CT features.

Based on the work of Reitman (1965) with regard to well-structured and ill-structured problems, Leung (1997) also focuses on ‘starting situation’ and ‘goal situation’ to describe an open-ended task. Pehkonen (1997, p.8) considers a problem closed when “... its starting situation and goal situation are closed, i.e. exactly explained” and regards a problem as an open one when “... the starting situation and/or the goal situation are open”. Pehkonen (1997) focuses on the beginning and the end of the task and decides if a task is open or closed accordingly. Bennevall (2016, p. 8) construes Pehkonen’s description of an open task and states that when a task is open it is “open either in the beginning or in the end or at the both”.

Bennevall (2016, p.8), citing Nohda (2000), also states that some other researchers see “the possibility of an open *intermediary* between the beginning and the end”. The *intermediary* refers to different or alternative strategies employed to reach the outcome in a problem or task. Sometimes a task will have a closed beginning and a closed end, but it might require multiple solution methods and hence have an open intermediary. Some other possibilities are also feasible and a task can have an open beginning, open intermediary and open end as well.

In this study, in order to decide if a task has DT or CT features, we divide a task into three segments and examine each segment separately: i.) the beginning, ii.) the intermediary, and iii.) the end. The beginning of a task can have one or multiple entry points. The intermediary refers to solution strategies/methods or ways that a task explicitly addresses for carrying out the solution. The end refers to the outcomes of the task and it can either have one correct outcome or multiple ones. We employ this framework to analyse textbook tasks to show what sorts of the beginning, the intermediary and the end that they have and decide if the related task have DT or CT features. Tasks which ultimately have an open-ending are considered to have DT features while tasks which enable only one correct outcome are considered to have CT features. The framework is used as a data analysis tool as well and more exemplary descriptions are provided in the methodology section.

Methodology

As a qualitative research method, document analysis is employed in this study (Bowen, 2009). Patton (2015, p. 222) draws attention to the importance of document analysis method and notes that “while observation, interviews, and fieldwork dominate qualitative methods, analysis of documents and text is taking on increased importance in an information and communications age when texting has emerged as a verb”. Closely related to content and thematic analysis, document analysis involves an iterative process of scrutinising, reviewing and interpreting the content, recognising patterns within data, forming emergent themes and constructing categories for the data analysis (Bowen, 2009). Document analysis requires more than just a sheer description of the content. More importantly, production of empirical knowledge and development of understanding are expected to come from the process of evaluating the document (ibid.).

In this study, mathematics textbooks are used as documents for the analysis. The textbooks' contents are examined and reviewed, and this process enables us to construct categories to analyse the data in terms of DT and CT. We think that this process leads us to develop categories, as provided in the data analysis framework below, that contributes to the development of understanding of mathematics textbooks' tasks analysis in terms of DT and CT.

The data source: textbooks and their selection criteria

Primary schooling lasts four years in Turkey (from 6 or 7 years to 10 or 11 years). This study focuses on four primary school mathematics textbooks (Altay, Gümüş, Yaman, Özer & Akar, 2018; Atlı, Doğangüzel, Güneş & Şahin, 2018; Genç, Güleç, Şahin & Taşcı, 2018; Özçelik, 2018) for the data analysis. The textbooks are electronically provided on the webpage linked to Ministry of National Education. All selected textbooks are approved by the National Educational Board for their compatibility with the official mathematics curriculum and the related regulations of the Ministry. The textbooks are prepared by both the Ministry and some private educational companies. For each grade level only one textbook is chosen for the study. For some grades, more than one textbook was provided (at most three textbooks were available for a grade) and for some others only one textbook was available on the webpage. When one textbook was available, it was directly taken for the data analysis. If two textbooks were available, we chose the one officially prepared by the Ministry. When the numbers of available textbooks were more than two and two of them were prepared by the Ministry, one of them was randomly selected for the data analysis.

The textbooks employed different titles to present their contents. Such titles as 'task', 'task basket', 'the reminder', 'let's recall', 'let's study', 'let's learn', 'did we learn?', 'let's enjoy', 'fun time', 'your turn', 'exercise', 'example', 'fun time' and 'unit evaluation' were used to present the contents in all four textbooks. As we specifically focused on tasks in this study, 'task' and 'task basket' were the ones which we examined for the data analysis. Even though some textbooks prefer the term 'task basket' instead of 'task', it should be noted that it is the same as 'task' and we hence consider 'task basket' as 'task' for our analysis. Teachers are expected to use these tasks as a classroom activity to mainly either introduce a concept or to consolidate what students have just learnt. Some task examples from different textbooks are provided in the following section.

The data analysis frameworks

In the light of theoretical framework of the study, two complementary data analysis frameworks are developed. The first framework is concerned with determining if a task has one or more entry point(s) or solution method(s) or final outcome(s). For this purpose, a task is divided into three segments: the beginning, the intermediary and the end. The beginning segment is defined in terms of entry point(s), the intermediary is defined in terms of solution method(s) and the end is defined in terms of outcome(s) (see Table 1).

Table 1. Task segments in terms of entry points, solution methods and outcomes

	Task segments	Entry/method/outcome mode
	Beginning (B)	B1. One entry point B2. Multiple entry points
Task	Intermediary (I)	I1. One solution method I2. Multiple solution methods
	End (E)	E1. One outcome E2. Multiple outcomes

Table 1 presents both task segments and their entry/method/outcome mode. We explain how we define and differentiate task segments first and then state how we determine their entry, method and outcome modes. The beginning of the task refers to the numbers of choices that the readers are entitled in starting the task. When they have a single choice, the beginning is considered to permit one entry point (closed entry) and when they are given a choice to start the task, the beginning is considered to allow multiple entry points. Task-1 below, for instance, is concerned with forming a 4-digit number and naming the digit with the largest place value. This is a 4th grade task and students are expected to know about 3 digit numbers and their place values from the previous year. The first two steps is a preparation for the 3rd and 4th steps and we take the first two steps as the beginning segment of the task (the 3rd and 4th steps are related and they are taken as the end segment). As Task-1 allows students to choose any three-digit number to start the task in the first two steps, the beginning of the task is considered to enable multiple entries.

Task-1

1. Let's write down a three-digit natural number.
2. Let's write down hundreds, tens and ones of this natural number and identify place value of each digit in the number.
3. If the natural number had one more digit, how many digits would the new number have?
4. How would the digit with the largest place value in the new number be named in terms of the value that it holds? Explain why? (A 4th grade task from Özçelik, 2018, p. 17).

The intermediary segment refers to solution method(s) that the task explicitly addresses for reaching the outcome. In this study, when tasks “contain an explicit requirement for solving the problem in multiple ways” (Leikin & Levav-Waynberg (2008, p.234), we define such tasks as having an open-intermediary and hence requiring multiple solution methods. Normally every problem, question or task can be solved with different strategies or solution methods. However, if there is no explicit reference to the solution methods or strategies in the task instructions, we regard such a task as having only one solution method. Task-1 above does not state an explicit instruction regarding a solution method. We, therefore, take Task-1 as having one solution method for the data analysis.

Task-2: How many pencils?

Materials: 5 plastic glasses, pencils, notebook

Let's do it step by step

- Put four pencils into each of three glasses.
- Find the total numbers of pencils in three glasses through addition and skip counting.
- Continue the task by changing the numbers of glasses and the pencils.
- For example, 5 glasses and 3 pencils inside each of them, 4 glasses and 5 pencil inside each of them, 2 glasses and 5 pencils inside each of them. (A 2nd grade task from Atlı, Doğangüzel, Güneş & Şahin, 2018, p. 164).

Task-2, however, explicitly requires finding the numbers of pencils through two ways: addition and skip counting. We thus take Task-2 as having multiple solution methods. Nevertheless, Task-3 below is considered to have one solution method, as there is no clear reference in the task instruction for using different methods to make a pattern.

Task-3: Let's make a pattern

Materials: A4 paper, coloured cardboard, glue, scissors

Let's do it step by step

1. Draw a big square on an A4 paper.
2. Split this big square into 16 small ones using horizontal and vertical lines.
3. Use your cardboard to draw geometric shapes with different colors and then cut them out.
4. Stick these shapes onto small squares in order to make a pattern.
5. Did you notice that your work is a good example of mathematical aesthetics? (A 2nd grade task from Atlı, Doğangüzel, Güneş & Şahin, 2018, p. 157).

NB: Extension such as 5th step in Task-3 or ones put at the end of the task for further similar work is not taken into account in our analysis.

The end refers to final outcomes, which are expected to emerge as an answer after carrying out the task. When more than one correct outcome is requested or ostensibly available, the task is considered to have multiple outcomes. If one correct outcome is an answer then the task is categorized as having one correct outcome. For example, while Task-3 has multiple correct outcomes as the readers can make different patterns, Task-4 below allows only one correct outcome to be stated.

Task-4: This is very lightweight, this is very heavyweight

Materials: Two school bags, notebooks, books, pencil, pencil box etc.

1. Let's be a pair with our desk mate.
2. Let's unpack our school bags and take out all belongings out.
3. Let's put notebooks and books into one bag.
4. Let's put the rest of our belongings into the other bag.
5. Let's carry the bags one by one.
6. Which bag was more difficult to carry? Why? (A 1st grade task from Altay, Gümüş, Yaman, Özer & Akar, 2018, p.27)

Alongside tasks presented so far, some tasks are presented through only a few instructional steps and it is important to explain how we differentiate task segments for such tasks as well. Task-5 below, for instance, has three steps and the first two steps are mainly introductory. The task is, in fact, consisted of the third step. The student is asked to explain what they can measure with their ruler. This step, in other words the task, has a multiple entries and multiple correct outcomes. However, since no explicit reference is given to solution methods, the task is considered to have a closed intermediary.

Task-5: Let's get to know the ruler

Materials: A4 paper, ruler and scissor

Let's practice it step by step

- Examine the image of the ruler.



- Make your own ruler with A4 paper.
- Explain what you can measure with your ruler. (A 2nd grade task from Atılı, Doğangüzel, Güneş & Şahin, 2018, p. 263).

In addition to the above framework, the following framework in Table 2 is developed by the researchers to decide about whether the textbooks present tasks with CT or DT features. Based on the preliminary analysis of the tasks in the analyzed textbooks, six different categories emerged to make decision about task types (see Table 2). The first three were considered to have CT features while the last three were considered to have DT ones.

Table 2. Framework for task analysis in terms of DT and CT features

Categories	Task segments		
CT Type-1	Beginning	Intermediary	End
	One entry point	One solution method	One outcome
CT Type-2	Beginning	Intermediary	End
	Multiple entry points	One solution method	One outcome
CT Type-3	Beginning	Intermediary	End
	One entry point	Multiple solution methods	One outcome
DT Type-1	Beginning	Intermediary	End
	Multiple entry points	One solution method	Multiple outcomes
DT Type-2	Beginning	Intermediary	End
	One entry point	One solution method	Multiple outcomes
DT Type-3	Beginning	Intermediary	End
	Multiple entry points	Multiple solution methods	Multiple outcomes

As Table 2 shows, the end segment is the main indicator in that it determines whether a task has CT or DT feature. Tasks with CT features have only one correct outcome. Both CT Type-1 (see Task-4) and CT Type-2 (see Task-1) have one correct outcome even though they have different beginnings. Although CT Type-3 requires multiple solution methods, it still has the characteristic of CT (see Task-2). Tasks with DT features also have three types. DT Type-1 (see Task-3) is considered to have an open entry (the beginning has multiple entries), a closed intermediary (multiple solution methods are not explicitly required) and an open end (multiple correct outcomes are possible). DT Type-2 has one entry point, one solution method and an open end. DT Type-3 has multiple entries, asks for multiple solution methods openly and enables multiple correct outcomes.

Data analysis

For the data analysis, the first framework in Table 1 is used to decide whether the beginning, the intermediary and the end segments of the task have an open or closed entry, intermediary and outcome. Each task in each textbook is examined in this regard and they are categorized accordingly. Upon the completion of the first stage of data analysis, the second framework is applied to each task again in order to identify which types of tasks that the textbooks present (e.g., CT Type-1 or DT Type-1). This analysis enables us to eventually determine whether

the tasks have DT or CT characteristic. Afterwards the frequency tables are constructed and the data is quantified for each grade level. Some tasks from the textbooks are also provided to exemplify different types of tasks and hence substantiate the overall quantified data analysis.

The initial data analysis was conducted on the tasks by both authors together to identify whether the tasks have an open or closed entry, intermediary and end and hence have DT or CT features. This process leads us to form and develop both frameworks. After the frameworks were formed and construed, both authors analyzed the tasks independently. It was found that both authors had a major agreement over the allocation of the tasks into the related categories. Agreement was reached for all tasks where there was a disagreement and hence all tasks were allocated to the related categories based on the mutual agreement.

Findings

In this section, we provide the findings from all four primary mathematics textbooks to show the extent to which they include tasks with features of CT or DT.

Table 3 below shows that 71% of tasks in the first grade textbook (G1) have CT features (CT Type-1 and CT Type-2) while only 29% of the tasks have DT features (DT Type-1). The findings hence reveal the majority of the tasks (64%) in the first grade textbook have one entry point, do not explicitly ask for multiple solution methods and enable only one correct outcome. Only one task classified as having CT features has multiple entry points, yet it does not allow multiple outcomes. It is also revealed that 29% of the tasks have DT features in the first grade textbook and these tasks provide the opportunity for multiple entries and multiple outcomes. No task which explicitly requires multiple solution methods is provided in the first grade textbook.

Table 3. Findings from all four textbook analyses

Categories	Task Seg-ment	Entry point/Solution method/ Outcome	G1-Book (n=14)	G2-Book (n=49)	G3-Book (n=30)	G4-Book (n=20)	All books (n=113)
CT Type-1	B	One entry point	9	22	11	8 (40%)	50
	I	One solution method	(64%)	(45%)	(37%)		(44%)
	E	One outcome					
CT Type-2	B	Multiple entry points	1	3	5	5	14
	I	One solution method	(7%)	(6%)	(17%)	(25%)	(12%)
	E	One outcome					
CT Type-3	B	One entry point		1			1
	I	Multiple solution methods	-	(2%)	-	-	(1%)
	E	One outcome					
DT Type-1	B	Multiple entry points	4	23	13	7	47
	I	One solution method	(29%)	(47%)	(43%)	(35%)	(42%)
	E	Multiple outcomes					
DT Type-2	B	One entry point					
	I	One solution method	-	-	-	-	-
	E	Multiple outcomes					
DT Type-3	B	Multiple entry points			1		1
	I	Multiple solution methods	-	-	(3%)	-	(1%)
	E	Multiple outcomes					

For the second grade textbook (G2), Table 3 shows that 53% of the tasks have CT features and 47% of them have DT characteristics. More specifically, it is found that 45% of tasks with CT features have one entry point and one correct outcome (CT Type-1) and even though 6% of the tasks with CT features have multiple entries, they still have one correct outcome (CT Type-2). There is only one task (see Task-2 above) with multiple solution methods in the second grade textbook and this task is categorized as being CT Type-3. With regard to DT, the findings reveal that 47% of the tasks have multiple entries and multiple correct outcomes. Grade-2 textbook is the one that presents the most tasks with DT features.

With regard to third textbook (G3), 54% of the tasks have the features of CT and 46% of the tasks have DT features. Table 3 shows that 37% of the tasks have one entry point and one correct outcome. The percentage of the tasks enabling multiple entry points is 17 and these tasks have CT features (CT Type-2). Table 3 also demonstrates that 43% of the tasks, which have DT features, enable multiple entries and multiple correct

outcomes. One task enables multiple entries, asks for multiple solution methods explicitly and allows different outcomes. With regard to fourth grade textbook, Table 3 shows that 65% of the tasks have CT features (CT Type-1 and CT Type-2) and 35% of the tasks have the features of DT (DT Type-1). It is also revealed that none of the tasks in the fourth grade textbook explicitly requires multiple solution methods.

With regard to overall findings, Table 3 shows that 57% of the tasks have CT features and 43% of them have DT features. The findings also reveal that 44% of the tasks allow only one entry point for starting the task and one correct outcome as a result in CT Type-1 category. Even though 12% of the tasks in Type-2 of CT category allow multiple entries, they still have the features of CT. The findings also show that 42% of the tasks enable multiple entries and multiple outcomes and hence have the features of DT (DT Type-1). There are only two explicit references (2%) to multiple solution methods in the task instructions in the four textbooks (CT Type-3 and DT Type-3). It is also found that there is only one task with multiple entries, multiple solution methods and multiple correct outcomes in all four textbooks (DT Type-3).

Table 3 shows that the tasks in all textbooks have five distinctive types. Alongside tasks presented earlier in the methodology section, we qualitatively present here the three most common types of task examples. A common type of task (CT Type-1) is the one that enables one entry point, does not ask for multiple solution methods explicitly and provides the opportunity for only one correct outcome. Task-6 below, for instance, determines a closed entry, does not ask for multiple solution methods explicitly and enables one correct outcome to be stated at the end. As presented in Table 3 above, although there are some variations, 44% of tasks in the four textbooks are presented in such or similar manner.

Task-6
<p>Materials: Place value blocks</p> <ul style="list-style-type: none"> Let's place '9 hundreds, 9 tens and 9 ones' place value blocks on our desk. Which number did you model it with these place value blocks? Let's put 1 more 'ones block' on our desk. Let's change this new '10 ones blocks' with '1 tens block'. Let's change this new '10 tens blocks' with '1 hundred block'. Explain which number does this new '10 hundreds blocks' represent? (A 4th grade task from Özçelik , 2018, p. 10)

The textbooks also include tasks that enable multiple entries and yet allow one correct answer as a result. Task-7 below, for instance, allows the readers to write down any multiplication at the beginning. The task requires the reader to state the commutative rule of multiplication and hence directs him/her to come with one correct outcome. This task is a good example of divergent starting and convergent ending.

Task-7
<ul style="list-style-type: none"> Write down a multiplication which has two factors (<i>a multiplicand and a multiplier</i>). Find the product of the multiplication and note it down. Exchange factors in the multiplication (<i>which you first wrote above</i>). Find the product of this new multiplication and note it down. Determine the relationship between the numbers (<i>products</i>). Write down a general rule for the products of both multiplications based on the relationship you determined. (A 4th grade task from Özçelik , 2018, p. 77)

Another common task type is the one which enables both multiple entries and multiple outcomes (DT Type-1). Task-8, for instance, allows the students to write down any repeated addition that they want and hence every student can have a different outcome at the end. The findings reveal that 42% of the tasks in the four textbooks have DT Type-1. Furthermore, there is no clear reference to multiple solution methods and that is why Task-8 is categorized as having one solution method.

Task-8: Let's find it**Materials:** cardboard, pencils

Let's do it step by step

- Put a hundreds chart on a large size cardboard and stick it to blackboard.
- For every each of you, write down a repeated addition on a small size cardboard.
- Find the product of your repeated addition on the hundreds chart. Go to the blackboard and stick your answer onto it. (A 2nd grade task from Atlı, Doğangüzel, Güneş & Şahin, 2018, p. 168).



The findings also reveal that there was no DT Type-2 task in the four textbooks. There was only one task for each category of CT Type-3 (one entry point, multiple solution methods and one outcome) and DT Type-3 (Multiple entries, multiple solution methods and multiple correct outcomes). In what follows, we discuss all these findings in term of DT and CT alongside the issue of creativity.

Discussion

The findings reveal that there are more tasks with CT features (57%) than those with DT features (43%) in the four primary mathematics textbooks which we analyzed for this study (see Table 3). More clearly, the findings show that 44% of tasks are classified as CT Type-1 in which tasks allow one entry point, have one correct outcome and do not explicitly require multiple solution methods. Unlike tasks in CT Type-1, 12% of the tasks in CT Type-2 allow multiple entry points, yet they still have CT features. It is also found that 43% of tasks have DT features in all four textbooks and all these tasks have multiple entry points and multiple correct outcomes. Only one task with DT features also explicitly requires multiple solution methods. There are only two tasks (out of 113) which openly ask for multiple solution methods in the four textbooks (CT Type-3 and DT Type-3). Further to all these findings, it is also found that tasks with the most DT features are encountered in Grade-2 textbook (47%) while tasks with the most CT features are provided in Grade-1 textbooks (71%). DT Type-2 task is not found in any textbook at all.

These findings show that the analyzed textbooks provide more opportunity for tasks with one correct outcome and hence less opportunity for tasks with multiple outcomes. Furthermore, it is also found that multiple solution methods are not explicitly expressed in the task instructions and there are indeed only two open references to multiple solution methods in the four textbooks. With this in mind, we think that these findings raise some key concerns about the types, natures and qualities of the tasks that deserve a profound discussion. We discuss these findings with regard to DT, CT and creativity respectively as the focus of the study requires.

Kwon et al. (2006, p.53) refer to different types of tasks for the development of DT by noting such tasks as (1) overcoming fixations, (2) multiple answers, (3) multiple strategies (4) strategy investigations, (5) problem posing, (6) active inquiry tasks, and (7) logical thinking. 'Multiple answers' task type of Kwon et al. (2006) is similar to DT task types in our study and our findings show that 43% of the tasks are considered to have 'multiple answers' and hence are open-ended. Although our tasks are not examined in relation with the task types that Kwon et al. (2006) outline for the development of DT and there are not diverse opportunities for different task types that they note, our findings point to the fact that there is an opportunity for the development of DT in the analysed textbooks as a significant percentage (43%) of open-ended tasks (those with DT features) are presented.

With regard to open-ended questions (ones with multiple correct outcomes), it is often reported that students have difficulties in answering them. The main reported reason is that students are not given sufficient opportunities in their learning environment for such tasks (Stein & Smith, 1998; Cai, 2000; Zhu & Fan, 2006; Yang, Tseng & Wang, 2017). Students' learning environment is affected by the opportunity provided in the textbooks and it has been, in fact, reported that textbooks have influences on classroom instruction (Valverde et al., 2002; Haggarty and Pepin, 2002; Eisenmann and Even, 2011; Olsher and Even, 2014). Some earlier studies have shown that a little opportunity is provided for open-ended questions or problems in the textbooks (Zhu ve Fan, 2006; Han, Rosli, Capraro ve Capraro, 2011; Yang, Tseng, Wang, 2017; Glasnovic Gracin, 2018). Unlike to the findings reported by these studies, our findings show that a good opportunity for open-ended tasks is

provided in the textbooks that we analyse for this study. When effectively employed by the teachers, the use of such tasks can contribute to the development of DT and creativity in students.

The issue of multiple solution methods or ways has also been closely associated with DT and creativity (e.g., Kwon et al. 2006; Levav-Waynberg & Leikin, 2012). Leikin & Levav-Waynberg (2008, p.234) define “multiple-solution connecting tasks (CT) as tasks that contain an explicit requirement for solving the problem in multiple ways”. In this study, when multiple ways for solving the tasks is explicitly required we view such tasks as having multiple solution methods. Our findings, however, reveal that there were only two explicit references to the employment of multiple solution methods in carrying out tasks in the analysed textbooks. It is generally known that when multiple solution methods are not explicitly requested, students tend to solve tasks with one accustomed solution method. Adding a line like ‘solve the task or problem with as many ways or methods as possible’ to the task instruction can make a difference and direct students to look for different methods. Such a request can be made even if the task has both a closed beginning and the end and this, in turn, can enrich the quality of task and contribute to the development of students’ DT skills. The study of Lee (2017), in fact, reveals that such modifications are feasible and routine tasks can be turned into creative ones.

As detailed in the literature review, both DT and creativity have been defined through (or with) fluency, flexibility and originality components as well (Haylock, 1997; Imai, 2000; Kwon et al., 2006; Leikin and Lev, 2007). Creative and DT tasks are often considered to enable students to show fluency in terms of generating ideas, demonstrate flexibility in terms of variability in their responses and reveal creativity in terms of producing exceptional responses. Our findings show that tasks with DT features have the potential to provide opportunities for students to generate different ideas at the beginning as such tasks allow multiple entries. Flexibility is concerned with qualitatively different sets of ideas and our observation is that requirements for different sets of ideas are not included in the task instructions. For instance, Task-8 enables students to generate different numbers for repeated addition (fluency), yet the task instructions do not have any requirement regarding different sets of responses (e.g., odd numbers, even numbers, numbers having a factor 7 etc.) that can help the students to produce ideas from distinctive categories. Similar remarks can also be made regarding the originality component and that there is no particular reference or explicit encouragement for finding original answers in the task instructions.

Even though CT is often associated with *orthodoxy* and receives less value than DT, Cropley (2006) draws attention to the important role of CT for creative thinking as well. He, in fact, notes that DT is not fruitful if CT is not employed in tasks requiring creativity and novelty. Lee (2007) also appears to value CT and notes that while DT is important for creating variability, CT is required for exploring variability. All these suggest that CT does not have less importance; on the contrary, it is complementary to DT in mathematics learning. Based on the work of Cropley (2006) and Lee (2007), we also think that CT is fruitful when it is used in tasks which require some features of DT as well. For instance, Task-7 asks for finding commutative property of multiplication and CT is required in this process. Even though 57% of tasks are categorised as having CT features and 12% of them are considered to have CT Type-3 features in the four textbooks, tasks similar to Task-7 are really provided. This particular discussion suggests that CT requires more than just reaching an outcome and it does not mean that every task with CT features in the textbooks assure the development of CT in a fruitful way.

Conclusion and Educational Implications

In 1974, Balka (p. 634) states that “with the increasing concern for creativity, it would seem appropriate for elementary teachers to consider divergent, open-ended items in their classes in an effort to identify and encourage mathematical creativity.” Some studies have shown that such tasks are still rarely encountered in the actual classroom settings (Kasar, 2013). After nearly a half century, however, it is important to note that the analysed textbooks provide and include such tasks. Given that a textbook is regarded as ‘a surrogate curriculum’ (Robitaille et al. 1993, p. 50) and has impact on instruction (Valverde et al., 2002), it is a natural outcome that some of the tasks that Balka (1974) describes and those which require DT features will have some chances to be implemented in the real classroom settings by teachers who follow the analysed textbooks in our study. In spite of this chance, our findings also reveal that very little opportunity for the employment of multiple solution methods are provided in the textbooks and opportunities for developing CT skills through such tasks as Task-7 are also rarely realized. Our findings also point to the fact that the analysed tasks, as their instructions reveal, provide little opportunity for the development of flexibility and originality components of creativity.

In terms of educational implications, we contend that our framework provides ideas that can be used for developing tasks which can enable creativity, DT and CT skills. Bennevall's (2016) list of open-ended tasks for creativity and Kwon et al.'s (2006) list for DT are helpful in this regard. Our framework also delineates six different task types of CT and DT. We think that these task types are useful for the development of tasks in textbook writing and they can act as a guide in this regard. Further to this, the use of such open-ended tasks has also been found beneficial for not only teachers' professional development but also improving students' DT skills (Zaslavsky, 1995; Kwon et al., 2006). We believe that task types that our conceptual framework introduces can be used in the professional development of both pre-service and in-service teachers as well. Exposure to such an experience can enable them to have a close understanding of designing tasks with DT and CT features and that will eventually have influences on their students' learning too.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Gündüz, G.F. (2020). The relationship between academic procrastination behaviors of secondary school students, learning styles and parenting behaviors. *International Journal of Contemporary Educational Research*, 7(1), 253-266. DOI: <https://doi.org/10.33200/ijcer.731976>

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The Relationship Between Academic Procrastination Behaviors Of Secondary School Students, Learning Styles And Parenting Behaviors^{*}

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Abstract

The study aims to reveal the relationship between academic procrastination behavior and learning styles of the students and parents' child-raising behaviors of parents. The research has a quantitative design and is in correlational survey model. The study group of the study consists of 358 parents and their secondary school students. "Academic Procrastination", "Alabama Parenting Questionnaire" and "Learning Styles for Elementary School Students" scales were used as data collection tools. The findings show that the procrastination behaviors of secondary school 5th grade students are lower than 6th, 7th and 8th grade students. It is also observed that there is a relationship between academic procrastination behaviors of students and some sub-dimensions of parental behaviors. It can be stated that 6% of the total variance of students' academic procrastination behavior is explained by poor parental follow-up behaviors. In the literature, data regarding parenting style were mostly obtained from how teenagers perceive their parents. Researchers who want to study in this field may reach the teenagers' parents directly. They may also conduct studies that examine the effects of different learning styles and personality traits on procrastination behaviors at other educational levels.

Keywords: Academic procrastination, learning styles, parental behaviors, secondary school education

Introduction

The ability of the individual to have the knowledge and skills necessary for the social and individual development, which is also called competences of the present age, is closely related to his / her awareness of the responsibility of learning. Learning responsibility is a concept that cannot be limited only with the initiation and execution of the instructional tasks. This responsibility is a state of consciousness. It covers a wide range from providing objective to learning motivation to internal reflections and evaluations related to instructional task. In recent years, having responsibility of learning, which is also associated with concepts such as self-regulation and self-learning, has gained a more technical dimension as a process. It is possible to talk about many factors that affect whether a student takes responsibility, or not along with the factors affecting the reason why the student does not take responsibility for their own learning. One of the factors that affect not taking responsibility is the "procrastination" behavior, which we can also describe as a common negative student behavior and its reflection on instructional processes which is called "academic procrastination". Solomon and Rothblum (1984), who have important studies and scales on academic procrastination, stated that academic procrastination behavior, which is a particular type of general procrastination, is a delay for certain reasons such as preparing for an exam, preparing term paper, administrative tasks related to the school, and participation duty. Academic procrastination is a complex interaction of affective, cognitive and behavioral elements, which includes much more than insufficient time management and inadequate working skills (Ferrari, 1991; Solomon & Rothblum, 1984). In the literature, there are studies investigating the reasons for academic procrastination, interventions that can be done to prevent them and their relationship with different variables. The vast majority of research in Turkey is concerning the relationship between academic procrastination, some variables and demographic characteristics (Ayyıldız & Dilmaç 2016; Çelik & Odacı, 2015; Çeri, Çavuşoğlu & Gürol, 2015; Pala, Akyıldız & Bağcı, 2011; Yeşil & Şahan, 2012) and predictors as well as reasons (Ekinci & Gökler, 2017, Oran, 2016; Özer & Altun, 2011). Some of these studies were conducted on higher education students and some on teenagers. The researches present a negative correlation between self-esteem (Aydoğan & Özbay, 2012, Çelik & Odacı, 2015; Ferrari, 1994;); metacognitive strategies and metacognitive awareness (Bedel, 2017; Kandemir, 2014; Wong, 2012); self-regulation (Çıkrıkçı, 2016; Park & Sperling, 2012; Uzun-Özer, 2009); perfectionism

^{*} This paper was presented at the 7th International Congress on Curriculum and Instruction that was held in Ankara, Turkey on 9-10 October, 2019.

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levels (Akkaya, 2007; Seo, 2008), which are cognitive characteristics, and academic procrastination. A positive correlation is found between irrational beliefs (Çelik & Odacı, 2015); fear of performance failure (Uzun Özer, 2009); burnout (Balkis, 2013); and hopelessness (Yıldız & Yıldız, 2016), which are psychological characteristics, and academic procrastination.

Ferrari (1991) thought that procrastination behaviors might be related to some personality traits of the individual differences (self-confidence, social anxiety, verbal intelligence, abstract intelligence, being knowledge-centered and dispersed, etc.) and he examined the characteristics of individuals with and without procrastination behaviors. The studies revealing that the relationship between academic procrastination and personality traits of individual differences (Baltacı, 2017; Doğan, Kürüm & Kazak, 2017) are also found in Turkey. For example, in the study of Baltacı (2017), it was revealed that personality traits can explain 42% of procrastination behavior alone. One of the concepts related to learning in which the personality characteristics of the individual may be reflected is learning styles. The idea of learning styles derives from the idea that personality traits of the individuals existing in real life, perceiving and structuring stimuli in different ways, interacting with their environment in different ways, and reflecting and considering similar situations in the teaching-learning process. Learning styles are generally accepted in the literature as preferences and individual characteristics that reveal how individuals perceive, interact with, and react to the learning environment in the teaching-learning process (Aşkar & Akkaoyunlu, 1993; Şimşek, 2004). In the study of Çakır, Akça, Kodaz and Tulgarer (2014), the relationship between academic procrastination and learning styles was examined and it was concluded that some learning styles were positively and negatively related. In the research, learning styles have been determined as inactive style, dependent style, competitive style and participant style. According to the findings obtained in the research, while there is a positive relationship between academic procrastination and inactive style, there are negative relationships with other learning styles.

Due to the characteristics of the education system, Turkey shows a structure in which students engage in intensive academic studies in the teaching-learning process, where the assigned work is predominant and homework is given at almost all ages and levels. Assignments which requires student to work hard and intensive tests put students into pressure and also the need for hard work is constantly reminded by teachers and parents. The suitability of these intensive academic studies to the interest, wish and needs of the students and their beliefs in achieving these studies may affect academic procrastination behaviors. Learners with different learning styles may perceive the process according to their structural characteristics and show different levels of academic procrastination. It can be said that this situation can also be effective in shaping the child-raising behaviors of parents. In such a learning process and education system, parents' pressure and over-controlled attitude or flexible behaviors towards the hard work of their children may affect their academic procrastination behavior in different ways. In other words, the structure of the education system in Turkey may affect parental attitudes towards the childrens' learning process and also these attitudes could be reflected to the learners in various ways. It is frequently mentioned in the literature that the parents' attitudes and behaviors of their children have positive and negative effects on the behaviors of children. Çekiç, Türk, Buğa and Hamamcı (2018) revealed in their literature review that parents' attitudes and behaviors in raising children are effective in the emergence and continuation of negativities such as aggressive behaviors of children, emotional problems, shyness, attention disorder, tendency to crime, physical violence, theft, damage to the goods, hurting animals, getting into a fight, peer bullying and lying, fears with behavioral problems, toilet training problems, etc. On the other hand, parents' attitudes also have positive effects such as ensuring their children's development into individuals who are entrepreneur, venturesome, have strong self-perception and whose academic success, self-confidence and general ability level are higher (Gök, 2010; Kuru Örgün, 2000). Erdoğan and Uçukoğlu (2011) stated that different classifications have been made in the literature on parental attitudes and these classification efforts started back in the 1950s. They show the love-centered and object-oriented parental attitudes made by Sears in 1957 and the authoritarian-democratic and permissive parental attitudes which are mostly used in literature and manifested by Baumrid in the 1970s as important examples of these classifications (Erdoğan & Uçukoğlu, 2011). In the literature, it is seen that parental attitudes have an impact on children's academic procrastination behaviors (Milgram & Toubiana, 1999; Pychyl, Coplan & Reid, 2002). Milgram and Toubiana (1999) have assessed parental involvement in terms of their participation in their children's academic assignments/studies in the dimensions of pressure, review, supervision, assistance, encouragement, reward, punishment and personal example. They have grouped these involvements as activities that require high or low time and energy. A negative correlation was found out between mothers' involvement in their children's schoolwork and their academic procrastination behaviors. However, no difference has been found between the influences of the mothers' involvement in activities that demands high or low investment of time and energy and children's academic procrastination behaviors. Pychyl, Coplan and Reid (2002) have studied parental involvement as authoritarian, authoritative and permissive parenting. While no correlation was found between authoritarian mothers and children's academic procrastination, a positive correlation was found between

paternal authoritarian parenting and academic procrastination. A negative correlation was found between maternal authoritative parenting and academic procrastination, but no correlation was found between paternal authoritative parenting and academic procrastination. There is no significant correlation between academic procrastination and maternal and paternal permissive parenting. Factors such as high family expectation, coercive effects or having a democratic family attitude have effects on learners' procrastination behaviors. Among the factors related to family, there are also studies that put the parenting style to the first place among the factors related to academic procrastination (Zakeri, Esfahani & Razmjooee, 2013).

From this point of view, learning styles and parental attitudes are factors affecting the affective, cognitive and academic characteristics of students. Among these academic characteristics, there are also studies showing that academic procrastination is affected by some affective and cognitive characteristics of students. In the literature, it is seen that the participants of the studies revealing the correlation between academic procrastination and parenting styles are mostly high school or university level students (Manasnehi, Bataineh & Al-Zaub, 2016; Sulaiman & Hassan, 2019; Toprakyan, 2016; Yatgin, 2014; Zakeri, Esfahani & Rasmjooee, 2013). It can be said that the studies conducted for secondary school students are not quantitatively sufficient. In their studies, Qing-Song, Meng-Xi and Si (2017) researched the academic procrastination behaviors and parenting styles of Chinese secondary school students. In the literature, there are many studies stated that the effects of the parenting styles may change according to the cultural contexts (Sümer, Aktürk & Helvacı, 2010; Şanlı & Öztürk, 2015). Özzorlu and İnankaya (2019) studied the academic procrastination behaviors of secondary school students in Turkey and parental attitudes. In their studies, they evaluated parental attitudes in democratic/authoritarian dimensions and determined parents' attitudes according to the students' views. When the studies in the literature were analysed, another attracting point is that parental attitudes were mostly studied in authoritarian and democratic or authoritarian, authoritative and permissive dimensions, which are the most known classifications. In revealing the correlation between academic procrastination and parenting styles, it is thought that carrying out studies that deal with parental attitudes in different dimensions and determine these attitudes according to parents' views will contribute to the field. In the literature, it is seen that researches that investigate the correlation between students' learning styles and academic procrastination behaviors are very limited (Çakır, Kodaz & Tulgarer, 2014). In the literature, there is also no research examining the relationship between these three variables together: academic procrastination of learners, learning styles and parental behaviors. Clear conclusions and measures on avoiding academic procrastination, whose consequences may go as far as being expelled (Knaus, 1998), are still not fully known in the literature. This makes it more important to investigate the relationship between academic procrastination and different variables. Based on these necessities and importance, the general purpose of this study is to reveal the relationship between academic procrastination behavior, learning styles and child-raising behaviors of parents. For this general purpose, following questions were tried to be answered:

1. What is the level of academic procrastination behavior of secondary school students?
2. Do academic procrastination behaviors of secondary school students differ according to their gender, grade level, financial status and education level of their families?
3. Do the academic procrastination behaviors of secondary school students differ according to their learning styles?
4. Is there a meaningful relationship between academic procrastination behaviors of secondary school students and child-raising behaviors of parents?
5. Do the child-raising behaviors of parents of secondary school students predict their academic procrastination behavior?

Method

Research Design

This research employs correlational survey model. In this study, the relationship between learning styles, family involvement levels and academic procrastination behaviors of secondary school students at different grade levels were tried to be determined. The predictive role of child-raising behaviors of parents on students' academic procrastination behaviors is also investigated.

Participants

The target population of the study consists of 973.589 students studying in secondary schools in Istanbul during 2018-2019 academic year and their parents. Due to the impossibility of reaching all students and parents, sampling has been used. In the determination of sampling, "convenience sampling" method was used. Because of gathering the research data from two different groups by matching meticulously, collecting it via face-to-face interviews becomes much more important. Accordingly, this method has been used in the research, taking into

account the high number of school districts in the city where the research will be carried out. With this method, the researcher aimed to save time and cost by identifying volunteer participants that are easily accessible and suitable for the research. In order to increase diversity in convenient sampling, the researcher determined the participants from schools in different districts of Istanbul. Based on the literature, considering the sizes of the theoretical sampling that can be determined for different sized universes (Anderson, 1990 akt. Balcı, 2013; Cohen, Manion & Morrison, 2000 akt. Erkuş 2005), it was decided that 384 participants, with error rate of 5%, would be sufficient to represent a universe of 100.000 people. The researcher considered 400 students and 400 parents as sampling, but 358 students and parents participated in the research. The study group of the study consists of 358 parents and their secondary school students studying in three secondary schools in Küçükçekmece, Bakırköy and Bahçelievler districts of İstanbul in the second term of 2018-2019 academic year. In this context, the research as two different study groups. 246 of secondary school students were male (68.7%) and 112 were female (31.3%). In the study group, it can be said that the distribution of secondary school students according to class levels is close to each other. 79 (22.1%) of these students were in the fifth grade; 94 (26.3%) were in the sixth grade; 101 (28.2%) were in seventh grade and 84 (23.5%) were in eighth grade. More than half of the parents (55.6%) are primary school graduates. 39 (10.9%) parents are literate; 31 (% 7) parents are university graduates. The number of parents who are high school graduates is 89 (24.9%). The financial status of the majority of the parents (77.4%) is moderate. 61 (17.0%) of the parents have high financial status; 20 of them (5.6%) is low.

Research Instruments and Procedures

Personal information form and three scales were used as data collection tools. The personal information form contains four questions about the gender and class of the student, the educational level and financial status of the parent. Alabama Parenting Questionnaire was developed by Frikck (1991) and it was adapted by Çekic, Türk, Buğa and Hamamcı (2018). There are 35 items in the scale that measure parenting behaviors and child-raising behaviors of parents are examined in five different areas. Academic Procrastination Scale developed by Çakıcı (2003) was used in order to determine the academic procrastination behaviors of the students. Academic Procrastination Scale consists of 26 statements, including the tasks that the students are responsible for doing in their learning lives. The scale was developed for high school and university students. An adaptation study of the scale for the secondary school students was done and scale factor structure was tested with the confirmatory factor analysis (CFA) by Korkmaz (2008). As a result of the analysis, $\chi^2 = 737.14$, $p < .001$; $\chi^2/df = 4.3$; GFI = .86; CFI = .93; IFI = .93; RMSEA = .09 values were calculated. When fit indices were evaluated, it could be concluded that the scale could be acceptable in this form. Finally, in order to determine the learning styles of the students, the Learning Styles Scale for Elementary School Students (AÖS-İ), which was developed by Otrar, Gülten and Özkan (2012) was used. The original scale is consisted of 36 items and the development studies of the scale were carried out with 4th and 5th grade students. CFA was performed to assess the construct validity of the scale for secondary school students. Because their t-values are not significant, four items were excluded from the analysis. As a result of the analysis, $\chi^2 = 1101.03$, $p < .001$; $\chi^2/df = 2.4$; AGFI = .85; NNFI = .80; RMSEA = .063; SRMR = .07 values were calculated. When the fit indices obtained as a result of the confirmatory factor analysis performed for the learning style scale were evaluated according to the literature, it could be said that the NNFI fit index did not correspond to good fit (Sümer, 2000). However, it was not enough to look at a single fit index as a result of DFA; decision must be made considering the other fit indices. Munro (2005) and Şimşek (2007) also state that the fit indices are very diverse and there is no consensus on which of these fit indices will be accepted as standard (cited in Çapık, 2014). When other values obtained as a result of DFA are examined, χ^2 / df and SRMR values indicated good fit (Brown, 2006; Bryne, 1998); RMSEA (Sümer, 2000) and AGFI (Joreskog & Sorbom, 1993; Schermelleh-Engel & Moosbrugger, 2003) values were in acceptable value ranges. When fit indices were evaluated as a whole, it could be concluded that the scale consisted of 32 items can be used to determine secondary school students' learning styles.

In this study, internal consistency coefficients for each scale and the distinction of the scales with the data obtained from 27% upper and lower groups were examined. The academic procrastination scale was one-dimensional and the internal consistency coefficient calculated for the scale was found to be .90. In the Alabama Parenting Questionnaire, the internal consistency coefficient for the total was .72; the reliability coefficients of child care, positive parenting, poor parental follow-up, inconsistent discipline and punishment with beating were .78, .75, .80, .46 and .64, respectively. When the values obtained were compared with the internal consistency coefficients of the original adapted scale, the reliability coefficients for the inconsistent disciplinary and beating punishment subscales of the scale were low in both analyzes. Çekiç et al. (2018), who carried out the adaptation study of the scale, stated that this value obtained regarding the negative sub-dimensions of the scale was similar to the results of the studies conducted in different cultures and stated this as a limitation of the scale. Therefore, two items (12th and 38th item), which were found to reduce the internal consistency coefficient further from the inconsistent disciplinary and beating punishment subscales, were not considered in the reliability analyzes of the

scale. The internal consistency coefficient obtained for the learning styles scale, which is another scale used in the research, was .80 for the whole scale, whereas, was found to be .61, .55, .55 and .57 respectively for the auditory, visual, kinesthetic and tactile subscales. Internal consistency coefficients are low. In the reliability analysis of the learning styles scale, two items (12th and 15th items), which were observed to further reduce the reliability of each subscale, were not included in the calculations in order to increase the validity. Şeker and Gençdoğan (2014) state that Cronbach's alpha value is dependent on the items in the scale and that the number of items being less than 10 may lead to low value of Cronbach's alpha coefficient. Similarly, Akbulut (2010), states that internal consistency is a value affected by the number of items. In the scales used in this study, the subscales with low internal consistency coefficients were sub-dimensions with fewer than 10 items. According to the literature (Cohen, Manion & Morrison, 2007), it can be said that academic procrastination and learning styles were strongly fairly consistent; Alabama Parenting Questionnaire can be said to be adequately consistent. Akbulut (2010) states that Cronbach's alpha value of .60 and above can be considered as *quite reliable* internal consistency value. When considered in this context, it can be stated that the majority of the internal consistency coefficients obtained for the sub-dimensions of the scales are quite reliable. When data on the differentiation of the scales were analysed, there is a significant difference between lower and upper groups in the analysis of academic procrastination, Alabama Parenting Questionnaire and learning styles scales on the basis of lower and upper groups ($p < .001$). Based on these statistical results, it can be said that the data obtained from the measurement tools are distinctive. The fact that the internal consistency coefficients and discriminative values were within the limits foreseen in the literature was interpreted as the valid and reliable for the data obtained from the scales. The data were collected with the help of the class guidance teachers of the related classes. Firstly, it was emphasized that participation in the study group was voluntary, that the findings would be used only within the scope of scientific studies and that the measurement tool would be applied only in accordance with their approvals. During the markings, they warned the students and their parents to reflect their thoughts, not to leave any items blank and not to rush.

Data Analysis

The data obtained from the student and parent scales were entered into SPSS 25.0 and the data were checked with the standardized Z-scores for the presence of outliers. The normality tests of the scores of the students and their parents from the scales and different variables are given in Table 1.

Table 1. Normality Tests of the Students and Their Parents' Scores

Variables	Label	N	Kurtosis	Skewness	Z	P
Mean values of the Academic Procrastination Scale (Student)	-	358	-0.51	-0.11	0.114	.200*
Mean values of the Alabama Parenting Questionnaire (Student)	-	358	-0.25	0.15	0.113	.200*
Mean values of the Alabama Parenting Questionnaire (Parent)	-	358	1.48	0.22	0.131	.200*
Gender	Female	246	-0.14	-0.32	0.076	.132*
	Male	112	-0.59	-0.01	0.052	.200*
Grade	5 th Grade	79	-0.50	0.22	0.091	.169*
	6 th Grade	94	-0.11	-0.11	0.084	.099*
	7 th Grade	101	-0.70	-0.03	0.061	.200*
	8 th Grade	84	0.00	-0.39	0.112	.011
	High school graduate	89	-0.56	-0.31	0.077	.200*
Financial status of the parent	Low	20	-0.52	-0.31	0.142	.200*
	Moderate	277	-0.55	-0.10	0.045	.200*
	High	61	-0.28	-0.05	0.085	.200*
Educational background of the parent	Literate	39	-0.54	-0.10	0.076	.200*
	Primary school graduate	199	-0.47	-0.02	0.039	.200*
	High school graduate	89	-0.56	-0.31	0.077	.200*
	University graduate	31	-0.44	-0.44	0.173	.019

* $p > .05$ follows a normal distribution

As seen in Table 1, according to literature (Demir, Saatçioğlu & İmrol, 2016), it was observed that the scores of the students and their parents from the general scales and different variables correspond with the values that meet the normality criterion. Parametric test statistics were used to analyze the data. Percentage, frequency and mean of descriptive statistics; Kolmogorov-Smirnov Z and Levene F tests for the tests on normality and homogeneity of variances, independent samples t-test and ANOVA analysis for analyzing the determinants of independent variables over dependent variables and correlation and regression analyzes were used to determine relationships and prediction strength.

Findings

To determine the academic procrastination behavior levels of secondary school students, score ranges obtained from academic procrastination scale were used. Levels and score ranges to be considered for comments and procrastination behavior levels of secondary school students are as follows. The high scores of the scale were interpreted to indicate that secondary school students showed procrastination behavior at a high rate.

Levels and ranges

1.00 - 1.80 “very low level of procrastination”

1.81 - 2.60 “low level procrastination”

2.61 - 3.40 “moderate procrastination”

3.41 - 4.20 “high level procrastination”

4.21 - 5.00 “very high level of procrastination”

Academic procrastination levels of secondary school students according to the specified level and score ranges are shown in Table 2.

Table 2. Academic Procrastination Levels of Students According to Some Personal and Parents' Characteristics

Variable	Label	\bar{X}	S	Level
Gender	Female	2.76	0.60	Moderate
	Male	2.64	0.67	Moderate
Grade	5 th Grade	2.36	0.70	Low
	6 th Grade	2.67	0.57	Moderate
	7 th Grade	2.68	0.61	Moderate
	8 th Grade	2.98	0.60	Moderate
Financial status of the parent	Low	2.64	0.77	Moderate
	Moderate	2.68	0.65	Moderate
	High	2.67	0.60	Moderate
Educational background of the parent	Literate	2.59	0.63	Low
	Primary school graduate	2.69	0.65	Moderate
	High school graduate	2.72	0.68	Moderate
	University graduate	2.61	0.56	Moderate
Total		2.68	0.65	Moderate

As shown in Table 2, academic procrastination behaviors of secondary school students are moderate. When analyzed by gender, although both genders are moderate, it can be said that female students show more procrastination than male students. According to Table 2, although it is low in 5th grade in terms of grade levels, it is possible to say that there is moderate academic procrastination behavior at other grade levels. According to the parents' financial status and their educational level, students' average academic procrastination behavior is moderate.

Academic procrastination behaviors of secondary school students were found to be moderate and it was examined whether these behaviors differed according to some variables. Table 3 shows whether the procrastination behaviors of secondary school students change according to gender.

Table 3. Data on Whether Academic Procrastination Behavior Changes According to Gender

Group	n	\bar{X}	S	sd	t	P>
Female	112	2.76	0.66	356	1.66	0.096
Male	246	2.64	0.60			

* p<0.05

When the data related to Table 3 are interpreted, academic procrastination behaviors of students do not differ significantly according to gender ($p > .05$). The homogeneity of the variances was tested first to determine whether the academic procrastination behaviors of the students changed according to the grade level. When the homogeneity of variances was tested, significance value (.172) and Levene value (1.675) show that the condition of the equivalence of variances in the distribution is met. Table 4 shows the results of the ANOVA test and the results of the post-hoc Scheffe test, which was conducted to determine the source of these differences

Table 4. Comparison of Academic Procrastination Behavior Levels of Students According to Grade Level

Variable	Label	N	\bar{X}	S	F	p	Significant Difference
Grade Level	5th Grade	79	2.36	0.70	13.346	.000*	1-2, 1-3, 1-4, 2-4, 3-4
	6th Grade	94	2.67	0.57			
	7th Grade	101	2.68	0.61			
	8th Grade	84	2.98	0.60			

* $p < 0.05$

As can be seen in Table 4, it can be said that academic procrastination behaviors of middle school students show a significant difference according to their grade levels [$F_{(2,245)}=13.346$; $p < 0.05$; $\eta^2 = 0.102$]. Among Post Hoc tests, Scheffe results were examined in order to determine the source of the variance. According to this, it was concluded that there was a difference between the academic procrastination behaviors of the 5th grade students and the academic procrastination behaviors of the 6th, 7th and 8th grade secondary school students not in favour of the 5th graders. In other words, 5th grade students tend to show academic procrastination behavior significantly lower than 6th, 7th and 8th grades. Besides, there was a difference between the academic procrastination behaviors of 8th grade students and the average academic procrastination behaviors of 5th, 6th and 7th grade secondary school students in favor of 8th grade students. In other words, average 8th grade students' tendency to show academic procrastination behavior is higher than the other grade levels and 8th grade students' tendency to show academic procrastination behavior is significantly higher than the students at other grade levels. When the effect value was examined, it was seen that the grade levels of the students had a moderate effect ($\eta^2 = 0.102$) on their academic procrastination behavior (Cohen, 1988). It was examined whether the academic procrastination behaviors of secondary school students differ according to some characteristics of their parents. When the homogeneity of variances was tested, significance value (.406) and Levene value (.904) show that the condition of the equivalence of variances in the distribution is met. Table 5 shows the results of the ANOVA test.

Table 5. Students' Academic Procrastination Behavior Levels According to Their Parents' Financial Status

Variable	Label	N	\bar{X}	S	F	P	Significant Difference
Parents' economic status	High	61	2.64	0.77	.043	.958	-
	Moderate	277	2.68	0.65			
	Low	20	2.67	0.60			

* $p < 0.05$

As shown in Table 5, academic procrastination behaviors of students do not show a significant difference according to their families' financial status ($p > .05$). The homogeneity of the variances was tested to determine whether the academic procrastination behaviors of the students changed according to the educational level of their parents. When the homogeneity of variances was tested, significance value (.468) and Levene value (.848) show that the condition of the equivalence of variances in the distribution is met. Table 6 shows the results of the ANOVA test.

Table 6. Students' Academic Procrastination Behavior Levels According to Their Parents' Educational Level

Variable	Label	N	\bar{X}	S	F	p	Significant Difference
Parents' educational levels	Literate	39	2.59	0.63	.435	.728	-
	Primary school graduate	199	2.69	0.65			
	High school graduate	89	2.72	0.68			
	University graduate	31	2.61	0.56			

* $p < 0.05$

As can be seen in Table 6, academic procrastination behaviors of students do not show a significant difference according to the educational level of their families ($p > .05$).

Another question to be answered in the study is whether students have a meaningful relationship between academic procrastination behaviors and their learning styles. Total score is obtained by multiplying the number of items by 5 and it can be determined which learning style the individuals falls in by dividing this number to the total number of items. In the evaluation of these results, triple groupings are used as low, medium and high. The standard deviation value was taken as the basis of ± 1 in the determination of the groups because of the high mean values in the groupings related to all learning styles. However, it should be kept in mind that each learner may be dominant for more than one learning style. When this was the case, in order to make categorical classification in the research, the learning style whose mean was higher in the research was taken into consideration.

In order to determine whether the academic procrastination behaviors of the students changed according to their learning styles, the homogeneity of the variances was tested. When the homogeneity of variances was tested, significance value (.238) and Levene value (1.417) show that the condition of the equivalence of variances in the distribution is met. Table 7 shows the results of the ANOVA test.

Table 7. Students' Academic Procrastination Behavior Levels According to Their Learning Styles

Variable	Label	N	\bar{X}	S	F	p	Significant Difference
Learning styles	Auditory	63	2.70	0.64	.593	.620	-
	Visual	55	2.76	0.71			
	Kinesthetic	97	2.69	0.60			
	Tactile	143	2.63	0.66			

* $p < 0.05$

As shown in Table 7, academic procrastination behaviors of students do not show a significant difference according to their learning styles ($p > .05$; $\eta^2 = 0.005$).

Theoretically, students' academic procrastination behaviors and child-raising behaviors of parents are different concepts. Parents with negative child-raising behaviors are expected to show more academic procrastination behavior of their children. The findings are as indicated in Table 8.

Table 8. The Relationship Between Students' Academic Procrastination and Child-raising Behaviors of Parents

Variables	\bar{X}	Academic procrastination	Parental behaviors
Academic procrastination	2.68	-	.018
Parental behaviors	2.77	.018	-
Sub-dimension 1 (child care)	3.84	-.159**	.465**
Sub-dimension 2 (positive parenting)	4.18	-.188**	.554**
Sub-dimension 3 (poor parent follow-up)	1.69	.225**	.330**
Sub-dimension 4 (inconsistent discipline)	2.65	.068	.640**
Sub-dimension 5 (punishment with beating)	1.47	.092	.508**

*Correlation value is significant at .01 level.

** Correlation value is significant at .001 level.

As seen in Table 8, there was no significant relationship between academic procrastination and parental behaviors, but there was a negative correlation between academic procrastination behaviors of students and some positive parental behaviors; and a positive correlation with some sub-dimensions of negative parental behaviors. When the values in the table were interpreted according to literature (Cohen, 1988), the students' academic procrastination behaviors and their parents' behaviors related to their children were "low" ($r = -.159$);

it can also be said that there is a “low” level of ($r = -.188$) relationship between academic procrastination behaviors and positive parenting behaviors of parents. There is also a “low” level of ($r = .225$) relationship between academic procrastination and poor parent follow-up.

Since the academic procrastination behaviors of the students did not show a significant relationship with child-raising behaviors of parents, but there was a significant relationship with the sub-dimensions of parental behaviors, multiple regression analysis was performed. Multiple regression analysis was used to determine whether the sub-dimensions of parent child rearing behaviors predict students' academic procrastination behaviors. In the multiple-regression analysis, after the normality tests, the realization status of homoscedasticity was examined. In order to identify whether there is a multicollinearity problem, correlation, tolerance and variance inflation factors among independent variables were examined. It was seen that correlation among independent variables was low. In addition to this, based on the fact that VIF value for each independent variable is below 2.5, the obtained values were interpreted as not having multicollinearity problem (Allison, 1999; Orhunbilge, 2002). The results are shown in Table 9.

Table 9. Regression Analysis on Child-raising Behaviors of Parents Predicting Students' Academic Procrastination Behaviors

Variable	β	Std. Error _B	Beta	T	p	Multiple r	Partial R
Constant	2.985	.292		10.230	.000		
Child care	-.036	.069	-.034	-.514	.608	-.027	-.026
Positive parenting	-.111	.066	-.112	-1.682	.093	-.089	-.086
Poor parental follow-up	.176	.053	.180	3.308	.001	.173	.170
R= .259 R ² =.059 F= 8,468 p= .000							

The variables of positive parenting, poor parental follow-up, inconsistent discipline and punishment with beating, which are the sub-dimensions child-raising behaviors of parent, give a meaningful relationship ($R = .259$) with students' academic procrastination behavior. In other words, the ANOVA analysis ($F = 8.468$; $p < .01$) showed that the model was successful as it was seen in Table 9. When the t-test results regarding the significance of regression coefficients are examined, it is seen that only poor parent follow-up is an important predictor on academic procrastination behavior. Other variables have no significant effect. It can be stated that approximately 6 % of the total variance of students' academic procrastination behavior is explained by poor parental follow-up behavior.

Discussion, Conclusion and Recommendations

In this study, whether the academic procrastination levels of secondary school students and these academic procrastination levels show a significant difference in terms of some variables (gender, education level, parent financial status and education level, learning style) has been investigated. In addition, the relationship between academic procrastination behavior and parents' approaches to child-raising was also examined. At this point, which child-raising approach predicts academic procrastination behavior has been investigated.

According to the findings of the study, the academic procrastination behavior of the students at the secondary school level is generally “moderate”. This procrastination behavior did not show a significant difference in terms of gender, but it was found that female learners showed a slightly more procrastination behavior than men. In his study on secondary school students, Rawlins (1995) found that the incidence of procrastination behavior did not create a significant difference between genders. Pychyl, Coplan, and Reid (2001) reviewed the studies on academic procrastination and reported that they found different research findings on procrastination and gender relationship in the literature. In most of the studies examined, it was found that procrastination behavior did not show a significant difference between genders. This result seems to coincide with the findings of the study. Another result of the literature review is that women learners are more concerned about procrastination behavior than men because they are more anxious. Kaur and Rani (2019) found that the level of academic procrastination among secondary school students was moderate and that the procrastination level did not show a significant difference according to gender. Despite not very frequently, the findings revealed that male students had more procrastination behaviors than females. In the literature, it is observed that the level of procrastination behaviors differ between the genders (Gröpel & Steel, 2008; Gürültü & Deniz, 2017; Kürkçü, 2017; Steel, 2007; Steel & Ferrari, 2013; Toprakyan, 2016), and it is stated that male students have more procrastination behaviors than women. Another contradictory finding is related to the level of procrastination behavior as the age increases. Findings related to this variable revealed different results. These findings do not match the findings of the study. In the study of Kürkçü (2017), it was found that 5th and 6th grade students

showed more procrastination behavior; this difference has reached a significant level between 6th grade students and other classes.

The study found that academic procrastination did not differ significantly according to learning styles. Although no significant difference was observed, it was observed that learners with kinesthetic / tactile learning styles showed more procrastination behavior. Considering that traditional teaching methods are widely used in our country, it is understandable that these students apply more to procrastination behavior. In performing instructional tasks such as reading, test solving, and summarizing, “postponing” may be a frequently used situation in students with this learning style. In the literature review of these two variables (procrastination and learning styles), especially in the national literature, it is noteworthy that there is a lack of studies (Babadoğan, 2010; Çakır, Akça, Kodaz & Tulgarer, 2014). Çakır, Akca, Kodaz and Tulgarer (2014)'s study on high school students' relationship between procrastination level and students' learning styles were examined and significant relationships were determined according to styles in different directions and levels. In their study, Ferrari, Parker, and Ware (1992) examined the relationship between academic procrastination behaviors and undergraduate learning styles of undergraduate students and found no significant and strong relationship. Elmer (2001) examined whether the procrastination levels of the students changed according to learning styles using Kolb learning styles scale and observed significant differences in the procrastination levels of male students. Male students with active and concrete experience learning style showed significant procrastination behavior with students with other learning styles. This result seems to coincide with the result of the study, because learners with an active and concrete experience learning style prefer experiences based on practice and activity, and may have a procrastinative attitude towards traditional instructional works.

In the study, no significant difference was found between the socio-economic level of the parents and the level of education and procrastination behaviors of the students. Although it does not make a significant difference, it has been observed that parents of children with low education level have less procrastination behavior. This may be due to the more sensitive attitude and manner of such families towards school tasks. These families can sometimes be coercive for their children to continue their learning lives continuously and successfully. Rosario, Costa, Nunez, Gonzales - Pieanda, Solano and Valle (2009) conducted a study on procrastination behavior with 11-17 age group students and reached a conclusion that the frequency of procrastination behavior decreases as the education level of the parents increases. This finding does not match the results of the study. It is seen that increasing educational level of parents in different cultures has a decreasing effect on procrastination behavior. Yatgın (2014) investigated whether the socio-economic level of the families affected the procrastination behaviors of the students and did not reach a significant difference. A similar result was observed by Kandemir (2010). These findings seem to support the findings of the study.

In this study, a positive but not high level relationship was observed between parent type and academic procrastination. The highest correlation was the positive relationship between poor parental follow-up and procrastination. Based on this result, it can be said that procrastination behavior increases as parental follow-up decreases. On the other hand, positive parenting and caring for the child were the types of parents in which procrastination behavior showed negative relationships. It can be said that as these parenting behaviors increase, a decrease in academic procrastination behavior is observed. Positive and low-level relationships were observed in parental behaviors based on inconsistent discipline and punishment. In their study using multiple regression analysis, Pychly, Coplan and Reid (2002) found significant relationships between parenting style and academic procrastination. In particular, it has been revealed that father-authoritarian parenting style has direct effects on female students. A similar finding was also found by Ferrari and Olivetti (1994). It has been found that authoritarian father tendency may be decisive on some procrastination behaviors up to 10%. Pychly, Coplan and Reid (2002) classified the parental effect as direct and indirect effects. For example, the accepting and participatory parenting style and the parenting style, which are considered strict and control-oriented are more related to children who tend to be independent, self-assertive, make friends with their peers and cooperate with parents. In this context, in this study, the following two could also be described as *direct* relationships: as child care and positive parenting style increases, procrastination decreases, and as poor parental follow-up increases, procrastination increases. Indirect relationships were defined as low self-perception, depression, state-related anxiety and self-concept. Mortazanajad, Mostafafi and Vahedi (2009) are among the researchers investigating the relationship between parental styles and academic procrastination behavior. The researchers concluded that warm and constructive family behaviors were negatively related to academic procrastination. This finding seems to support the findings of the study. However, they also stated that simple parental behavior (providing silence, supportive working environment, etc.) contributed to prevent procrastination. Reynolds (2015) found similar findings in his thesis, which investigated the factors affecting academic procrastination. It was concluded that there was a positive relationship between the students who have external focus of control and the procrastination behaviors of their children with authoritarian parent style.

Consequently, studies in the literature examining the relationship between parenting style and academic procrastination have generally reached similar results. In addition, there are different results in the literature regarding procrastination and gender. Generally, data on parenting style in the literature were mostly obtained from how teenagers perceive their parents. In addition to the perceived parental styles of teenagers, researchers who want to study in this field shall reach the teenagers' parents directly and collect their data first hand and enrich their studies. They may also conduct studies that examine the effect of different learning styles and personality traits on procrastination behavior.

Acknowledgements or Notes

This study was presented as an oral presentation at the 7th International Congress on Curriculum and Instruction in Ankara University.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Doğan, M.F. (2020). Pre-service teachers' criteria for evaluating mathematical arguments that include generic examples. *International Journal of Contemporary Educational Research*, 7(1), 267-279. DOI: <https://doi.org/10.33200/ijcer.721136>

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Pre-Service Teachers' Criteria for Evaluating Mathematical Arguments That Include Generic Examples

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Abstract

This study investigated how pre-service teachers evaluate mathematical arguments including generic examples. By using written responses of 71 PSTs, the results revealed six criteria used by PSTs, which were being explanatory, being general, correctness, mode of representation, mode of argumentation, and structure of the argument. The criteria suggest what PSTs considered and might value while evaluating arguments. Also, PSTs found deductive arguments more convincing than generic examples arguments. While evaluating arguments with generic examples nature, PSTs considered generic example with visual representation more valid and convincing than with numeric representation. PSTs seemed to be relatively adept at evaluating arguments; however, many had difficulty with identifying the structure of the generic examples. Overall, this study suggests a more coherent approach for integrating generic examples in teacher education programs and directions for further research.

Key words: Reasoning and Proof, Proof evaluation, Generic examples

Introduction

Proof has received significant attention in mathematics at all grade levels and is an important part of every student's education. Proof is a central concept of mathematics and an important tool for teaching and learning mathematics (Knuth, 2002). Thus, both mathematics educators (e.g., Ball, Hoyles, Jahnke, & Movshovitz-Hadar, 2002; Hanna, 2018; Healy & Hoyles, 2000; Reid & Knipping, 2010) and reform documents (e.g., National Council of Teachers of Mathematics [NCTM], 2000; National Governors Association Center for Best Practices & Council of Chief State School Officers [NGA & CCSSO], 2010; Department for Education, 2014) advocate for placing reasoning and proof as a central part of mathematics education. For example, NCTM (2000) states that proof is an essential part of mathematical reasoning, stating that instruction focused on reasoning and proof from prekindergarten through grade 12 should enable all students to "recognize reasoning and proof as fundamental aspects of mathematics, make and investigate mathematical conjectures, develop and evaluate mathematical arguments and proofs, and select and use various types of reasoning and methods of proof" (NCTM, 2000, p. 56). However, the corpus of existing literature on learning and teaching proof indicates that students at all grade levels struggle to understand and construct proofs (e.g. Chazan, 1993; Harel & Sowder, 1998; Weber, 2010), and that teachers often have difficulty effectively fostering students' learning to justify and prove (Knuth, 2002).

To make reasoning and proof more accessible and meaningful to both students and teachers, the notion of generic example has received special attention in the literature because of its explanatory power (e.g., Balacheff, 1988; Harel & Sowder, 1998; A. Stylianides, 2007). Generic examples are particularly powerful in that they provide both explanation and conviction by assigning and illustrating a particular number and providing the foundation for a more general argument. Mason and Pimm (1984) define a generic example as a particular example that does not rely on any specific properties of that example. "A generic example is an actual example, but one presented in such a way as to bring out its intended role as the carrier of *general*" (Mason and Pimm, 1984, p. 284, italics added). Specifically, a generic example is a particular example that reveals the general structure of reasoning without relying upon the individual properties of that particular example. "The generic proof, although given in terms of a particular number, nowhere relies on any specific properties of that number" (Mason and Pimm, 1984, p. 284). Thus, the term *generic example* is used as making explicit the reasons for the truth of an assertion (Balacheff, 1988), not for another purpose.

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To support their students, teachers need to be able to read and analyze students' arguments, which include generic examples, as their notion of what constitutes proof is crucial for teaching and learning reasoning and proof. In this paper, pre-service teachers (PST) were asked to analyze hypothetical student arguments that include generic examples. This paper examines pre-service teachers' notion of generic example in evaluating arguments and the criteria used to justify their responses. The research question is: *What types of criteria do pre-service teachers use to evaluate students' arguments?*

Background and Theoretical Framework

In the following section, I first present the definition of proof and introduce generic examples. Then, I review the literature on proof evaluation.

Definition of Proof. Proof is “a means of convincing oneself whilst trying to convince others” (Alibert & Thomas, 1991, p. 215), and “an essential public activity” (Bell, 1976, p. 24) in which a person convinces themselves or others about the truth or falseness of mathematical propositions. Stylianides (2007) defines proof as follows:

Proof is a mathematical argument, a connected sequence of assertions for or against a mathematical claim, with the following characteristics:

1. It uses statements accepted by the classroom community (set of accepted statements) that are true and available without further justification;
 2. It employs forms of reasoning (modes of argumentation) that are valid and known to, or within the conceptual reach of, the classroom community; and
 3. It is communicated with forms of expression (modes of argument representation) that are appropriate and known to, or within the conceptual reach of, the classroom community.
- (p. 291)

This study embraces proof as a convincing argument and focuses on modes of argumentation and modes of representation.

Generic Examples. The notion of a generic example is seen as an important part of teaching and learning of proof. However, there is an ongoing debate on whether a generic example proves an assertion or a theorem. Balacheff (1988) categorizes *generic example* at a different and higher level than *naïve empiricism*, and *the crucial experiment*, but sees as a lower level of *the thought experiment* which is counted as valid proof. Thus, he does not accept generic example as a full proof as it only depends on a particular representation and lacks for the (formal) linguistic expression that makes proof explicit. Harel and Sowder (1998) also see a generic example as an incomplete proof as it “reflects students' inability to express their justification in general terms” (p. 43). Similarly, Leron & Zaslavsky (2013) claim that “the main weakness of a generic proof is that it does not prove the theorem” (p. 27) as the facts for the proof are observed from an example. On the contrary, Rowland (2001, 2002) sees generic example as valid proofs and states it has the quality of a structural generalization to lead formal proof. Rowland (2002) notes:

The generic example serves not only to present a confirming instance of a proposition - which it certainly is - but to provide insight as to *why* the proposition holds for that single instance. The transparent presentation of the example is such that analogy with other instances is readily achieved, and their truth is thereby made manifest. Ultimately the audience can conceive of no possible instance in which the analogy could not be achieved. (p. 161, italics original)

Similarly, Yopp and Ely (2016) state that “a formal proof often uses general representations, such as quantified variables or symbolic placeholders. But, in a generic example argument, the generality lies not in the representation but in the way the example is appealed to” (p. 41). Therefore, generic examples can be seen as general proofs. I agree with Bills (1996), who states that “generic example might be a half-way house between empirical generalization and generalized formal proof” (p. 84). One of the strengths of generic examples is that they provide a bridge between empirical proofs and deductive proofs so that learners can leverage the increased generality of generic examples to progress closer to complete deductive proofs (G. Stylianides, 2008). Since a generic example can reduce the level of abstraction, it can also serve to make an argument or generic example

more accessible to students. Therefore, generic examples can play a crucial role in learning and teaching proof, especially at the K-12 level.

Generic examples have been used primarily to categorize different types of mathematical reasoning and arguments (Balacheff, 1988), and while researchers have recommended generic examples as a powerful tool for supporting proof (e.g., Rowland, 2002; Stylianides, 2007; Yopp & Ely, 2016), there is little agreement on what constitutes a generic example. I follow Yopp & Ely (2016) in their definition of a generic example, which they describe as reasoning around a particular example that nonetheless can be applied to all cases in the example's domain. Balacheff (1988) highlights the importance of the actions performed upon the generic example as determining whether or not the example is generic - for example, an action taken upon an example that relies upon a particular characteristic of the example that is not common to the entire domain identifies an example as non-generic. Reid & Vallejo Vargas (2018) highlight two important criteria to decide what counts as generic examples: Evidence of awareness of generality and Mathematical evidence of reasoning. Awareness of generality is required because students need to be aware that they are not only using examples as empirical evidence, but they are identifying a general structure through the use of their examples. Thus, they know that their argument is general enough to be counted as valid proof as it works for all cases in the domain. The mathematical reasoning reveals the reasoning behind their argument, in particular, why the identified structure may work for other cases from that specific case. This is grounded on the knowledge that specific community shares. Their categorization is based on psychological and social factors. They state that "psychologically, for a generic argument to be proof it must result in a general deductive reasoning process occurring in the mind of the reader that convinces the reader that there exists a fully deductive inference structure behind the argument. Socially, for a generic argument to be proof it must conform to the social conventions of the context" (p. 250).

I view GEs as less rigorous than a formal proof, but I agree with A. Stylianides (2007), Reid & Vallejo Vargas (2018) and Rowland (2002) that generic examples are valid mathematical arguments (Yopp & Ely, 2016). An important consequence of this view is that mathematics learners can still authentically engage in mathematical proving practices even without facility with formal proof representation. In short, here generic examples are considered a legitimate proving component.

Proof Evaluation. The relevant literature demonstrates that students and teachers have difficulties not only in constructing proofs (Martin & Harel 1989, Harel & Sowder 1998, Knuth, 2002) but also in determining what constitutes proof and whether a proof is valid (Dogan, 2015; Dogan and Williams-Pierce, 2019; Healy and Hoyles, 2000; Knuth, 2002; Selden & Selden 2003). This literature reveals that proof is not only difficult for students to learn but also for teachers to teach. Indeed, G. Stylianides, A. Stylianides, & Weber (2017) note that we still do not know enough about how to help all students develop a meaningful understanding of proof, or successfully produce and analyze mathematical proofs. Reid and Knipping (2010) stated, "how you teach proof depends on what you mean by 'proof' and what you think proofs are for" (p. 211). Thus, similar to "the mathematical knowledge needed to carry out the work of teaching mathematics" (Ball, Thames & Phelps, 2008, p. 395), teaching proof requires a certain kind of knowledge (Stylianides & Stylianides, 2008) to be able to teach what counts as acceptable mathematical proof and to evaluate students' arguments. In the same breath, Powers, Craviotto, and Grassl (2010, p. 501) state that the "ability to validate proofs is a much-needed skill for future teachers." Therefore, proof evaluation is a crucial part of proving activity because it allows one not only to decide the validity of an argument but also to clarify important mathematical principles (Lannin, Ellis, Elloitt, 2011). As stated by Lannin et al. (2011), the evaluation is to determine whether an argument includes "correct or mistaken assumptions, valid conclusions with erroneous logic, or valid arguments that nevertheless explain the only portion of the statement" (p. 45).

However, pre-service teachers and in-service teachers cannot often determine if a given argument is valid proof or not. Knuth (2002) found that in-service teachers had a hard time identifying what constituted valid proof. Teachers were more convinced by empirical arguments than deductive ones, and many teachers were not able to distinguish between proofs and non-proof arguments, as they frequently accepted invalid arguments as proof. More specifically, Knuth found that teachers mostly focused on surface features (such as correctness of algebraic manipulations), rather than deep features (such as nature of proof, overall logic, etc.) and found arguments convincing based on concrete features, specific examples, and visual representations. Martin & Harel (1989) investigated pre-service elementary school teachers' abilities to assess the validity of mathematical arguments by asking them to evaluate various arguments and to rate each argument. Like Knuth (2002), they found that many teachers (40%) accepted empirically-based arguments as proof. The authors also found that the form of argument affected whether or not teachers accepted a given proof. For example, teachers were likely to accept algebraic-symbolic proofs as valid without focusing on the validity of the actual argument. Morris

(2007) also found that pre-service teachers accept empirical arguments as valid proofs. These studies highlight teachers' limited notion of proof, but there are a few studies that found contrary results. For example, Bleiler, Thompson, and Krajčevski (2014) found that pre-service teachers were aware of the limitation of empirical arguments and did not accept them as valid proofs. Similar results were found by Ko & Knuth (2013), but the participants in their study accepted incorrect deductive arguments as valid proofs. Overall, the results of these studies show that both in-service and pre-service teachers' notion of proof may not be sufficient for teaching proof effectively.

Two similar studies, Ko and Hagen (2013) and Lovin, Cavey, and Whitenack (2004) investigated how in-service and pre-service teachers evaluated arguments including example-based, algebraic and generic example (visual) arguments. Ko and Hagen (2013) asked 55 in-service middle school teachers to evaluate three arguments. They found that 16 teachers were convinced by example-based reasoning, while 39 did not accept it as valid proof. Also, 37 teachers determined the algebraic argument to be a valid proof while only 27 teachers accepted the visual argument as valid proof. While evaluating arguments, Ko and Hagen found that the main criterion used by teachers was the use of generality. Lovin et al. (2004) worked with 280 pre-service teachers and asked them to evaluate three arguments. The algebraic argument was accepted by 83% of the pre-service teachers, the generic example argument was accepted by 63% of the students and the empirical arguments was accepted by 17% of the students as valid proof. Both studies emphasized that the participants recognized the power of algebraic and visual arguments, and the limitations of example-based arguments. Isler (2015) investigated elementary teachers' expectations of reasoning and proof in school mathematics and, as a part of her dissertation, she showed teachers mathematical arguments that includes generic examples. She found that the majority of the in-service elementary teachers identified generic examples as a general argument and valid proofs. However, the participants distinguished between generic examples that include visuals and just numeric examples, as they recognized visual generic examples more than the numeric ones; this means that the teachers did not recognize numeric generic examples as much as the visual generic examples. This suggests that teachers may prefer the generic argument not because of its generic nature but rather because of the inclusion of visuals. Dogan (2015) found similar results in his study with in-service secondary teachers. Teachers in his study put an extra emphasis on visual representations and accepted all visual representations as a generic example without focusing on the mathematical component of the argument.

Method

Participants and Study Context

This research was conducted in the mathematics education department at a public university in Turkey. The participants were pre-service teachers enrolled in an elective course called *Mathematical Reasoning and Proof* in 2017, 2018, and 2019, which means that the participants were different students each semester in the same class. The course was 2 hours each week for 14 weeks and designed to support PSTs' learning of how to teach reasoning, justification, and proof. The participants of this study were 71 students in their 3rd or last year of the course work in the program. Six of the students had a degree in mathematics, one had in engineering, and one had in nursing.

Data Collection

Data were collected through written assessment items including 3 parallel tasks administered during one class period early in each semester. These items were adapted from literature (Lovin, Cavey, and Whitenack, 2004; Isler, 2015; and Dogan, 2015). Thus, the main data for this study comes from PSTs' written responses to the tasks for which they had to evaluate hypothetical student arguments. All tasks were related to number theory and designed to highlight generic examples arguments including visual representation and verbal representation along with a formal argument and an example-based argument. An example of tasks is presented below and Table 1 shows a summary of the characteristics of each hypothetical student argument.

The students responded to these three tasks at the beginning of the course. Here, the results of these tasks were presented and discussed. It is important to note that all three tasks had similar results, so I focus specifically on the first task as illustrative of the whole.

PSTs' were also asked to rank the students' arguments based on which one was the most and less convincing argument for them and to explain their ranking.

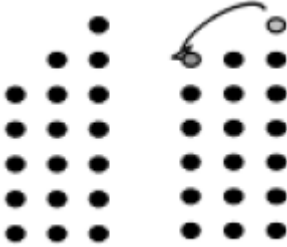
Task 1- three consecutive number sum task

Four students are discussing whether the following conjecture is always true.

The sum of any three consecutive numbers is equal to three times the middle number. For example, 4, 5 and 6 are consecutive numbers and $4 + 5 + 6$ equals 15, which equals three times the middle number, 5. Show that the sum of any three consecutive numbers is always equal to three times the middle number. (Isler, 2015, p.79)

Their explanations are shown below. Do you think their explanations counts as valid proof? Explain your reasoning.

Table 1. Summary of four hypothetical student arguments of three consecutive number sum task that are given to PSTs

Argument	Argument Summary	
<p>Emir: I found a way using marbles. I can make three columns of marbles representing any three consecutive numbers. The first column represents the first number; the second column represents the middle number, and the third column represents the last number. I can take the top marble from the last column and move it to the first column. This makes the number of marbles in each column the same as the number of marbles in the middle column. Since the total number of marbles is always three times the number in the middle column, I know the conjecture is always true. (Isler, 2015, p.80)</p> 	Generic Example	Valid Proof
<p>Damla: 5, 6, and 7 are three consecutive numbers and $5 + 6 + 7 = 18$, and $3 \times 6 = 18$. 7, 8, and 9 are three consecutive numbers and $7 + 8 + 9 = 24$, and $3 \times 8 = 24$. 569, 570, and 571 are three consecutive numbers and $569 + 570 + 571 = 1710$, and $3 \times 570 = 1710$. Since it works in these three examples, I know the conjecture is always true. (Isler, 2015, p.80; Lovin et al., 2004, p.1203)</p>	Example-based reasoning	Invalid proof
<p>Kenan: I'll show you using 4, 5 and 6. I can write 4 as $(5-1)$ and 6 as $(5+1)$. So, it will be $(5-1) + 5 + (5+1)$. Since adding 1 and taking away 1 cancels each other, there will be three 5's. So, you see that it equals adding three times the middle number that is 5. (Isler, 2015, p.80)</p>	Incomplete Generic Example	Incomplete Proof
<p>Doga: I can show three consecutive numbers as: $x-1$, x, $x+1$. So I can write the following equation to show that when you add 3 consecutive numbers, you always get 3 times the middle number:</p> $(x-1) + x + (x+1) = 3x$ <p>Since the 3 consecutive numbers add up to 3 times the middle number, I show that the conjecture is always true.</p>	Deductive Reasoning: Algebraic manipulation of the conjecture	Valid proof

PSTs were just given the arguments not the categorization and summary of the proof types. These four hypothetical arguments used different reasoning and PSTs were expected to identify that reasoning. The first argument, Emir's argument, is a valid argument that used generic examples by using visual representations. In terms of Stylianides' proof definition, Emir uses a valid mode of argumentation to prove the conjecture by providing a general case. He also uses a valid visual representation that can be accepted at the middle school level. When one considers Reid & Vallejo Vargas's (2018) criteria for generic example, they can see awareness of generality as his argument states "*the total number of marbles is always three times the number in the middle column*" and mathematical evidence of reasoning as it represents a structure of the conjecture that shows that it works for any case. It is also important to note that Emir's argument does not rely on a specific case, but a general argument. The second argument, Damla's argument, is an obvious instance of example-based reasoning as she tries three examples and then generalizes her argument. This argument fails to have a valid mode of argumentation and mode of representation. The third one, Kenan's argument, is an incomplete generic example. He clearly shows the structure of the conjecture, but it is not clear if he provides a general argument. In Reid & Vallejo Vargas's (2018) terms, his argument has valid mathematical evidence of reasoning, but we cannot be sure about evidence of generality. We need more information to identify if Kenan sees *the general* through his example, or he just employs it for the case of 4, 5, and 6. Isler (2015, p.40) classifies his arguments as a complete generic example, but for this study, this counted as an incomplete generic example and PSTs were expected to identify the difference between Emir's argument and Kenan's argument. The final argument, Doga's argument, is a classic argument that counts as a deductive argument that uses algebraic representation. Thus, this argument had a valid mode of argumentation and mode of representation at the middle school level.

PSTs, then, were told, "*Rank each explanation through most convincing to least convincing, give 4 points for most convincing and 1 for least convincing*".

Data Analysis

PSTs' evaluation of the hypothetical student arguments was first to analyze if they see the given argument as valid proof or not. After that, PSTs' written response for each argument (284 arguments of task 1) is analyzed by using open coding. Thus, I adapted Glaser and Strauss's (1967) constant comparison method to analyze students' responses on written tasks. All responses were systematically compared and contrasted within and across PSTs' responses. The goal was to identify regularities or patterns in PSTs responses. After having an initial coding framework on PSTs criteria for given arguments, emergent themes were identified and all data were coded based on the final coding framework. Six main criteria used by PSTs identified are presented in the results section.

To check the reliability of the coding scheme, two mathematics education graduate students read and coded all written responses. Only for six out of 284 arguments, there were disagreements. The disagreements were discussed and resolved by comparing the codes.

Results

The purpose of this study was to investigate how PSTs evaluated arguments that include generic examples. Below, the frequency of which arguments PSTs considered as valid proof was presented. Secondly, the criteria used by PSTs while evaluating arguments were presented. Finally, how they ranked each argument was presented.

The results show that PSTs did not agree with which argument is a valid proof except for Doga's and Damla's arguments. Table 2 shows their decision of each argument.

Table 2. PSTs' responses of arguments validity

	Valid Proof	Invalid Proof
Emir's Argument	42 (59%)	29 (41%)
Damla's Argument	10 (14%)	61 (86%)
Kenan's Argument	31 (44%)	40 (56%)
Doga's Argument	62 (87%)	9 (13%)

As it can be seen from Table 2, PSTs considered Doga's argument as a valid proof, while they did not accept Damla's argument as a valid proof. Doga's argument was a deductive argument including algebraic representation and most of the PSTs considered it as proof. On the other hand, Damla's argument was an empirical argument and most of the PSTs did not consider it as proof. Thus, the results showed that PSTs were consistent with these two arguments. However, for Emir's and Kenan's arguments, there was a big difference between accepting as a valid argument or not. While around 60% of the PSTs accepted Emir's argument as a valid argument, 41% did not accept as proof. On the contrary, PSTs did not see Kenan's argument as equally valid as Emir's argument. 56% of the participants did not see Kenan's argument as valid, but 44% of them accepted it as proof. Considering similarities between Emir's and Kenan's arguments, these results reveal that PSTs did see the generic nature of those two arguments. As will be presented below, PSTs focused on the visual representation of Emir's argument but considered Kenan's argument as an empirical argument similar to Damla's argument. One important finding of this section was that the PSTs from the mathematics department (six participants) only considered Doga's argument as proof and others as invalid proofs mainly because of algebraic representation of his argument. One of those students did not accept any of these arguments as valid proof because none of them did use the axiomatic nature of mathematics.

The analysis revealed six main criteria that PSTs used while evaluating hypothetical student arguments. These criteria, as presented in table 3, are *Being Explanatory*, *Being General*, *Correctness*, *Mode of Representation*, *Mode of Argumentation*, and *Structure of the argument*. These criteria capture how PST's evaluate student's arguments. Below I discuss each criterion and illustrate with excerpts from PSTs' written responses.

Table 3. Criteria used while evaluating arguments

Criteria		Emir's Argument	Damla's Argument	Kenan's Argument	Doga's Argument	Total
No Reason		3	1	4	2	10
Being explanatory	Explanatory	12	0	4	2	18
	Not Explanatory	1	5	0	5	11
Being general	General	23	3	12	47	85
	Not general	22	38	24	0	84
Structure of the argument		22	0	25	2	49
Correctness		2	15	8	2	27
Mode of Representations	Visual model	41	0	0	0	41
	algebraic	0	0	0	57	57
	examples	1	2	7	0	10
Mode of Argumentation	Deductive arguments	0	2	1	13	16
	Example based reasoning	2	59	29	0	90
	Generic example	2	0	1	0	3

As can be seen from Table 3, 10 participants only stated if they think the argument is valid or not, and did not provide any reason for their decision. The most used criteria while evaluating arguments were *being general* or not (used 169 times) for all four arguments. All participants that used *generality* criteria considered Doga's

argument as general, most probably because of the mode of representation (algebraic). They did not see Damla's argument as general except three PST's who believed she provided a general argument. These two results were expected, but PSTs did not have a similar agreement for Emir's and Kenan's arguments. Most of the PTSs who used *generality* as a criterion for their evaluation did not see Kenan's argument as general. 24 of them stated that Kenan did not provide a general argument, while 12 of them stated Kenan's argument was general. On the other hand, PSTs used *being general* 23 times and not being general 22 times for Emir's argument. Half of the participants who used *generality* as a criterion saw Emir's argument as general, but the other half did not see as general. This was an interesting result about how PSTs perceived generic examples. The difference between the use of criteria of *generality* in Kenan's and Emir's arguments might be because of the mode of representation that each argument used. PSTs saw Kenan's argument as similar to Damla's argument rather than Emir's which includes visual representation. Similar criteria used by PSTs were the *structure of the argument*. This criterion was mostly used for the arguments that have a generic nature. They mentioned the *structure of the argument* 22 times for Emir's argument and 25 times for Kenan's argument. It is important to note that not seeing Kenan's argument general but identifying the structure of Kenan's argument highlights that PSTs did see a difference between Kenan's argument and Damla's argument which was example based. Same representative samples of PST's evaluating four hypothetical arguments are:

Damla's argument:

This only generalizes based on 3 examples, so it cannot say anything for other numbers. It is only proof of those three special cases, not the conjecture.

I think it is a proof; it tests cases for the conjecture and then generalizes by comparing those cases. Also, there is not any counterexample, so it is proof.

Kenan's argument

The argument is proof. Kenan made logical reasoning. He did not make any computational errors. He did not use any formal proof methods, but his argument shows why the conjecture is true.

What he did is partially correct, but he just did it for the case of five, so it is not a proof. It should have something like this $(n-1) + n + (n+1)$.

This is not a proof. Because the student rewrites the conjecture in terms of the middle number. This is true for all three consecutive numbers, but it is only an example, it is not general. He should have used algebraic notations.

Emir's argument:

It is not a proof. Because you cannot find that many marbles to work with big numbers, so it is not generalizable.

It is not a proof. He only shows that the conjecture is true for a case and it does not have anything that shows why it is true. He also claimed that it is always true, he made a generalization based on his example, this shows his argument is incorrect.

I think this is a proof. Because when you give the extra one on the third column to the first column, all three columns would be equal, it does not matter which number you are using. In other words, the number of the first column and third column would be equal to the second column. The reason why I am considering this as a proof is that the number of marbles is not important. We know that the number of marbles on the third column is one more than the number of marbles on the second column and two more than the first column. When we add the extra marble on the third column to the first column they all will be equal and the sum of marbles would be three times the number of the marbles on the second column.

I think it is not a clear proof. When you look at his conclusion, you see that he generalized based on visual representation. But, I could not decide if it has a mathematical value or not. I think we can say he proved it since he provided a general argument.

We cannot say that Emir proved the conjecture. You have to make generalizations for proof, you need to write a formula. Here, Emir uses marbles as visuals, if he used "n" instead of marbles, he could prove it.

Doga's argument:

Doga starts with a general statement by using algebraic notations. He proves it, even we can say he has a mathematical proof. Because as a result, he has a general statement. To prove something you need to have this kind of results.

PST's also mentioned the *correctness of the argument* as a criterion. Interestingly, they used this criterion mostly for Damla's (15 times) and Kenan's (8 times) arguments; because they wanted to emphasize what they are doing is mathematically correct, but not general to be counted as a valid proof. For example, they said:

Damla gives three instances of the conjecture by using examples. She shows the correctness of the conjecture for these three cases. She does not answer if the conjecture holds for all numbers. Thus, this argument is not a valid proof. Proof needs to be general.

Kenan's argument is not a proof, it is an example that shows it's mathematically correct. He needs to show that all possible cases work. Since there are infinite numbers, this cannot be done.

Mode of Argumentation and *Mode of Representation* were also used by PSTs while evaluating arguments. It is important to note that these two criteria are related. PSTs identified different representations for each argument. All participants who used this criterion stated that Emir's argument is a visual model that shows how the conjecture works, but one of them saw that as only an example of the conjecture. Similarly, they stated Doga's argument used an algebraic representation and was formal. Two PSTs saw *mode of representation* for Damla's argument as an example and accepted her argument as a valid proof. Also, seven of them stated that Kenan's argument was a valid argument that uses examples as a *mode of representation*. PSTs used example-based reasoning as a *mode of argumentation* when they did not see the arguments as valid proof. They stated that the *mode of argumentation* for Damla's (59 times) and Kenan's (29) arguments were examples and could not be seen as proof. Two of them also considered Emir's argument as example-based reasoning and did not consider as a valid proof. PSTs stated deductive *mode of argumentation* for Doga's (13 times), Damla's (2 times), and Kenan's (once) arguments. Very limited participants (3 of them) also mentioned using a generic example as *the mode of argumentation* for Emir's and Kenan's arguments. They said, for example, Emir used a visual model to show the conjecture works for all numbers.

Besides these criteria, PSTs also mentioned *being convincing* (3 times) and *counterexample* (12 times). *Being convincing* was mentioned by PSTs two times for Emir's argument and once for Kenan's argument. The *criterion of counterexample* was an interesting one as PSTs used it to explain both why some arguments cannot be considered as valid proof or can be considered as proof. They used the word counterexample for Damla's argument nine times to explain example based arguments are not valid proofs. For example:

"You cannot prove this conjecture as Damla did. Because there is an infinite number of three consecutive number. If you could find a counterexample that would prove the conjecture, but just using numbers to show it works does not prove it."

They also used the word counterexample for Doga's argument (3 times) as the generality of his argument. For example, one PST said: *"This argument is general, it works for all numbers. You cannot find any counterexample for it."* Thus, it can be said that they used the notion of counterexample to show the generality of the argument and limitation of example-based reasoning.

PST's were also asked to rank the arguments considering how convincing they think they are and to grade them between 4 to 1 as 4 being the most convincing and 1 being the least convincing. Table 4 shows the frequency and average point for each argument.

Table 4. PSTs rankings of the arguments

	Most Convincing	Least Convincing
Emir (2,62)	10	15
Damla (1,29)	0	48
Kenan (2,29)	9	6
Doga (3,67)	51	3

As it can be seen from Table 4, most of the participants found Doga's argument most convincing with the average of 3,67 out of 4. 51 participants ranked Doga as most convincing while none of them ranked Damla as most convincing. Damla got an average point of 1,29 out of 4, and 48 participants found her argument least convincing. Emir's and Kenan's arguments had close ranks while Emir's argument was 2,62 and Kenan's was 2,29. An interesting result was that 15 participants found Emir's argument least convincing while only 6 found Kenan's least convincing. This result was contradicted to participants' perception of each argument as 59% of them accepted Emir's argument as a valid proof but only 44% of them accepted Kenan's argument as a valid proof. Some examples of their justification are:

Since Doga used a formal language to represent all consecutive numbers, it is most convincing for me. Emir's argument uses concrete visual representations, so I found it convincing. Both Kenan and Damla produce their arguments based on examples, so I did not find them convincing at all.

I think Emir's argument is the most convincing one because it has not only a visual representation but also a logical structure of the conjecture. The model sticks in your mind. Doga uses formal language but it does not explain why the conjecture works, so I did not find it convincing. Both Kenan and Damla use examples which is the simplest method to prove. Their arguments are example-based, so I don't see them as valid proof. They are the least convincing.

Doga's argument is the most convincing. Because it uses algebraic general representation, it shows which number you put it will always work. But, Emir's argument is well-developed too and it is a valid one. Kenan did a similar argument as Emir, but it would be better if Kenan used a visual model, which would make his more convincing. I do not see Damla's argument correct because it does not prove.

Doga's argument is the most convincing. Emir and Kenan used different representations, but they both made the same argument. Damla's argument is incorrect. Doga's argument is mathematically true and easy to understand, so that argument is the most convincing.

Discussion

Proof evaluation is an important ability for teachers to have effective teaching of reasoning and proof. Specifically, teachers need to understand and identify types of arguments generated by their students in order to help them develop an understanding of proof that is advocated by reform initiatives (e.g., NGA & CCSSO, 2010; Hanna, 2018; Powers et al., 2010; Suominen, Conner, & Park, 2018). In this study, PSTs' notion of generic example was examined by assessing the proving criteria they used while evaluating hypothetical student arguments. The criteria used by PST's were: Being Explanatory, Being General, Correctness, Mode of Representation, Mode of Argumentation, and Structure of the Argument. The PST's mostly looked for generality when evaluating arguments. They also identified the structure of the arguments mostly for Emir's and Kenan's argument which had a generic nature.

The results reveal some promising findings but also some problematic ones. PSTs successfully evaluated arguments that were either deductive or example-based reasoning. Most of the participants considered Doga's argument as a valid proof while they did not consider Damla's argument as a valid proof. Thus, this result showed that the PST's were aware of the limitations of examples-based reasoning. This finding supports Ko and Knuth (2013) and Bleiler et al., (2014) results which also showed that PST's were aware of the limitation of empirical arguments. Also, this result aligns with Isler (2015) who found most of the in-service teachers recognized invalid empirical arguments, Ko and Hagen (2013) who found most of the in-service teachers accepted algebraic arguments as valid and example-based ones as invalid, and Lovin et al., (2004) who found most of the PST's considered example-based arguments as invalid, but algebraic arguments as proof. Some of the literature showed the pre-service teachers and in-service teachers rely on example-based reasoning and accepted empirical arguments as proof (Knuth, 2002; Martin & Harel, 1989) especially while generating arguments. One of the results of this study suggests that the participants do not use example-based arguments in the same way when evaluating arguments. Overall, this result was promising as it highlights that PSTs were aware of invalid arguments.

One important note to have here is that the PSTs who have a degree in mathematics only accepted deductive arguments as valid proof, while they did not consider other arguments as valid. This might be because of their perception of proof in mathematics courses where the axiomatic nature of proof is emphasized (Weber, 2010).

Another important result of this study was the PSTs' notion of generic example arguments. Even though PSTs did not have any former instruction about generic example, 59% of them recognize generic example argument as a valid proof. Both Ko and Hagen (2013) and Lovin et al., (2004) found similar results with a close percentage of the participants who accepted generic examples as valid proof. One important difference of this study from Ko and Hagen (2013) and Lovin et al., (2004) studies was the number of arguments that include generic examples. In these studies, only one generic example with a visual argument was presented to the participants for evaluating. In this study, I used two different arguments; a complete generic example with visual representation and an incomplete generic example that uses an example as representation. Isler (2015) used two generic examples that include visual and numeric examples, and this study used those arguments. However, as discussed in the method section, for the purpose of this study Emir's argument was accepted as a valid proof, while Kenan's argument was considered as an incomplete generic example as it does not show evidence for generality (Reid & Vallejo Vargas, 2018). The findings related to Emir's argument seems to be consistent with the results of Isler (2015). As the participants of her study, more than half of the PSTs identified generic examples as proof.

The findings of this study show the participants did not see Kenan's argument as they accepted Emir's argument. One of the reason for this finding might be because of having a visual representation for Emir's argument while having a numeric representation for Kenan's argument. Indeed, Isler (2015), Ko and Hagen (2013) and Dogan (2015; 2019) found that teachers tend to accept visual examples as general, while hesitant to consider generic examples with numeric representation, not valid arguments. As discussed by Isler (2015), this finding might be problematic as teachers may accept visual arguments as general but do not accept generic examples with numeric representations. In-service teachers who participated in Dogan's (2015; 2019) study indeed accepted all visual representations as generic examples without any further consideration, while they had a hard time to distinguish between empirical arguments and generic examples with numbers when evaluating arguments. Another reason might be the opaque nature of generic examples (Rø and Arnesen, 2020). The participants of Rø and Arnesen's study were asked to use generic examples to construct proofs. They found that none of the PSTs provided complete generic arguments as the participant might not be aware of the structure of a generic argument. They suggested that teacher educators should provide a more coherent approach when teaching proof with a generic example by emphasizing the structure of the arguments. My findings show that almost one-third of the PSTs were aware of the structure of generic examples for Emir's and Kenan's arguments. They considered Emir's argument more convincing than Kenan's argument but still did not find them as convincing or valid arguments as Doga's argument. Not seeing generic examples as deductive arguments might be problematic especially for teaching proof at the middle school level as explanatory power of the generic example (Hanna, 2018). Indeed, Harel and Sowder (1998) consider generic examples under the deductive proof scheme which suggests teachers need to embrace generic examples as valid proof.

Conclusion

Teachers' view of what constitutes as proof is a crucial role in teaching and learning proof. Teachers should be able to construct, read, and evaluate proofs in order to help their students. This study investigated how PSTs evaluate hypothetical student arguments. The results mainly suggest that they were adapted to evaluate arguments, but had a lot of room to increase their conceptions of proof. One important conclusion of this study is that PSTs need to have more opportunities in engaging in proving activities that include generic examples. They found deductive arguments including algebraic representations more convincing and valid than generic examples that include visual and numeric representations. Thus the emphasis of generic examples needs to be put in teacher education programs to have a more adequate notion of proof for teaching and learning. In addition, the results of this study were limited to written responses, which allowed to identify criteria for evaluating arguments but cannot say more about why they use those criteria for evaluating. Studies that include both interviews and classroom observations are needed to better understand PSTs conceptions of what constitutes for valid arguments and generic example.

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International Journal of Contemporary Educational Research (IJCER)

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To cite this article:

Atmaca, T. (2020). An examination of academically successful secondary school students' aspirations with regard to potential human capital flight (Brain drain). *International Journal of Contemporary Educational Research*, 7(1), 280-299. DOI: <https://doi.org/10.33200/ijcer.708765>

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An Examination of Academically Successful Secondary School Students' Aspirations with Regard to Potential Human Capital Flight (Brain Drain)

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Abstract

The main goal of this study is to determine the extent to which academically successful students studying in secondary schools in Turkey that only accept students scoring in extremely high (94th-99th) percentile on standardized tests harbor intentions to emigrate from Turkey in the future. In addition, a secondary goal is to examine why they intend to carry out the various academic work, scientific work, cutting-edge technological research, and/or plans, patents, and discoveries related to R & D that they have already designed or plan to do in the future in different countries, i.e. why they intend to emigrate. The study was designed in accordance with qualitative research methods; three different groups were defined in order to obtain three sets of data. The first set of data was collected from 40 students from a school in Ankara that only accepts students who score in the 99th percentile or higher on the LYS-TEOG [LYS=Undergraduate Placement Exam; TEOG= Transition From Primary to Secondary Education Exam], the second set of data was obtained from a total of 98 students from a school that accepts students whose scores range from the 97th to the 99th percentile on the LYS-TEOG, and the third and final set of data was collected from a total of 56 students from a different school, one that accepts students whose scores range from the 94th to the 96th percentile on the LYS-TEOG. NVIVO 11, a qualitative data analysis computer software package, was used during the analysis of the findings; content analysis was the preferred research method. The findings of the study indicate that a large percentage of the most academically successful students in Turkey intend to emigrate as a direct result of the lack of trust in their own country, non-merit-based hiring standards & administrative decisions, the perception that science and research are not highly valued in Turkey, and concerns over the lack of support for workers and researchers alike.

Key Words: Human capital flight, Brain drain, Research & development (R&D)

Introduction

Human capital flight (hereinafter referred to in most instances as 'brain drain') is the emigration of individuals who are educated and highly qualified in their field from their home countries to foreign countries which offer them more comfortable working conditions and an overall better quality of life; recently, it has become a focal point of research as it is seen as a vital component of the phenomenon of migration (Bauder, 2003; Gökbayrak, 2008; Özden, 2006; Sager, 2014; Sağırılı, 2006; Schiff, 2006). Brain drain is brought about when people who are successful and well-trained in the arts, sports, or academic subjects decide to do their work, projects, and research in countries that are more developed than their own (Körner, 1998). While this situation constitutes a serious human capital crisis for developing and undeveloped countries, it is seen as a major boon for the country or countries of destination (Aktaş, 2014; Beine, Docquier & Rapoport, 2008; Dodani & LaPorte, 2005). At the same time, brain drain can be described as a barrier to sustainable development for the countries that migrants leave (Bakırtaş and Kandemir, 2010; Tessema, 2009); while it is oftentimes advantageous for the destination country to accept migrants who will or have the potential to carry out high-level, high-profile projects, research, and scientific studies, it almost always means a loss of highly-qualified workers for the home countries of these workers (Sönmez-Çalış, 2019).

Although brain drain is a sociological reality that countries which consistently perform poorly on reports enumerating the most important indicators of economic, judicial, democratic, and social development have had to deal with in past decades, more recently, it has turned into a matter of international importance (Gibson & McKenzie, 2011; Wolburg, 2000). One example of how this has become an international phenomenon is seen in one of the many possible scenarios developed by the European Union in response to their aging population:

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importing young, dynamic, and highly-qualified workers from other countries (Demographic Scenarios for the EU - Migration, Population and Education, 2019). Similar scenarios are also being developed in the United States of America (Losing Our Minds, 2019). Countries that dominate international relations and retain the vast majority of economic power and human capital have essentially been attracting qualified workers from other countries by presenting them with enticing offers and a high standard of living and have even constructed their future population estimates based on immigration. The countries with the highest standard of living, according to OECD indicators from 2018, are shown below in Table 1; scores are out of ten.

Table 1: OECD Indicators

Rank	Country	Score	Rank	Country	Score
1	Denmark	8,21	20	Czechia	6,31
2	Norway	8,10	21	Slovenia	6,22
3	The Netherlands	7,94	22	Estonia	5,84
4	Sweden	7,89	23	Israel	5,76
5	Switzerland	7,85	24	Japan	5,70
6	Finland	7,80	25	Slovakia	5,64
7	Canada	7,75	26	Poland	5,58
8	Australia	7,64	27	Italy	5,52
9	Iceland	7,59	28	Russia	5,25
10	Germany	7,51	29	Chile	5,18
11	USA	7,45	30	Latvia	5,12
12	Belgium	7,41	31	South Korea	5,10
13	Ireland	7,30	32	Hungary	5,08
14	New Zealand	7,22	33	Portugal	5,00
15	Luxembourg	7,18	34	Brazil	4,7
16	Austria	7,04	35	Greece	4,1
17	England	6,92	36	Mexico	3,4
18	France	6,85	37	Turkey	3,2
19	Spain	6,52	38	South Africa	2,4

Source: <http://www.oecdbetterlifeindex.org/#/11212111213>

The scores for countries listed in Table 1 are based on specific parameters including household living standards, household income, job guarantee policy, wages, level of prosperity, the caliber of social capital and community support, quality of education, environmental livability, indicators of the quality of democratic institutions and health services, security/safety, and work-life balance. While the countries which are highly developed according to all the parameters enumerated above are found at the top of the list, Turkey is second to last. Waves of immigration and, more specifically, brain drain to these developed countries have been increasing every year, a fact which supports the data and indicators found in Table 1 (Bakırtaş, 2012; Docquier & Rappaport, 2011). The high percentage of skilled and educated workers and the high HCVA (Human Capital Value Added) that they offer to their country of destination are two factors that distinguish brain drain from other types of immigration.

According to data from the International Labor Organization, one of out every 35 immigrants and approximately 300,000 people a year can be classified as brain drain immigrants. The United States of America is at the top of the list of destination countries (Brücker, Capuano & Marfouk, 2013; Kaya, 2009). One of the major factors contributing to the rise of brain drain at the start of the 20th century has been the relatively freer movement of students between countries and exchange programs designed to facilitate this movement. According to OECD data, the number of international students connected to these programs has, as of 2010, exceeded four million (Şimşek & Bakır, 2016) and is expected to reach seven million by 2025 (Böhm, Davis, Meares & Pearce, 2002). Worldwide, 50% of international students are Asian, while 25.16% are European and 12.38% are African (Levent & Karaevli, 2013).

Numerical measures that list and record the qualifications of the people who emigrate from different countries to acquire expertise in various fields and the projected demand for these professionals are helpful tools that show the direction of brain drain. In Canada, for instance, there are over two million people who were born outside the country but immigrated there to acquire expertise in specific fields and enroll in higher education programs, while in Turkey, the number of students leaving and arriving stands at about 175,000 for both immigrants and new arrivals. However, an important distinction that must be taken into consideration is that a large percentage of the students coming to Turkey from Europe are Turkish citizens who were born in different countries (Aydemir, 2011). Foreign nationals who choose to pursue higher education in Turkey mostly come from other

Turkic republics such as Kazakhstan and Uzbekistan and African countries (Şimşek & Bakır, 2016). Some of the attributes that make a country enticing to potential immigrants (in terms of brain drain) are competitive institutions of higher education, excellent libraries, and substantial funds earmarked for R & D and laboratory research (Pazarcık, 2010).

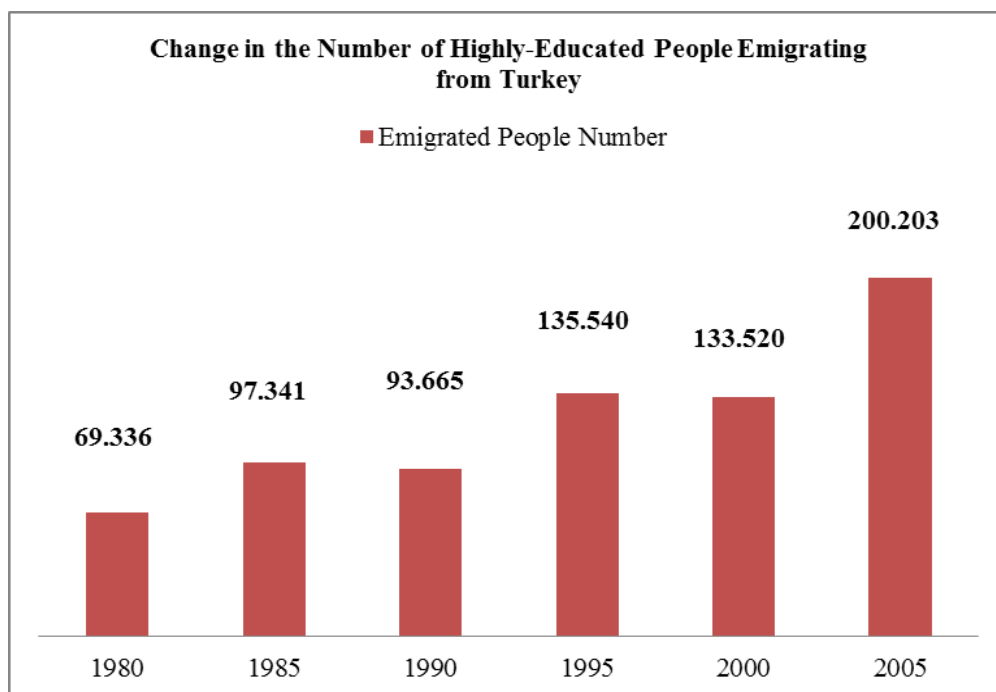
There is a multitude of factors that contribute to the brain drain of the workforce of economically undeveloped or developing countries and which, at the same time, make developed countries seem extremely enticing by comparison. These factors include economic, social, and political elements which simultaneously lay the groundwork for, trigger, and accelerate the process of brain drain; the most significant factors include economic instability and uncertainty, bureaucratic obstacles, low levels of occupational prestige, political pressure and discrimination, and a dearth of environments where one can become self-actualized. Other factors include the lack of opportunities for development, the slow drift away from the rule of law, the search for a better education system, the failings of democratic institutions in the country of origin, and a lack of resources and support for new projects (Akman, 2014; Çoban, 2019; Johnson, 2009; Sağbaş, 2009; Yalçinkaya & Dülger, 2017).

The situation is markedly different in destination countries, where the majorities of the push factors listed above either simply do not exist or are at manageable levels. This, taken together with the many other advantages offered to highly-qualified personnel, can be interpreted as a deliberate move (and policy) designed to attract said workers. An example from the United States is the H-1B visa program, which is designed to ease the process of obtaining employment for highly skilled and qualified workers who offer high HCVA to the country; it has been in effect since 1990 (Aktaş, 2014). In 2012, the number of people benefiting from this visa reached almost 300,000, and the most common occupations were educators, managers, architects, engineers, and IT professionals (Yearbook of Immigration Statistics Report, 2013). Other developed countries have similar immigration policies; in fact, while almost 50% of developed countries have taken steps to ease the immigration process, only 19% of developing countries have done the same (Rajan, 2012).

There are thousands of Turkish academics and specialists who have obtained international recognition while working and conducting specialized research abroad. In addition, people from various occupational backgrounds including engineers, architects, managers, educators, economists, entrepreneurs, and scientists have attained a great deal of success using opportunities presented to them abroad and in developed countries in particular (Sönmez-Çalış, 2019). Although they have had a very little beneficial impact on their own country, it is evident that they have contributed to the societal and economic development of the country they live in (Erdoğan, 2015). Turkey, however, is aiming to reverse brain drain but the fact that Turkey is unable to provide people with the high standards of living and working conditions that they would have in developed destination countries has so far prevented Turkey from achieving this goal (Aysıt & Güngör, 2003). Moreover, the failure to create policies which address the concerns of those who intend to immigrate to developed destination countries also impedes progress in this area (Güngör, 2003; Esen, 2014; Kaçar, 2016; Köser-Akçapar, 2006; Öztürk, 2001; Tansel & Güngör, 2003, 2004, & 2009).

The fact that many highly-qualified young people who are currently studying in Turkey (and have achieved major success in academic subjects, sports, and the arts) intend to immigrate to other countries is one of the most significant handicaps *and* risk factors that prevent Turkey from developing both socially and economically. Therefore, the inability to retain qualified human capital also spells the loss of intellectual and cultural capital as well (Erel, 2010; Kelly & Lusi, 2006). Turkey's failure to attract highly-qualified personnel and specialists from developed countries is an enduring problem for the country and prevents it from meeting its future goals (Aydemir, 2011, Şap, 2019). The most important factor that prevents a surplus of well-qualified human capital from staying in Turkey is high-quality education. Recent statistical analysis shows that there has been a significant increase in the percentage of highly-educated people emigrating from Turkey to different countries; these statistics show that 253,640 people emigrated from Turkey in 2017 because of economic, political, social, and/or cultural reasons, an increase of 42.5% compared to the previous year (TÜİK, 2017).

Figure 1 shows statistics related to yearly changes in emigration from Turkey in the past decades.



Source: Brücker, Capuano & Marfouk, 2013

Figure 1: Change in the Number of Highly-Educated People Emigrating from Turkey between 1980 and 2005

Every year, more than one million students take standardized exams designed to facilitate the transition into the next level secondary education, while the number of schools that the students can study based on the results of the exam is, as of 2020, set at 1,531. Put another way, more than 85% of the students who take the test will not get the chance to study at the secondary school of their choice. Among those who do get the chance to study at the school of their choice, an even smaller and more academically distinguished cohort, who score close to perfect on the exam, study at schools which only accept students who score in the 99th percentile or higher on the LYS-TEOG [LYS=Undergraduate Placement Exam; TEOG= Transition From Primary to Secondary Education Exam). These are the people who will be running the country, working on issues of planning and production, heading scientific research and R & D teams, filing for patents, and developing various projects in many fields in Turkey in the years to come. Consequently, students who possess these attributes are the best representatives of Turkey's potential strategic and intellectual power. The inability to lay the groundwork for research and projects which could ultimately benefit both Turkey and humanity, in general, is thought to be one of the major factors pushing highly-qualified young professionals to emigrate from Turkey.

As both visual and print media sources in Turkey have indicated recently, academically high-achieving students who receive education in well-established schools harbor intentions to immigrate to more developed countries whenever they found a chance; what's more, they follow through on these intentions. For example, 94% of students who graduated from the German School of Istanbul in 2019 went abroad for higher education. For the first time in the 135-year history of Istanbul High School (one of the most renowned high schools in Turkey), the number of graduates who decided to stay in Turkey was lower than that of those who went abroad for higher education. This means that Turkey is losing qualified human capital to other countries, and it is unclear whether or not these students will return to Turkey in the future. Therefore, more field research must be done in Turkey on academically high-achieving high school students in order to determine whether or not they intend to emigrate as no such study has yet been conducted according to the available educational science literature.

The main purpose of this study, therefore, is to analyze key factors underlying the perceptions and intentions of students studying at Science High Schools (who score in the 99th percentile or higher on the LYS-TEOG) and Anatolian High Schools (whose scores range from the 94th to the 99th percentile on the LYS-TEOG) regarding brain drain. With this research, it is expected to reveal the brain migration intentions and justifications of students with high academic success. The study is expected to contribute to policy makers, administrators, teachers and researchers in the field. Various academic studies of the brain drain in Turkey generally relates to people at university level (Güngör, 2003; Kaçar, 2016; Kurtuluş, 1988; Yılmaz, 2019). Having observed the

academic achievement of a study about the brain drain high on students in Turkey is estimated to fill an important gap in the field of this study.

Method

Research Model

The study made use of a holistic single-case study design, a method of qualitative research. Yin (2017:4) defines a case study as an empirical inquiry that investigates a contemporary phenomenon (the case itself) in-depth and within its real-world context when the boundaries between phenomenon and context are not clearly evident. This case study was designed specifically to tackle the issue of academically high-achieving secondary school students' intentions to emigrate and, thusly, contribute to the phenomenon of brain drain.

Data Collection & Analysis

Data was collected by the researcher during the fall semester of the 2019-2020 academic years; participation in the study was strictly voluntary. Volunteers were informed of the aim, scope, and content of the study, while the researcher also underlined the importance of the fact that the data gathered would be used solely for scientific purposes. Data collection was completed in three stages; in the first stage, data was collected from a 40-student group in a Science High School which only accepts students who score in the 99th percentile or higher, while in the second stage, the same process was completed with a 98-student group from an Anatolian High School which accepts students whose scores range from the 97th to the 99th percentile. The third and final stage was carried out with a 56-student group from a different Anatolian High School which accepts students whose scores range from the 94th to the 96th percentile.

The data collection period for each individual class lasted approximately one class hour; descriptive analysis and content analysis were used to analyze the data obtained from the classes. In order to increase credibility, content analysis is included and the opinions of the participants are shared directly in this context. Expert confirmation was obtained to ensure the validity of the study. The codes and themes created in this context were created in consultation with two academic scholars. The NVIVO 11 program was used to create code-words, categories, and topics and also visualize the data during analysis. Purposeful sampling, expert opinions, and the rich description method were used to ensure the validity and reliability of the study (Merriam, 2013; Yıldırım & Şimşek, 2013).

Data Collection Tool

Unstructured interviews were used in this study; this type of interview offers the researcher a large degree of flexibility and the chance to procure valuable information. The interview form itself contained five main questions and a variety of related probing questions.

Example question one: If you were offered an amazing opportunity and had the chance to go abroad to complete your work and research, would you capitalize on that opportunity? Please explain your reasoning and rationale.

Example question two: If there are any important projects/studies that you are considering working on in the future, would you prefer working on them in Turkey or in more developed countries? Why?

Evaluation Groups

Convenience sampling, a type of purposeful sampling, was the method employed in this study. As students' success in the arts, sports, and academic subjects tends to be used as a barometer to measure both their ability to succeed in other areas and their propensity toward immigrating later in life, students from renowned schools famous for producing academically gifted students were included in the purposeful sampling. Three different evaluation groups were created for the study. The first group was given the designation School One; this school only accepts students in Ankara who score in the 99th percentile or higher on the LYS-TEOG. In other words, it is one of the most exclusive institutes of secondary education in both Ankara and Turkey and as such contains many high-achieving students. The second group was given the designation School Two and accepts students whose scores range from the 97th to the 99th percentile on the LYS-TEOG. The third group was given the designation School Three and is comprised of students whose scores range from the 94th to the 96th percentile on the LYS-TEOG. In total, there are 194 students from three different schools in the evaluation groups. Demographic data for each evaluation group can be found in Table 2 below.

Table 2: Demographic Data for Evaluation Groups

Variables		School One (SHS)	School Two (AHS)	School Three (AHS)	Sum Total
Sex	F	11	49	27	87
	M	29	49	29	107
Grade Level	9	0	0	0	0
	10	13	38	0	51
	11	11	60	56	127
	12	16	0	0	16
Mother's Education Level	Elementary	2	9	3	14
	Middle	0	8	6	14
	High	8	30	14	52
	Bachelor's	23	47	26	96
	Grad/Postgrad	7	4	7	18
Father's Education Level	Elementary	0	4	1	5
	Middle	0	4	3	7
	High	6	28	18	52
	Bachelor's	24	54	28	106
	Grad/Postgrad	10	8	6	24
Number of Foreign Countries Visited	None	29	64	39	132
	Between 1-3	8	25	14	47
	Between 4-6	1	5	2	8
	7+	2	4	1	7
TOTAL		40	98	56	194

As shown in the table above, there were 29 male and eleven female students in the evaluation group in School One, the school with the most rigorous entrance requirements; thirteen were in 10th grade, eleven were in 11th grade, and the remaining sixteen were in 12th grade. The students all scored at least 498 (out of a possible 500) on the TEOG/LYS, meaning they were all in the 99th percentile or higher. Two of the students' mothers were elementary school graduates, eight were high school graduates, 23 had completed a bachelor's degree, and seven had done graduate or post-graduate work. The students' fathers had attained similar levels of education: six were high school graduates, 24 had completed a bachelor's degree, and ten had done graduate or post-graduate work. 29 students had never left Turkey before while eight students had visited between one and three foreign countries, one student had visited between four and six, and two students had visited over seven.

There were 49 male and 49 female students in the evaluation group in School Two for a total of 98 students; 38 were in 10th grade and 60 were in 11th grade. The students all scored between 482 and 488 (out of a possible 500) on the TEOG/LYS, meaning they ranged from the 97th to the 99th percentile. Nine of the students' mothers were elementary school graduates, eight were middle school graduates, and 30 were high school graduates; 47 of the mothers had completed a bachelor's degree, while a further four had done graduate or post-graduate work. As for the fathers of the students, four were elementary school graduates, four were middle school graduates, and 28 were high school graduates; 54 of the fathers had completed a bachelor's degree, while a further eight had done graduate or post-graduate work. 64 students had never left Turkey before while 25 students had visited between one and three foreign countries, five students had visited between four and six, and four students had visited over seven.

There were 29 male and 27 female students in the evaluation group in School 3 for a total of 56 students; all of the students in this group were in 11th grade. The students all scored between 478 and 481 (out of a possible 500) on the TEOG/LYS, meaning they ranged from the 94th to the 96th percentile. Three of the students' mothers were elementary school graduates, six were middle school graduates, and fourteen were high school graduates; 26 of the mothers had completed a bachelor's degree, while a further seven had done graduate or post-graduate work. As for the fathers of the students, one was an elementary school graduate, three were middle school graduates, and eighteen were high school graduates; 28 of the fathers had completed a bachelor's degree, while a further six had done graduate or post-graduate work. 39 students had never left Turkey before while fourteen students had visited between one and three foreign countries, two students had visited between four and six, and one student had visited over seven.

Results

The first topic, *Perceptions of Brain Drain*, was created using data obtained from the student participants. Categories and codes related to this main topic are shown below in Table 3; there are a total of two categories and 22 code-words contained within this topic.

Table 3: Categories and Code-words related to topic *Perceptions of Brain Drain*

Topic	Categories	Code-words	<i>f</i>
Perceptions of Brain Drain	Positive	Benefits for humanity, international recognition, research opportunities, advanced laboratories and equipment, opportunities for personal development, extensive professional network, high value given to developers and manufacturers, high income, a plethora of job opportunities, chance to develop oneself in order to serve the home country better, value placed on scientific inquiry, a promise of a better future, freedom to travel abroad, increase in quality of life	166
	Negative	Loss of capital, loss of prestige for the home country, financial overburn for the home country systems, decrease in able leaders for home country, permanent loss of emigrants, increasing sense of hopelessness, loss of trust in the home country	28

As is evident from the data collected in Table 3, the vast majority of participants ($n=166$; 85.56%) evinced a positive approach to brain drain while a minority ($n=28$, 14.44%) thought that brain drain was decidedly negative. In addition, some students specified that they thought brain drain was a net positive for the emigrant leaving Turkey but negative for Turkey itself.

Students with Positive Perceptions of Brain Drain

The vast majority of students, for a variety of reasons, reacted positively toward the concept of brain drain. Some of the reasons which came up time and time again where the idea that brain drain was more beneficial to humanity as a whole, the abundance of jobs and business opportunities, the chance to obtain a higher standard of living, the support given to scientific research and projects, and higher incomes in general. Some students' views on this situation can be found below:

"I think it's a positive thing because it's very difficult and irritating for people to stay in a place where they can't reach their full potential. Also, a lot of occupations which are seriously undervalued in our country are highly valued abroad and they pay good money to keep you there. I think that highly-qualified people moving abroad because they want a better life are doing something really positive for themselves." (S30, a student at the Science High School, mother, and father both have postgraduate degrees, the mother is a teacher, and father is a high-ranking officer in the Turkish Armed Forces, scored in the 99.93rd percentile)

"They emigrate from Turkey because they aren't supported in our country and because their standard of living would be a lot lower here. There are a lot of positives for them as they will be able to develop their skill-set quickly and effectively and they'll be supported at the same time. They'll be a lot better off financially, as will their families." (S1, a student at the Science High School, mother and father both have postgraduate degrees, the mother is a veterinarian, father is an academic, scored in the 99.96th percentile)

"The fact that all these people are leaving and we're experiencing brain drain is a reflection of the current situation in Turkey. Successful people who move abroad are freer, receive more support for their scientific work as well as work in other areas, and are rewarded for their efforts, which is why we have this situation in the first place. Sadly, in Turkey right now, no one offers this sort of working environment." (S92, a student at an Anatolian High School, mother and father both have postgraduate degrees, the mother is a teacher, and father is a dentist, scored in the 96.5th percentile)

There are a number of cognitive and psychological factors that influence academically successful students' (who have highly educated parents and, by Turkey's standards, lead an upper-middle-class lifestyle) positive impressions of brain drain. One of the main factors is the widespread belief that both scientific research and the

researchers themselves are held in much higher esteem abroad, while secondary factors include occupational prestige, a high standard of living, and a large social circle, all of which contribute to the development of cognitive schemata regarding brain drain and working abroad. Many students had positive impressions of brain drain due to their belief that it would bring many individual benefits to the person who emigrated; however, other students looked at brain drain favorably as they thought it would eventually lead to potential benefits and a greater HCVA for Turkey as a whole. For example, one student had this to say about emigration and an eventual return to Turkey:

"I think it's a great thing. A lot of countries are more developed than ours, and it's smart to reap the rewards of the educational and professional opportunities available there. But I only think it's meaningful when they return to their own country and share all the wonderful things they've learned and done." (S26, a student at the Science High School, mother has a bachelor's degree, father has a postgraduate degree, the mother is a homemaker, a father is a soldier, scored in the 99.89th percentile)

It is evident from the statement above that some students think that people who move abroad should return to Turkey with the knowledge and experience gained from their time in foreign countries in order to help Turkey develop; these students are of the opinion that brain drain could, in the long term, work in their country's favor. Some students had a distinctly different point of view; the main factors that led to them viewing brain drain in a positive light were the fact that they didn't feel free in Turkey and that the rule of law was not enforced or implemented properly. One student's statement is quite direct: *I feel neither free nor protected by the law in my country* (S121, a student at an Anatolian High School, mother and father both have bachelor's degrees, the mother is a civil servant, father is a soldier, scored in the 95th percentile). Another student's statement was similar: *No one has any rights here, there is no rule of law, no justice, so that's why I think brain drain is a positive thing* (S141, a student at an Anatolian High School, mother and father both high school graduates, the mother is an engineer, the father is a shopkeeper, scored in the 95th percentile). Students who shared this view often interpreted brain drain as a form of individual escape from the harsh and unjust conditions in Turkey to countries which they perceived as freer and more just.

Other factors that came up when researching the roots of positive views and perceptions regarding brain drain were the plethora of exciting job opportunities available abroad, entrenched prejudices regarding certain occupations in Turkey, and deficiencies in the Turkish education system. Some students' statements supporting these ideas can be found below:

"I think it makes sense for them to go, especially if they're going to study subjects like AI or machine learning which will never go anywhere in Turkey. For instance, if I got a job offer from a place in Silicon Valley, I'd go because the opportunities and facilities here are limited." (S75, a student at an Anatolian High School, the mother is a high school graduate, father has a bachelor's degree, the mother is a homemaker, the father is a retired soldier, scored in the 96th percentile)

"I think it's a good thing because I have no faith that our education system will ever work properly. I don't think anyone works in an occupation they love. Only people who make it into med school or make it into the top 5,000 on the university entrance exam can do anything with their lives. Taking an example from my own life, I want to be a fashion designer, but I can't become one because everyone always says the same thing: do you want to starve? I don't want to hear that anymore and I think brain drain is a positive thing." (S188, a student at an Anatolian high school, the mother is a high school graduate, the father has a bachelor's degree, the mother is a homemaker, and the father is a civil servant, scored in the 95th percentile)

Students with Negative Perceptions of Brain Drain

Just as there were students who thought brain drain was a net positive both for the individuals who emigrated from Turkey and for the country as a whole, there were also many who determined that the loss of highly qualified specialists and workers was a decidedly negative phenomenon. The rationale that lies behind the negative perceptions of brain drain is varied; two of the major reasons include the view that brain drain represents a loss of human and economic capital for Turkey and the idea that the 'best' people leaving a country will harm that country's international reputation. Other explanations include the financial burden it places on Turkish systems (as these systems helped rear the individuals only to send them off to another country), the decrease in able leaders available, the permanent loss of emigrants, the increasing sense of hopelessness felt among those who stay in Turkey, and the loss of trust in one's country. Some students' views on this situation can be found below:

"I think it's a bad thing because highly qualified professionals go to other countries and don't help or provide any benefits for their own country." (S13, student at the Science High School, mother and father both have bachelor's degrees, mother is a nurse, and dad is a biologist, scored in the 99.89th percentile)

"I think that brain drain really slows down Turkey's development and costs our country a lot. I think the main reason that we're dealing with this situation is the lack of appreciation for highly qualified specialists and workers in our country; they aren't valued nearly enough." (S38, student at the Science High School, mother and father both have postgraduate degrees and both work as physicians, scored in the 99.93rd percentile)

"I feel comfortable calling it a negative development. It would be helpful both for individuals leaving and for the country itself if those who decided to leave came back immediately after receiving their training or education. I don't think it is right for people to only think about their own interests and completely ignore all the resources their country has expended helping them grow and mature. They should think about how they can best serve their country; being comfortable should be the last thing on their minds." (S21, student at the Science High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a civil servant, scored in the 99.92nd percentile)

It is once again evident from the statements above those ideas regarding the importance of serving one's country and working for the public good instead of self-interest were key factors influencing negative perceptions of brain drain; these students clearly valued the interests of the majority over their own wants. However, it is also evident that some of these students are in a quandary; the tension between the desire to develop oneself and achieve great things individually and the desire to remain connected to their own country sometimes leads them to look at the phenomenon of brain drain from a reductive perspective. Tension and uncertainty are both clearly evident in statements from two students:

"Brain drain, in general, occurs because of poor conditions. I think it's positive for the individual but negative for Turkey's development. The individual will have improved their life but done nothing to improve Turkey." (S109, a student at an Anatolian High School, mother is a high school graduate, father is an elementary school graduate, mother is a homemaker, father is a cook, scored in the 96th percentile)

"I think brain drain is bad for the country but good for the individual who goes. People who go want to be in a place where they can best develop themselves. It's pretty hard to do that in Turkey." (S111, student at an Anatolian High School, mother is an elementary school graduate, father is a middle school graduate, the mother is a homemaker, the father is a carpenter, scored in the 97th percentile)

Another student explained the situation with a simile:

"It's like if a soccer team had a talented player work up through the ranks of their farm teams and then, without actually playing him or giving him the chance to play and develop on the actual team, sent him to another team altogether. It's a complete disaster for this country." (S90, a student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a civil servant, scored in the 96th percentile)

As stated previously, the rationale that lies behind the negative perceptions of brain drain are varied; one of the most important is the idea that people who emigrate from Turkey will never return, and even if they do, they would never be able to secure the prestige and the earnings they became accustomed to abroad. The idea that people who have developed themselves and made contributions to studies, research, and projects in the country of destination will face numerous bureaucratic and political obstacles in Turkey and be sidelined, bypassed, or eliminated from consideration for specialist jobs altogether, no matter how solid their credentials, is often used to rationalize brain drain.

"There are positive and negative aspects of the brain drain. It's logical to go abroad and work, they are underappreciated here, the infrastructure is inadequate, and they don't have a lot of opportunities. That being said, it's really important for them to come back and create the same type of opportunities in Turkey after they do all their work. It's hard to blame them though because no one appreciates the value of what they do here." (S28, a student at the Science High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a shopkeeper, scored in the 99.96th percentile)

Just as there are factors which shape academically high-achieving students' perceptions of brain drain either positively or negatively, there are also many reasons which underlie the emergence of brain drain from Turkey to developed countries and play a catalytic role in its continuation. Figure 2 shows a breakdown of the components of students' positive *and* negative views regarding brain drain.

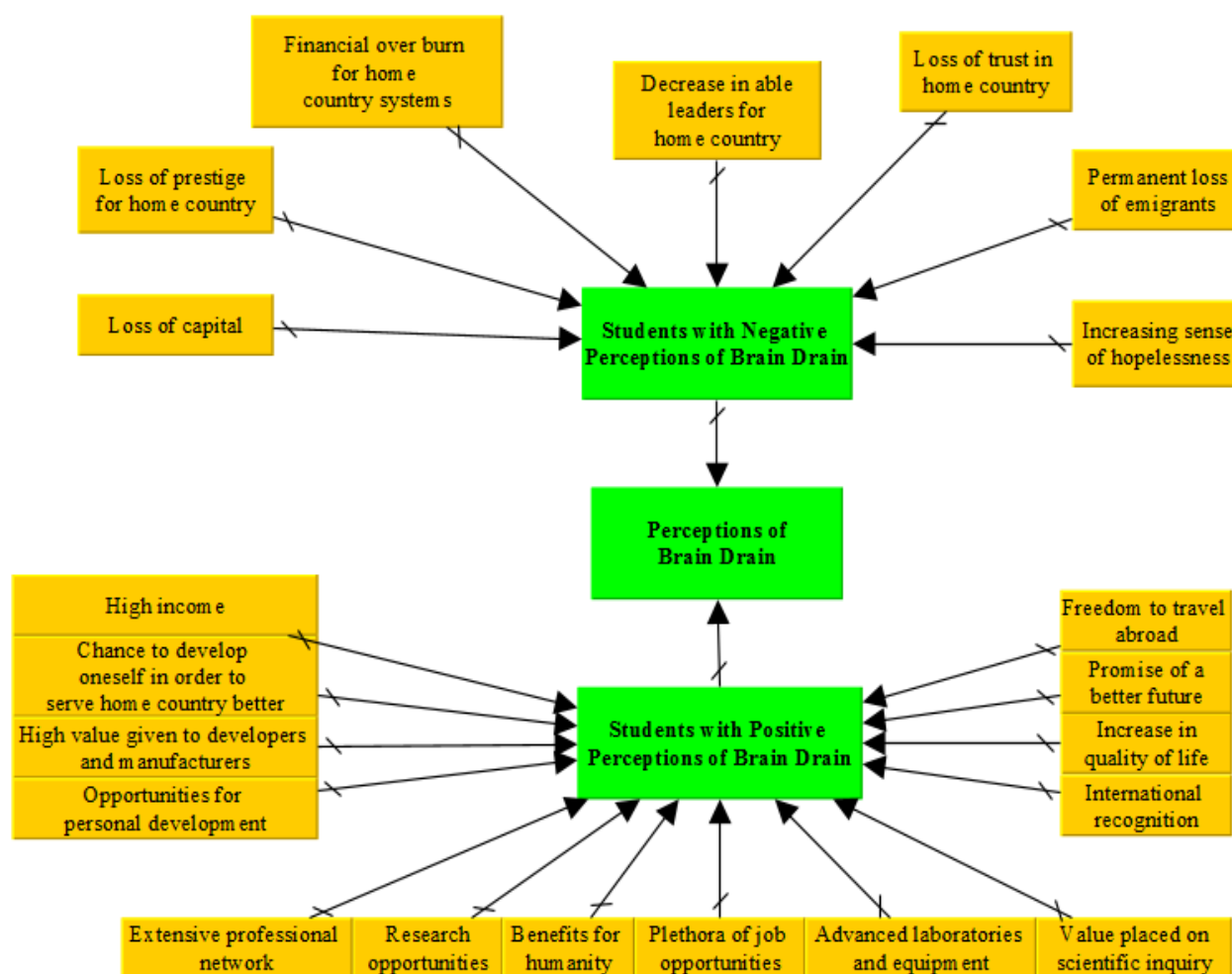


Figure 2: Components of Students' Positive and Negative Views and Perceptions of Brain Drain

Causes of Brain Drain

The views of the students who participated in this study regarding the reasons that played a catalytic role in the emergence and continued prevalence of brain drain, both in terms of those who have already emigrated from Turkey and those who intend to do so, have been collected under the topic heading *Causes of Brain Drain*, shown below in Table 4.

Table 4: Categories and Code-words related to topic *Causes of Brain Drain*

Topic	Categories	Code-words	<i>f</i>
Causes of Brain Drain	Economic Factors	Lack of opportunity, limited job market, unemployment, working conditions, desire to earn more	108
	Bureaucratic & Administrative Factors	Lack of support, unfair decisions and inequitable policies, widespread nepotism, feelings of worthlessness, use non-merit-based factors in hiring, discrimination	81
	Educational Factors	Low quality of education	32
	Scientific Factors	Little to no value placed on research	20
	Political Factors	Various type of political pressure and restrictions, lack of intellectual freedom/freedom of speech	8

The views of these students indicate that there are five main factors or causes which have played a catalytic role in the emergence and continued prevalence of brain drain in Turkey: economic reasons, bureaucratic/administrative reasons, educational reasons, scientific reasons, and political reasons. The economic factors include lack of job opportunities, limited job market, widespread, chronic unemployment, gulf between actual working conditions and worker expectations, and the desire to earn more and attain a higher standard of living.

The fact that economic concerns topped the list as the dominant factor also sheds light, albeit indirectly, on students' trepidation regarding their future. Concerns about not being able to procure a job with working conditions that meet their expectations despite having had a highly successful academic career lead them to view brain drain as a legitimate and justifiable option. The modern social dynamics of the economy and the ways in which it shapes lives also affects views on brain drain. Some striking remarks from students regarding this situation can be found below:

"Inflation, unemployment, nepotism, and inequity are just a few of the major problems that Turkey has right now. I think the main cause [of brain drain] is the fact that people know they won't be rewarded properly for the work they do in Turkey, so they decide to leave and go to a place where they think they will be rewarded."(S153, student at an Anatolian High School, mother has a bachelor's degree, father is a high school graduate, mother is a pharmacist, father is a retired soldier, scored in the 95th percentile)

"The unemployment rate in Turkey is really high and many unemployed people are college graduates. If someone buckles down and works hard, sacrificing a large portion of their youth and social life, and then can't even find a job after all those years, of course they're going to leave. I also think that people who are successful in their field are not supported in Turkey, so they go to places where they are supported and where their degree means something."(S130, student at an Anatolian High School, mother and father are high school graduates, mother is a homemaker, and father is a shopkeeper, scored in the 96th percentile)

The increasing number of highly educated yet unemployed young professionals in Turkey has amplified academically successful students' concerns, and they have started to feel the effects of these concerns despite having years of study ahead of them. Some societal issues which spring from economic indicators (for example, social prestige and the desire to attain high social status) suggest that young, highly educated professionals take these economic factors seriously as well. One of the factors connected to the economy that triggers emigration from Turkey to other countries shows up frequently in different students' comments: the unequal distribution of wealth/income inequality, which conflicts with students' hope for a higher standard of living in the future.

Another factor often mentioned alongside economic factors are the administrative and bureaucratic obstacles encountered in Turkey on both a micro and macro scale. The root causes of these obstacles are thought to include the lack of support given to qualified specialists and workers by all levels of management and relevant decision-making authorities, unfair decisions and inequitable policies, widespread nepotism, feelings of worthlessness, use of non-merit-based factors in hiring, and discrimination. Some students' statements support this view of administrative obstacles:

"The major factor behind the brain drain in Turkey is the state's lack of support, assistance, and aid for both people and research projects. Another reason is that people in some important occupations don't get the respect they deserve." (S24, a student at the Science High School, mother has a postgraduate degree, the father has a bachelor's degree, the mother is an academician, father is a bank employee, scored in the 99.95th percentile)

"Deterioration in the standard of living in Turkey over the years as a result of poor public planning and policy, rampant inequity and nepotism in the hiring process, even for jobs with average wages. Not providing enough opportunities for talented people and the fact that our country's future isn't exactly rosy – all of those are the reasons behind brain drain."(S144, student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a factory worker, and father is a civil servant, scored in the 96th percentile)

"Inequity, rampant nepotism in the hiring process, an outdated, reductive management model that doesn't take personal differences into account, unemployment – I could go on and on. I'm so sick of this system that tries to fit everyone into the same mold. I think this county needs good people who can think for themselves, not unhappy people who have all been raised to think and act the exact same way by the system."(S98, a student at an

Anatolian High School, mother is a high school graduate, father has a bachelor's degree, mother is a homemaker, father is a civil servant, scored in the 95th percentile)

The blatant disregard for using and implementing merit-based hiring practices, decision-making processes, and management systems shown by managers who have a direct impact on many people's lives has led to a serious loss of trust in both institutions as a whole and management in particular. In time, loss of trust in institutions paves the way for loss of trust in the country on a macro level and can also lead to severance in the emotional bonds that link people to their country. From this, we can ascertain that just practices and equitable administrative policies are among the most important factors which bind individuals to their country.

Other important factors that students touched on in their responses to brain drain were the structural problems of the Turkish education system as well as issues related to the quality of education and course content. The system uses standardized testing to weed out and eliminate students from consideration for certain schools and departments, and the widespread use of these tests at all levels of primary, secondary, and tertiary education, coupled with the fact that the methods and procedures regarding elimination are constantly shifting, creates a feeling of unrest and dissatisfaction among the students. An additional indication of Turkey's academic opacity and abstruseness is the fact that new procedures are adopted within an extremely short amount of time and without having had the chance to determine their positives and negatives. This tendency reinforces the perception that people have of a country which has not determined a clear course of action for its education system. People who plan their futures mainly around the education they receive will, as a matter of course, lose their faith in the country's education system and educational policies after being confronted time and time again with opacity and structural obstacles. One other concern of note is the tendency of academically successful students to rationalize and justify brain drain when the policies of and education provided by institutes of higher education do not match up with their expectations for their future. Some student views which express this concern can be found below:

"Education in Turkey gets less rigorous by the day and that pushes people to look for educational options abroad. Then the people who emigrate don't want to return because of the conditions [here], and you get brain drain."(S118, student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a bank employee, and father is a civil servant, scored in the 97th percentile)

"Instead of being allowed to find themselves and discover what they love to do, people in Turkey are treated practically like racehorses. The curriculum changes every year, the standardized tests constantly change, it wears people out. I'm getting tired just talking about it."(S120, student at an Anatolian High School, mother and father both have bachelor's degrees, mother is a homemaker, and father is a civil servant, scored in the 96th percentile)

"The broken education system in Turkey causes brain drain. People aren't able to distinguish themselves in this system. They don't allocate time or money to education. There's no way to measure how successful people are with this ridiculous system. The [standardized] testing system constantly changes and we can't keep up with it." (S88, student at an Anatolian High School, mother has a bachelor's degree, father is a high school graduate, mother is a factory worker, father is a shopkeeper, scored in the 97th percentile)

One of the factors that strengthen the bonds between people and their country and make people trust their country is a high-quality, well-structured education system that allows citizens to plan for all possibilities in their future as they pass through it. Students who participated in the study made multiple references to the idea that their hopelessness regarding the future and the education they were receiving served as a rationale for themselves and other successful people to emigrate from Turkey. Another factor is scientific research, an endeavor which is inextricably bound up with education. The paucity of scientific research in Turkey and the lack of appreciation shown for it is, according to the students, an important factor that causes successful individuals to emigrate from Turkey. One student had this to say on the subject: *The working environment in universities is not adequate or sufficient and because they don't allow more research to be done, people leave* (S9, a student at the Science High School, mother and father both have bachelor's degrees, mother and father are both teachers, scored in the 99.97th percentile). A different student voiced similar views: *Scientists in Turkey can't find a place to develop themselves and no one cares about the research, which obviously leads to brain drain* (S104, student at an Anatolian high school, mother is an elementary school graduate, father has a bachelor's degree, mother is a homemaker, father is a civil servant, scored in the 97th percentile). These statements show that some students think people who are working on scientific research are not held in high enough regard by university administrators and the public in general.

Another factor thought to play a significant role in the continued prevalence of brain drain is, according to the students, political views. Various types of political pressure and restrictions on certain ideas, lack of intellectual freedom and freedom of speech, meddling and interference in people's lifestyles, and homogenization of thought and opinion were all sub-components of this topic. Discontent with the ruling political consensus and its representatives combined with the aforementioned factors makes brain drain, according to some students, inevitable.

"Brain drain happens when successful people are not given the appreciation they deserve and when they can't live comfortably in our country, when there is no intellectual freedom or freedom of speech, and when you can't write or work freely. Outside of this, social and religious pressure and discrimination that people are subjected to as a result of their views and beliefs are aggravating factors as well."(S69, a student at an Anatolian High School, mother is a high school graduate, father has a bachelor's degree, the mother is a homemaker, the father is a civil servant, scored in the 96th percentile)

A visualization of the various situations which lead to brain drain is given below in Figure 3.

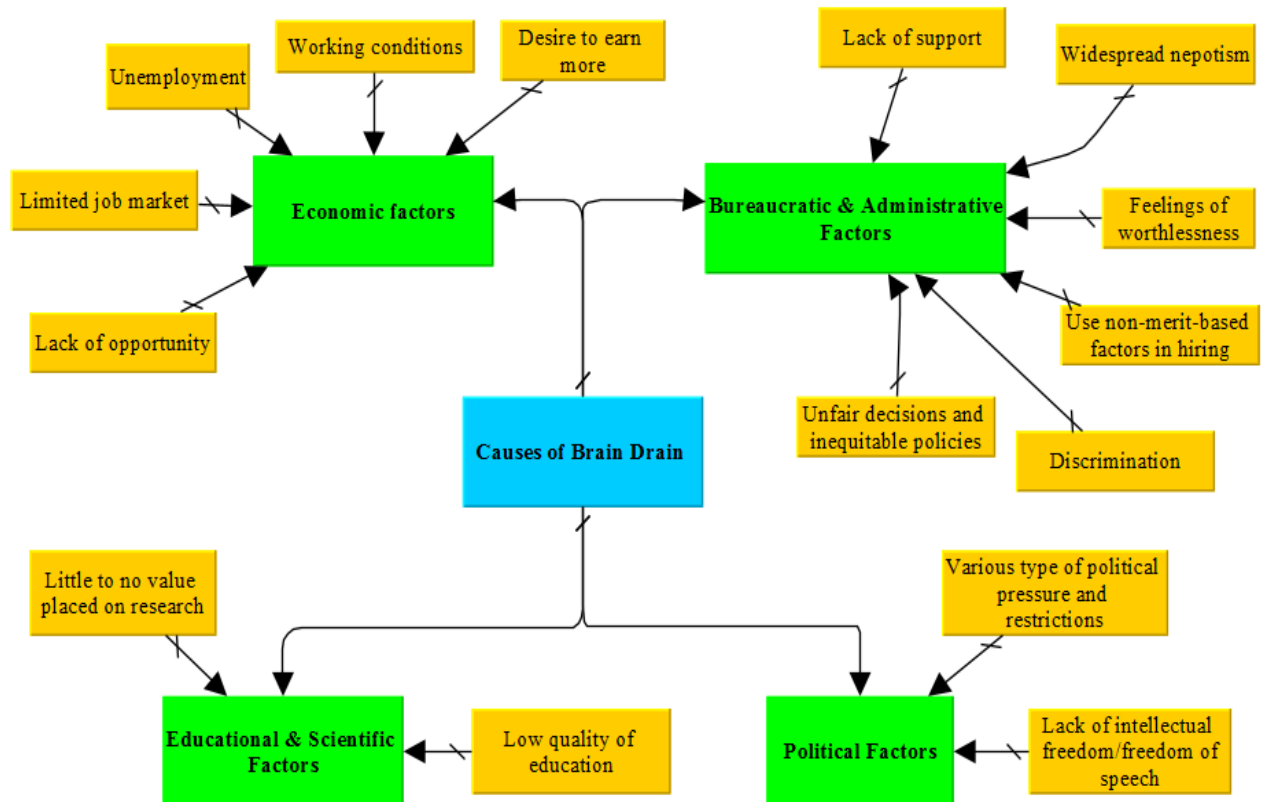


Figure 3: Students' Views of the Underlying Causes of Brain Drain in Turkey

Intent to Emigrate

Academically high-achieving students' positive and negative perceptions of the brain drain phenomenon as well as their views regarding the underlying causes of brain drain in Turkey were revealed in the preceding paragraphs. As a supplement, another topic entitled *Intent to Emigrate* was created in order to see exactly how likely students were to emigrate from Turkey to another country and which factors influenced their likelihood to emigrate.

This topic is explored fully in the table below.

Table 5: Categories and Code-words related to topic *Intent to Emigrate*

Topic	Categories	Code-words	f
Intent to Emigrate	I would leave and never come back if I had the opportunity	Poor working conditions in Turkey, quality of education abroad, exciting opportunities offered abroad, standard of living, respectability and being held in high esteem, myriad opportunities, bureaucratic efficiency	168
	I would leave and then return if I had the opportunity	Desire to serve country with newly acquired knowledge	20
	I wouldn't go even if I had the opportunity	Strong sense of patriotism	6

The vast majorities of academically high achieving students intend to immigrate to other countries as soon as they get the chance and never return to Turkey. The main factors that contribute to this trend are the poor working conditions in Turkey, the quality of education and exciting opportunities offered abroad, the higher standard of living that is obtainable, and the fact that certain occupations held in high esteem. Successful students in Turkey tend to view this situation as a way to gain valuable experience or to quickly improve their lot in life. Some students in this group were very vocal about the individual benefits of emigration from Turkey and made comments to this effect:

"Of course I'll go. Instead of being stuck here like all the other unemployed college graduates or people who can't find a job in their line of work, I'll go abroad, hone my skills, and work at a proper workplace doing the job I want to do." (S1, student at the Science High School, mother and father both have postgraduate degrees, mother is a veterinarian, and father is an academician, scored in the 99.96th percentile)

"Yes, I'll go when I get the chance because the research conducted abroad is given a lot more support, and it's easier to do and of a higher caliber as well. I'd also prefer to study abroad because I think the education systems there are more effective than the system in Turkey." (S24, a student at the Science High School, mother has a postgraduate degree, father has a bachelor's degree, the mother is an academician, the father is a bank employee, scored in the 99.95th percentile)

"Yes, I'd like to go. I believe that scientific research should be universal; I don't think it really matters which country it's done in. If I found working conditions better than the ones in Turkey then I'd definitely go." (S18, a student at the Science High School, mother has a bachelor's degree, father has a postgraduate degree, the mother is a teacher, the father is a physician, scored in the 99.99th percentile)

"Yeah, I've definitely thought about it. In fact, I've even started to prepare for the eventuality. After I finish university here, I want to go abroad and develop my academic career in a foreign country. I think that I'll be able to make more money, go further in my field, and gain a lot more experience there." (S128, a student at an Anatolian High School, mother and father are both high school graduates, the mother is a cook, the father is a technician, scored in the 97th percentile)

The various reasons that these successful students put forth as rationale to explain their intent to emigrate can absolutely be interpreted as Turkey transferring or even losing qualified human capital to foreign countries. The quotes above show that some of the participants in the study did not look at scientific research as a national or domestic endeavor but rather as a universal one, which led to them believing that the country in which the work is done is not all that important. However, some students believed that working on acclaimed, important research and projects abroad should be seen as a source of pride for Turkish citizens and Turkey. One student's views on this subject show that, although they were not excited about the prospect of studying and working abroad, these ideas were instrumental in influencing their intent to emigrate from Turkey: *I'd love to be able to say that I want to work in my own country but so long as we remain undervalued and unappreciated here that's just not possible* (S160, student at an Anatolian High School, mother and father both are middle school graduates, mother is a homemaker, father is a laborer, scored in the 97th percentile)

Just as there are political, economic, sociological, and pedagogical factors (among others) which influence high-achieving students' likelihood to emigrate, there are also enticing opportunities offered in developed countries

which influence their decisions as well. Developed countries pick and choose the most highly qualified people and make use of this qualified human capital in order to generate and produce a wide variety of scientific innovations, projects, patents, and technological products; this practice enables them to solidify their international reputation and gain hard and soft power. Some students, however, after developing themselves and acquiring knowledge, skills, and expertise in developed countries, intend to return to Turkey and put their knowledge and acquired experience to good use there. These students have a very strong sense of patriotism; they believe that brain drain (more broadly, emigration from Turkey) must, in the long run, benefit the country and not the individual. Also, they desire to contribute to the betterment of the entire world with their knowledge and experience. Some students' opinions on this subject can be found below:

I definitely want to go abroad to continue my education when I get the chance. Of course, I would only do it on the condition that I return to Turkey. If all of us go abroad and never return, we can't ever expect the situation in Turkey in change." (S100, a student at an Anatolian high school, mother and father both have bachelor's degrees, mother is a teacher, and father is a soldier, scored in the 97th percentile)

"I want to [go abroad] but I also want to help my country. It's very important for me to develop individually you should only do these types of things if it will benefit the world and humanity in general. It's important to make the world a better place. If I do anything, I want it to be beneficial first to my country and then to the world." (S81, a student at an Anatolian high school, mother and father are both high school graduates, mother is a homemaker, father is a civil servant, scored in the 97th percentile)

Although they were in the minority, a number of students stated that they had no intention of ever emigrating from Turkey, even if they got the chance. For these students, staying in Turkey and working for the good of their own country, no matter what, was the right course of action. One student's statement corroborates this view: *No, I don't want to go abroad because I want to contribute to my country. I want to be recognized as a leader by my people* (S37, student at the Science High School, mother and father are both high school graduates, mother is a homemaker, father is a shopkeeper, scored in the 99.95th percentile). Another student expressed similar ideas: *I wouldn't want to go because I love my country, I want my work to benefit my country* (S102, student at an Anatolian High School, mother and father are both high school graduates, mother is a homemaker, father is a civil servant, scored in the 98th percentile). Yet another student had this to say:

"No, I wouldn't want to go because if I do, I'll be contributing socially and economically to that country by working and researching there. I'd rather stay in my own country and work on scientific research with limited resources to help out my own people." (S131, a student at an Anatolian high school, mother is a middle school graduate, father is a high school graduate, mother is a homemaker, the father is a laborer, scored in the 97th percentile)

It is evident that there is a direct correlation between the positive perceptions of brain drain and potential emigration from Turkey and the more favorable conditions found in developed countries for the work they intend to perform and carry out.

Discussion, Conclusion, and Recommendations

The phenomenon of international migration is a social and political issue that many countries are currently being forced to deal with, and brain drain occupies a distinct place in the conception of both emigration and immigration (Günay, Atılğan, & Serin, 2017). Thusly, countries that have attracted and benefitted from the contributions of qualified human capital are in a more advantageous position relative to other countries (Koçak and Terzi, 2012). Brain drain is a phenomenon that puts undeveloped and/or developing countries at a disadvantage while it turns developed countries into a mecca of immigration for highly qualified workers. It is evident that there are many factors that affect the perceptions of students who view brain drain in a positive light. These factors include individual values and their vested interest in their own career development as well as their intention to contribute to their own country with the money and knowledge acquired in developed countries. Students who view brain drain as an extremely unfavorable phenomenon believe that it causes the home country to lose a serious amount of economic and human capital, damages the country's reputation, and undermines the bond between the country and its citizens who decided to stay; they also believe that it intensifies feelings of hopelessness in those same citizens.

Economic, social, political, administrative, legal, educational, and scientific factors play a major role in pushing high-achieving students to consider immigrating to other countries. As economic factors play a determining role in this process, the fact that Turkey fails to properly manage and employ its own qualified and highly-educated human capital make the people who comprise this human capital more inclined to immigrate. A study by

Ermağan (2018) indicates that 59% of highly educated students intend to emigrate from Turkey; this high percentage is attributed to Turkey's inability to provide industry and sector-specific opportunities to workers and specialists.

Bakırtaş & Kandemir (2010) have laid out the main reasons that highly educated people gravitate toward emigration: the pressure of unemployment, limited funds allocated for R&D, a low standard of living, and political instability. Pazarcık (2010) states that factors such as academic freedom in universities, the allocation of significant research funds, and social prestige play a major role in pushing Turkish academics who work at prestigious universities in the U.S. to immigrate and also to delay or abandon altogether plans to return to Turkey. İçduygu, Erder, and Gençkaya (2014) note that the majority of the roughly 250,000 Turkish immigrants found in both the U.S. and Canada is made up of people who fall under the umbrella of human capital flight and represents a significant human capital loss for Turkey. Field research interviews conducted by Krieger and Maitre (2006) in several countries indicate that Turkey ranks first in terms of having the highest number of highly educated people/workers who intend to immigrate elsewhere.

Countries that lose their human capital due to brain drain experience the far-reaching negative repercussions of this situation in a number of different areas. Capuano and Marfouk (2013), for instance, state that economic indicators in African countries which experience brain drain are not improving; therefore, although investment agencies seek various ways to inspire confidence in their country and give recommendations to investors, they are unable to attract said investors to their countries precisely *because* of brain drain. Mlambo & Adetiba (2019) and Chimboza (2012) have also called attention to similar findings which indicate that the exodus of medical personnel, teachers, professors, and engineers from North African countries has severely damaged these countries' socio-economic development. In addition, the government's inability to develop effective policies to prevent brain drain has accelerated this process. Comparative analyses performed by Docquier (2014) and Adeyemi, Joel, Ebenezer, & Attah (2018) highlight the inverse correlation between economic development and brain drain and emphasize that the number of people who emigrate from their native country decreases as countries develop economically. As a result, countries that lose both their economic and human capital are considered "losers", as stated in reports from Beine, Docquier, & Rapoport (2008).

Accordingly, this situation puts the developed countries that attract qualified workers in a more advantageous position, economically and otherwise. For example, in the United States, the country which receives the most qualified human capital of any country in the world, a large number of the engineers working in Silicon Valley are foreign nationals; a sizeable majority of these nationals are from India. These privileged immigrants, who constitute a large percentage of technology manufacturers, contribute billions of dollars to the US economy and create lots of job opportunities in the region (Alarcon, 1999). Between 1973 and 1999, the number of doctoral-level scientists and engineers who immigrated to the United States doubled to over 200,000 people (Saravia and Miranda, 2004). Docquier and Rapoport (2011) note that globalization and collective diaspora activities are some of the instigating factors which influence brain drain.

Human capital flight from Turkey is not only a present-day concern. During the early Republican era, Turkey fast-tracked a program which sent Turkish students to developed countries so they could receive quality education, but the fact that students who were sent abroad didn't return in the following years turned this situation into a problem for the country. For instance, a study done by Dalgıç (1977) suggested that brain drain has been a serious social problem in Turkey for over 50 years and that engineers, physicians (medical doctors), and scientists constituted the large majority of immigrants between 1962 and 1966. Turkey's inability to find an effective and permanent solution to this problem must be considered a loss of domestic capital as Turkish systems produced these qualified workers and specialists and then subsequently lost them to other countries. The number of highly qualified and well-educated people who immigrated to OECD countries from Turkey has more than doubled between 1980 and 2010 (Acar, 2017).

Academically successful students list the political atmosphere of the country and concerns they harbor regarding conflicts among different segments of society as some of the political factors underlying brain drain. Freedom to think and express oneself as one pleases, freedom from oppression and being blacklisted, shelter from the effects of discrimination, and the ability to express one's thoughts without fear or hesitation are among the expectations today's young generation have from a democratic country. When these expectations remain, to a large degree, unfulfilled, the emotional bond between people and their country starts to wither and, accordingly, this situation leads people to look for new opportunities elsewhere. Separate studies from Dodani and LaPorte (2005) and Elveren & Toksöz (2018) support these findings.

If Turkey manages to reverse the brain drain by providing exclusive opportunities for its citizens who have contributed to a variety of important scientific studies in developed countries, it will gain important competitive advantages both economically and pedagogically. The concept of reverse brain drain will also make high-achieving students, who lean towards emigration and intend to move to developed countries, have more confidence in their own country. New policies must also be developed along with this reversal in order to attract qualified workers from other countries and to turn Turkey into a mecca for scientific studies; if they are not, the fact that high-achieving students intend to move abroad and settle there permanently constitutes a serious strategic risk for Turkey. In order to be able to minimize this risk, it is essential to create a strong democratic climate based on the rule of law, support employees and manufacturers, and establish a system of management based on the principle of merit. It is possible to reverse high-achieving students' intent to emigrate and thereby contribute to the retardation of brain drain by improving the quality of education and implementing pedagogic policies that help increase their confidence in their own country. Turkey will face the risk of drifting away from its vision for the future unless it is able to develop effective policies to manage and retain qualified human capital. Therefore, founding training and research centers, conducting scientific studies, and allocating a substantial amount of funds for research and development (R&D) will strengthen the bond between qualified workers and their own country. However, this study has several limitations; first, the sample of the study is limited to three renowned secondary schools. Another significant limitation is that data was collected solely from students; further field studies should focus on broadening the perspective of the study by collecting data related to this phenomenon from parents and teachers as well.

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The Predictive Role of Reasons for Choosing the Teaching Profession as a Career on the Educational Beliefs of Teachers

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To cite this article:

Ayçiçek, B. & Toraman, Ç. (2020). The predictive role of reasons for choosing the teaching profession as a career on the educational beliefs of teachers. *International Journal of Contemporary Educational Research*, 7 (1), 300-310. DOI: <https://doi.org/10.33200/ijcer.713412>

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The Predictive Role of Reasons for Choosing the Teaching Profession as a Career on the Educational Beliefs of Teachers

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Abstract

In this study it was aimed to determine the predictive role of reasons for choosing teaching profession as a career on educational beliefs of teachers from different branches working at the secondary school level. In this respect, the study was designed as a relational survey study. In the study, data were obtained using the “Choosing Teaching Profession as a Career Scale” and the “Educational Belief Scale”. The participants of the study were 414 teachers working in different secondary schools in Ankara, Hatay, Elazığ and Çanakkale provinces. Convenience sampling method was used to determine the sample of the study. The correlation analysis was conducted between the scores obtained from the sub-dimensions of the “choosing teaching profession as a career scale” and the sub-dimensions of the “educational belief scale”. Multivariate regression analysis was conducted using STATA packet program to determine the predictive role of the scores obtained from the sub-dimensions of “choosing teaching profession as a career scale” on the scores obtained from the sub-dimensions of the “educational belief scale”. In conclusion, significant relationships were obtained between choosing the teaching profession due to altruistic-intrinsic reasons, extrinsic reasons and influence of others and educational beliefs of the teachers.

Key words: Choosing teaching profession as a career, Educational belief, Educational philosophy, Teachers.

Introduction

Profession has the power to determine individuals’ personalities, lifestyles, social status, earnings, and social relationships and is an essential factor to sustain life (Jones & Larke, 2005). The characteristics of a profession have great influence on individuals’ living standards, future plans (Yanikkerem, Altınparmak & Karadeniz, 2004); income levels, the structure of the work they will do, and accordingly their characters and human relations (Kazi & Akhlaq, 2017). Therefore, it can be said that the profession choice is regarded as the most important turning point in an individual’s life, and it serves as the most important and distinctive aspect of life. As a result, the profession choice has a lasting impact on individuals.

The profession choice is defined as the selection of a career according to the perceived ability. In this process, decisions of the individuals affect an individual’s life-style more than any other choices he/she makes (Baloch & Shah, 2014). Özpancar, Aydın and Akansel (2008) defined the choice of profession as the orientation of the individual to the field that includes the tasks which are most suitable and the best alternative for him/her, and which will provide the highest level of satisfaction for the individual. According to Barutçigil (2004), the choice of profession includes all efforts of individuals to evaluate and develop career opportunities according to their skills, abilities, experiences and interests.

Although all professions have different characteristics and value, teaching profession has always been accepted as an important factor determining the development level of the countries. When considering the rapid changes in the world, global competition and cooperation have increased and education has become the main factor in the development and progress of societies (Pheeraphan, 2013). Within this context, raising qualified individuals has become essential for the existence of societies and countries (Güleçen, Cüro & Semerci, 2008). Teachers are indispensable part of the education system. No matter how well the instructional and educational objectives are

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established, it is not possible to achieve the desired outcomes in the education system without teachers (Sünbül, 2001). Similarly, Özbek (2007) stated that teachers are one of the most important factors in teaching process in terms of achieving the desired educational purposes. On the other hand, they help prepare the next generation by teaching the children (Dündar, 2014). As a result, raising qualified teachers are required in terms of some aspects. For example, attributes of highly qualified teachers such as verbal ability and content knowledge can lead to student achievement and qualified learning environments.

The reasons to choose the teaching profession is generally divided into three groups as extrinsic, intrinsic and altruistic motives (Bergmark, Lundström, Manderstedt & Palo, 2018). Extrinsic motives include the aspects such as working conditions, salary or status. Intrinsic motives encompass the inherent aspects of the profession such as passion for teaching, subject knowledge and expertise (Azman, 2013). On the other hand, altruistic motives require considering teaching profession as an important and valuable profession and give importance to children's development and society's development (Watt et al., 2012). Accordingly, Sinclair (2008) claimed that the motives to choose the teaching profession can be described as a mixture of these three categories. On the other hand, Struyven, Jacobs and Dochy (2013) emphasized that there should be a balance between the motives for teaching profession and altruistic and intrinsic motives should be considered as the main motivators, and extrinsic motives should be considered as complementary.

Pedagogical motives for choosing the teaching profession have been regarded as an important indicator of teacher potential (Löfström et al. 2010). It is concluded that school improvement efforts are mostly related to the interest of teachers. When the teachers have higher degree of motivation, their performance will be high (Khan, 2014). In addition, Brumback (1986) found that the performance of the teachers with high job satisfaction was significantly higher than the teachers with lower job satisfaction. On the other hand, it is a common view that when teachers are more effective, students learn better and there is an increase in the growth of student learning (Burroughs et al., 2019). Therefore, it can be concluded that the motives of the teachers for choosing teaching profession influence their teaching performance and teaching style. Within this context, educational beliefs of teachers are considered as one of the factors which can be related to the teaching profession choice of the teacher.

Educational beliefs are one of the important variables that affect teachers to implement programs functionally, to fulfill their roles and responsibilities and to display classroom behaviors that improve learning and thinking (Tunca, Alkın-Şahin & Oğuz, 2015). In addition to the teachers' knowledge and skills related to the teaching profession, their attitudes towards education, their beliefs and the steps to be taken in this direction significantly affect the quality of education at every stage. Educational beliefs express the perspective and the philosophy of an individual about teaching and learning (Haney, Lumpe & Czerniak, 2003). It is stated that the educational beliefs of an individual are determined mainly by the educational philosophy (Pajares, 1992). In this case, educational beliefs of teacher are shaped according to the educational philosophy adopted and reflected on the teacher's behavior in the classroom. In other words, the education philosophy of a teacher, that is, what beliefs he/she has is also an indication of the teaching style of him/her (Oğuz, Altinkurt, Yılmaz & Hatipoğlu 2014). The educational philosophies used to define educational beliefs are generally grouped as perennialism, essentialism, progressivism, re-constructionism and existentialism.

Firstly, perennialism is seen as the most inflexible, traditionalist and conservative among educational trends. It considers that the reality is the basic, core and universal character of the man. Therefore, education should be based on universally unchangeable values, facts and principles (Ornstein & Hunkins, 2009). According to essentialism, human minds are empty when they were born. Individuals learn all information later. Therefore, education system is based on the basic elements of human culture, skills, knowledge and event. Teachers must be expert in the subject area. Students are responsible for learning and have no knowledge and skills and are expected to memorize, do, and repeat without rejection (Ergün, 2012). As for progressivism, it focuses on the change and rejects constant and universal truths. Education is considered as a process in which all the experiences are constantly changing. Besides, individual differences are taken into consideration. As a result, students' interest and abilities must be considered (Demirel, 2007; Sönmez, 2002). In re-constructionism, problem-solving and trial-error are the core elements of learning. Classroom environment is democratic and punishment is thus avoided and the cultural differences are given importance (Demirel, 2007; Ergün, 2012). Lastly; regarding existentialism, knowledge is obtained through intuitions. The value of the information is determined personally. Therefore, students should have the freedom to choose the lesson they want and to leave the classes any time they want (Varış, 1994).

As seen, each educational philosophy has different principles, rules and the assumptions. Therefore, the educational beliefs of teachers will directly affect their choices in teaching process. When the literature is examined, it is seen that there are various studies (e.g., Dündar, 2014) on the reasons for choosing teaching profession as a career and their educational beliefs. However, it is determined that there are almost no researches examining the role of choosing teaching profession as a career in predicting the perspective, belief and philosophical orientation of teachers about education. Based on this data, this research is important and necessary to fill a gap in the literature. The purpose of the present study is to determine the predictive role of reasons to choose the teaching profession as a career on educational beliefs of teachers. It is thought that great contribution can be made to the literature by the obtained data and the findings can shed light to the future researchers. It is possible to state that philosophy of education adopted by teachers and reasons for choosing teaching profession occupy a great place in the formation of effective teaching and learning environments and to help preservice teachers guide their decision to choose teaching profession and increase their awareness level.

Method

In the present study the predictive role of the reasons for choosing teaching profession as a career on the educational beliefs of teachers from different branches working at secondary school level was investigated. In this respect, the study was designed as a relational survey study (Fraenkel, Wallen & Hyun, 2012). Relational survey model researches based on the interaction of variables also contribute to science by providing a perspective to possible prospective research. The selection of the method as descriptive-based relational comparison restricts the interpretation of a causal effect even if there are possible relationships and interactions among variables.

Data Collection Tools

In the study, data were obtained using the “Choosing Teaching Profession as a Career Scale” and the “Educational Belief Scale”. The “Choosing Teaching Profession as a Career Scale” was originally developed by Lai, Chan, Ko and So (2005) and adopted to Turkish language by Balyer and Özcan (2014). The adopted version of the scale consists of 20 items and three sub-dimensions. The first sub-dimension is altruistic-intrinsic reasons (items 1, 2, 3, 4, 5, 6, 7, 8 and 9) and the Cronbach alpha reliability score of this sub-dimension was obtained as 0.91. The second sub-dimension is called as extrinsic reasons (items 10, 11, 12, 13, 14, 15, 16 and 17) and the Cronbach alpha reliability score was obtained as 0.80 for this sub-dimension. The third sub-dimension is called as influence of others (items 18, 19, 20, 21 and 22) and the Cronbach alpha reliability score was obtained as 0.74 for this sub-dimension. The adaptation study was carried out using the data obtained from 220 student teachers, and the validity and reliability studies were carried out on this sample. CFA results were found as $\chi^2/sd=2,3$, GFI=0,90, AGFI=0,80, NFI=0,95, NNFI=0,95, CFI=0,92, RMR=0,10, RMSEA=0,08, SRMR=0,09. It was proved by Toraman (2019) that the “Choosing Teaching Profession as a Career Scale” adapted to Turkish by Balyer and Özcan (2014) was a valid and reliable instrument for secondary school teachers. As a result of confirmatory factor analysis conducted on 321 secondary school teachers, the fit indices were obtained as RMSEA=0.077, RMR=0.022, GFI=0.951, AGFI=0.904, NFI=0.911, IFI=0.918, CFI=0.956, $\chi^2 / sd=2.87$. The reliability coefficients were determined as 0.89 for the altruistic-intrinsic reasons sub-dimension, 0.77 for the extrinsic reasons sub-dimension, and 0.76 for the influence of others sub-dimension for the study on teachers sample. “Educational Belief Scale” was developed by Yilmaz, Altinkurt and Cokluk (2011). The scale determines the educational beliefs shaped by the educational philosophies of the teachers. The scale consists of 5 sub-scales and 40 items. The sub-dimensions of the scale are as; a) progressivism (items 1-13), b) existentialism (items 14-20), c) re-constructionism (items 21-27), d) perennialism (items 28-35) and e) essentialism (items 36-40).

Sample of the Study

The study was carried out with teachers from different branches working at various secondary school levels in Ankara, Hatay, Elazığ and Canakkale provinces. These provinces were determined with the aim of obtaining data by the researchers easily. In this respect, convenience sampling method was used to determine the sample of the study. In convenience sampling methods, some factors such as accessibility, geographical proximity, availability at a given time, or the willingness to participate are considered in determining the members of the target population (Dornyei, 2007). The distribution of the secondary school teachers in the sample according to certain variables is given in Table 1.

Table 1. Demographic information of the study sample

	Variable	N	%
Province of the Work	Ankara	239	57.7
	Hatay	62	15
	Elazig	62	15
	Canakkale	51	12.3
	Total	414	100
Gender	Female	279	67.4
	Male	135	32,6
	Total	414	100
Work Experience	1-5 Years	19	4.6
	6-10 Years	74	17.9
	11-15 Years	117	28.3
	16-20 Years	131	31.6
	21 Years and Above	73	17.6
	Total	414	100
Branch	Turkish	70	16.9
	Mathematics	60	14.5
	Science	65	15.7
	Social Sciences	48	11.6
	English	31	7.5
	Guidance	29	7.0
	Music	23	5.6
	Visual Arts	19	4.6
	Physical Training and Sports	27	6.5
	Technology and Design	15	3.6
	Information Technologies	10	2.4
	Religious Culture and Moral	17	4.1
	Total	414	100

As can be seen in the Table 1, the majority of the teachers participating in the study works in Ankara province. Ankara province has a high population density and a high number of teachers and schools. For this reason, most teachers were from this province. The majority of teachers are female. In Turkey, females choose the teaching profession more than the males. The majority of the teachers in the sample group have 11-20 years of work experience. The provinces where the study was conducted are among the developed and large provinces in Turkey. In Turkey, the newly graduated teachers start working in generally smaller and less developed provinces and as the work experience increases, they start working in big provinces. When considered in this context, it is possible to understand the role of work experience variable for the teachers in the sample. In terms of branch variable, teachers are mostly grouped in Turkish, mathematics and science branches. These are the branches that are more intense in the curriculum in Turkey and therefore the teachers of these branches are more employed in secondary schools. As a result, the higher number of the teachers from these branches is an expected result.

Procedure

The researchers conducted the study face to face with the secondary school teachers. Teachers were informed about the application in the teachers' room. It was stated that data to be obtained would be used only in a scientific research. Scales were applied to volunteer teachers in 10-15 minutes. Scales were collected by researchers and secured.

Data Analysis

In the study, it was examined whether there was missing value in the dataset. As a result, it was determined that there is no missing value. The predictive role of reasons for choosing teaching profession as a career on the

educational beliefs of teachers from different branches working at secondary school level was examined. Therefore, multivariate regression analysis was used. The total scores obtained from three sub-dimensions of the “choosing teaching profession as a career scale” were included as predictors. The scores obtained from five sub-dimensions of the “educational belief scale” were included as predicted variable. Multivariate regression analysis is a parametric analysis. In order to perform this analysis, the total scores of the five sub-dimensions of the “educational belief scale”, which is the predicted variable, is required to have a multivariate normal distribution. As a result of multivariate normal distribution test performed using STATA, it was determined that the data did not show a normal distribution ($p < .05$).

The normality tests are highly sensitive tests (Tabachnick & Fidell, 2013; p. 78-83). In addition, in many studies (especially in social sciences), measurements of dependent variables do not show normal distribution (Pallant, 2016). The Central Limit Theorem suggests that if the sample is large enough ($n=30+$), regardless of the distribution of the variables, the sampling distribution will show a normal distribution, and the violation of the normality assumption will not cause a major problem (Everitt & Howell, 2005, p. 249; Field, 2018; Pallant, 2016; Tabachnick & Fidell, 2013). In large samples, skewness does not deviate significantly from normal. Positive skewness disappears in sample sizes greater than 100, and negative skewness disappears in sample sizes greater than 200 (Tabachnick & Fidell, 2013; p. 78-83). Based on this information, it was found appropriate to apply multivariate normal distribution test.

In the current study, the Cronbach Alpha reliability coefficient of the “choosing teaching profession as a career scale” and its three subscales was found to be between 0.723 and 0.911. Also, the Cronbach Alpha reliability coefficient of the “educational belief scale” and its five subscales was found between 0.821 and 0.902.

The Pearson Product-Moment Correlation Coefficient was calculated between the scores received in both scales used in the study. Multivariate regression was used to test the following formulas within the predictive level of reasons for choosing teaching profession as a career on educational beliefs of teachers.

$$\begin{aligned}
 Y_{\text{Progressivism}} &= \beta_0 + \beta_{\text{Altruistic-intrinsic reason}} X_{\text{Altruistic-intrinsic reason}} + \beta_{\text{Extrinsic reason}} X_{\text{Extrinsic reason}} \\
 &\quad + \beta_{\text{Influence of others}} X_{\text{Influence of others}} \\
 Y_{\text{Re-constructionism}} &= \beta_0 + \beta_{\text{Altruistic-intrinsic reason}} X_{\text{Altruistic-intrinsic reason}} + \beta_{\text{Extrinsic reason}} X_{\text{Extrinsic reason}} \\
 &\quad + \beta_{\text{Influence of others}} X_{\text{Influence of others}} \\
 Y_{\text{Essentialism}} &= \beta_0 + \beta_{\text{Altruistic-intrinsic reason}} X_{\text{Altruistic-intrinsic reason}} + \beta_{\text{Extrinsic reason}} X_{\text{Extrinsic reason}} \\
 &\quad + \beta_{\text{Influence of others}} X_{\text{Influence of others}} \\
 Y_{\text{Existentialism}} &= \beta_0 + \beta_{\text{Altruistic-intrinsic reason}} X_{\text{Altruistic-intrinsic reason}} + \beta_{\text{Extrinsic reason}} X_{\text{Extrinsic reason}} \\
 &\quad + \beta_{\text{Influence of others}} X_{\text{Influence of others}} \\
 Y_{\text{Perennialism}} &= \beta_0 + \beta_{\text{Altruistic-intrinsic reason}} X_{\text{Altruistic-intrinsic reason}} + \beta_{\text{Extrinsic reason}} X_{\text{Extrinsic reason}} \\
 &\quad + \beta_{\text{Influence of others}} X_{\text{Influence of others}}
 \end{aligned}$$

In regression analysis, the reasons for choosing teaching profession were determined as predictor variables; educational beliefs are determined as explained variables. Multivariate regression analyzes the five formulas written above. In the multivariate regression analysis, autocorrelation and variance influence factor (VIF) were examined between predictor variables. Multivariate regression analysis was applied because the values were determined at the appropriate level.

Findings

In this section, findings obtained from the correlation analysis conducted between the scores obtained from the sub-dimensions of the “choosing teaching profession as a career scale” and the sub-dimensions of the “educational belief scale”; multivariate regression analysis conducted to determine the predictive role of the scores obtained from the sub-dimensions of “choosing teaching profession as a career” on the scores obtained from the sub-dimensions of the “educational belief scale” and estimations for the significant regression equations are presented.

The Relationship between Choosing Teaching Profession as a Career and Educational Beliefs of Teachers

The correlation analysis was conducted between the scores obtained from the sub-dimensions of the “choosing teaching profession as a career scale” and the sub-dimensions of the “educational belief scale”. The results are given in Table 2.

Table 2. Correlation analysis between choosing teaching profession as a career and educational beliefs

Variables	1	2	3	4	5	6	7	8
1. Altruistic-Intrinsic Reasons	1							
2. Extrinsic Reasons	-0.234**	1						
3. Influence of Others	0.027	0.436**	1					
4. Progressivism	-0.193**	0.608**	0.223**	1				
5. Existentialism	0.059	-0.039	0.015	-0.007	1			
6. Re-constructionism	0.850**	-0.234**	0.063	-0.195**	0.065	1		
7. Perennialism	0.009	0.098*	0.146**	0.009	0.146**	-0.018	1	
8. Essentialism	0.839**	-0.369**	-0.027	-0.250**	0.049	0.705**	-0.021	1

N=414, *p<.05, **p<.01

When the Table 2 is examined, it can be stated that there is a negative, low level and significant relationship ($r = -0.193$, $p < .05$); between choosing teaching profession as a career due to altruistic-intrinsic reasons and progressivism; a positive, high level and significant relationship ($r = 0.850$, $p < .05$) between choosing teaching profession as a career due to altruistic-intrinsic reasons and re-constructionism; and a positive, high level and significant relationship ($r = 0.839$, $p < .05$) between choosing teaching profession due to altruistic-intrinsic reasons and essentialism.

On the other hand, a positive, medium level and significant relationship ($r = 0.608$, $p < .05$) was obtained between choosing teaching profession as a career based on extrinsic reasons and progressivism. On the contrary, a negative, low level and significant relationship ($r = -0.234$, $p < .05$) was obtained between extrinsic reasons and re-constructionism. Similarly, a negative, medium level and significant relationship ($r = -0.369$, $p < .05$) was obtained between extrinsic reasons and essentialism. When the relationship between choosing teaching profession under the influence of others and the educational beliefs of teachers was examined, a positive, low level and significant relationship ($r = 0.146$, $p < .05$) was obtained only in terms of perennialism.

The Predictive Role of Choosing Teaching Profession as a Career on Educational Beliefs

The predictive role of the scores obtained from the sub-dimensions of “choosing teaching profession as a career scale” on the scores obtained from the sub-dimensions of the “educational belief scale” was examined. For this purpose, multivariate regression analysis was conducted using STATA packet program. The compatibility of the multivariate regression analysis is presented in Table 3.

Table 3. Regression model compatibility

Variables	N	R ²	F	p
Progressivism	414	0.374	81.668	0.000
Existentialism	414	0.005	0.682	0.563
Re-constructionism	414	0.729	366.976	0.000
Perennialism	414	0.023	3.211	0.023
Essentialism	414	0.736	380.255	0.000

The model was established to determine whether choosing teaching profession as a career due to altruistic-intrinsic reasons, extrinsic reasons and influence of others predicted the progressivism, re-constructionism and essentialism. As can be seen in Table 3, the established models are significant ($F = 81.668$, $F = 366.976$, $F = 380.255$, $p < .05$).

Regression models established for progressive, re-constructionist and essentialist output variables were determined to be appropriate. The variable with the highest explanatory rate was found as essentialism

($R^2=0.736$, %74), which was followed by re-constructionism ($R^2=0.729$, %73) and lastly progressivism ($R^2=0.374$, %37). On the other hand, existentialism and perennialism were found to be insignificant ($p>.05$). Estimations for the significant regression equations are given in Table 4.

Table 4. The predictive role of choosing teaching profession as a career on educational beliefs of teachers

		β	Standard Error	t	p
Progressivism	Constant	48.669	1.272	38.25	0.000
	Altruistic-intrinsic reasons	-0.033	0.028	-1.17	0.244
	Extrinsic reasons	0.383	0.028	13.66	0.000
	Influence of others	-0.047	0.046	-1.02	0.309
Re-constructionism	Constant	17.312	0.521	33.22	0.000
	Altruistic-intrinsic reasons	0.361	0.012	31.10	0.000
	Extrinsic reasons	-0.027	0.011	-2.38	0.018
	Influence of others	0.047	0.019	2.46	0.014
Essentialism	Constant	-10.998	1.240	-8.87	0.000
	Altruistic-intrinsic reasons	0.827	0.028	29.93	0.000
	Extrinsic reasons	-0.188	0.027	-6.86	0.000
	Influence of others	0.061	0.045	1.36	0.174
Existentialism	Constant	30.570	0.648	47.14	0.000
	Altruistic-intrinsic reasons	0.013	0.014	0.95	0.342
	Extrinsic reasons	-0.010	0.014	-0.72	0.469
	Influence of others	0.013	0.023	0.58	0.565
Perennialism	Constant	18.446	2.970	6.21	0.000
	Altruistic-intrinsic reasons	0.021	0.066	0.32	0.748
	Extrinsic reasons	0.055	0.065	0.84	0.399
	Influence of others	0.245	0.108	2.27	0.024

As can be seen in Table 4, the findings on the predictive role of choosing the teaching profession as a career on the educational beliefs of teachers, it was found that extrinsic reasons was a positive and significant predictor of progressivism ($p<.05$). On the other hand, the findings on the predictive role of choosing the teaching profession as a career on the educational beliefs, altruistic-intrinsic and influences of other variables were found to predict re-constructionism positively ($p<.05$). On the contrary, choosing the teaching profession as a career due to extrinsic reasons variable was found to be a negative and significant predictor of re-constructionism ($p<.05$). The findings on the predictive role of choosing the teaching profession as a career on the educational beliefs of teachers showed that altruistic-intrinsic reasons was a positive and significant predictor of essentialism ($p<.05$), and extrinsic reasons was a negative and significant predictor of essentialism ($p<.05$). The reason for choosing teaching profession by being influenced by others is a positive meaningful predictor of perennialism ($p<.05$).

Results and Discussion

In this study, it was aimed to determine the predictive role of reasons to choose the teaching profession as a career on the educational beliefs of teachers. In line with the first sub-problem of the study, the relationship between the reasons to choose the teaching profession as a career and educational beliefs of teachers was examined. As a result of correlation analysis, it was obtained that there was a negative, low level and significant relationship ($r= -0.193$, $p<.05$) between choosing the teaching profession as a career due to altruistic-intrinsic reasons and progressivism. On the other hand, there was a positive, high level and significant relationship ($r= 0.850$, $p<.05$) between altruistic-intrinsic reasons and re-constructionism; and positive, high level and significant relationship ($r= 0.839$, $p<.05$) between altruistic-intrinsic reasons and essentialism. Therefore, it can be concluded that when teachers choose teaching profession due to altruistic-intrinsic reasons, their beliefs in progressive education will decrease while their beliefs in re-constructionism and essentialism will increase significantly. In altruistic-intrinsic reasons, teachers choose the teaching profession since they consider teaching as a socially worthwhile and important job. On the other hand, altruistic-intrinsic reasons cover aspects such as the desire to work with children and to make a difference in their life (Spear, Gould & Lee, 2000). In addition, it is stated that people who choose teaching profession as a career based on altruistic reasons enjoy teaching something to others, feel happy since they believe that they will play a role in the future of students and enjoy spending time with students (Akıllı & Keskin, 2016). Similarly, the advocates of re-constructivism believe that they can change the individual, the society and make it better through education. On the other hand, the

advocates of essentialism consider education as a serious task; it has certain disciplines (geometry, mathematics, geography, etc.). In addition, in essentialism, hard work and discipline are at the core of teaching. Education is hard and challenging work. Therefore, it requires discipline and effort. Therefore, the teacher and his authority are at the center of education (Ergun, 2012). At this point, it can be argued that teachers who choose teaching profession based on altruistic-intrinsic reasons try to improve society and children, they want to have role in the society, and therefore their beliefs in re-constructionism and essentialism are higher. In the literature, in various studies (Chan, 1998; Johnston, McKeown & McEwen, 1999; Thornton, Bricheno & Reid, 2002; Saban, 2003; Ozsoy, Ozsoy, Ozkara & Memis, 2010; Topkaya & Uztosun, 2012) altruistic reasons such as helping students, making contribution to people/society and working with children were more influential in choosing the teaching profession. In their study Tunca, Şahin and Oğuz (2015) found medium level and positive significant correlation between teachers' professional values and educational beliefs. Polat (2013) obtained a positive and significant relationship between attitudes towards teaching profession and choosing the teaching profession.

On the other hand, a positive, medium level and significant relationship ($r = 0.608$, $p < .05$) was obtained between choosing the teaching profession based on extrinsic reasons and progressivism. Based on this finding, it can be argued that when teachers choose teaching profession due to factors such as level of pay, holidays, job security or status, their beliefs in progressivism will increase at medium level significantly. On the contrary, a negative, low level and significant relationship ($r = -0.234$, $p < .05$) was obtained between extrinsic reasons and re-constructionism. Therefore, it can be concluded that teachers who choose teaching profession due to extrinsic reasons will have negative attitudes towards re-constructionism, and when they choose the profession due to extrinsic reasons, their beliefs in re-constructionism will decrease at low level. In re-constructionism, the primary aim of the education is considered as reorganizing the society and creating a world community with common values. Moreover, the future of the society is focused on the educational programs (Yayla, 2009). As a result, it can be stated that when teachers choose this profession with extrinsic reasons, they do not focus on the problems in the society. Similarly, a negative, medium level and significant relationship ($r = -0.369$, $p < .05$) was obtained between extrinsic reasons and essentialism. Therefore, it can be said that when teachers choose the profession due to extrinsic reasons, their beliefs in essentialism will decrease. As a conclusion, the educational beliefs of the teachers who choose the profession due to altruistic-intrinsic reasons showed a reverse direction with the educational beliefs of teachers who choose this profession due to the extrinsic reasons. Extrinsic reasons cover the aspects such as money, status, etc. Therefore, it can be argued that progressive education has a pragmatist role for these teachers.

When the relationship between choosing the teaching profession under the influence of others and the educational beliefs of teachers was examined, a positive, low level and significant relationship ($r = 0.146$, $p < .05$) was obtained only in terms of perennialism educational philosophy. When teachers choose teaching profession under the influence of others, they are influenced by their teachers, parents, peers, relatives or friends (Bastick, 2000). On the other hand, in perennialism, students are taught through structures and drills (Bansal, 2015). Fives i Gill (2014) indicated that the choice of being a teacher under social influences such as family, friends, or others can lead to negative teaching styles. Similarly, Butler (2012) when teachers choose the teaching profession by social influences, they respond negatively to students' responses. Therefore, it can be concluded that when teachers choose teaching profession under the influence of others, they have more traditional and inflexible education philosophy.

On the other hand, it was obtained that choosing the teaching profession due to altruistic-intrinsic and influences of other variables were found to predict the re-constructionism positively ($p < .05$). On the contrary, choosing the teaching profession due to extrinsic reasons variable was found to be a negative and significant predictor of re-constructionism ($p < .05$). As a result, it can be concluded that when teachers choose this profession as a career mostly under altruistic-intrinsic and influence of others, their beliefs in re-constructionism will increase significantly. On the other hand, when teachers choose the profession due to extrinsic reasons, their beliefs in re-constructionism will decrease significantly. Also, the results showed that choosing teaching profession due to extrinsic reasons was a positive and significant predictor of progressivism ($p < .05$). Therefore, it can be said that when teachers choose this profession mostly under extrinsic reasons, their beliefs in progressivism will increase significantly.

When the findings on the predictive role of reasons to choose the teaching profession as a career on essentialism, it was found that altruistic-intrinsic reasons was a positive and significant predictor of essentialism ($p < .05$), and extrinsic reasons was a negative and significant predictor of essentialism ($p < .05$). As a result, it can be said that when teachers choose this profession mostly under altruistic-intrinsic reasons, their beliefs in essentialism will increase significantly. On the other hand, when teachers choose this profession mostly under extrinsic reasons, their beliefs in essentialism will decrease significantly.

Based on the findings obtained in the study, it is seen that there is a significant relationship between reasons to choose the teaching profession as a career and the educational beliefs of teachers. Being a teacher is not only about teaching. Teachers have various qualifications such as guiding students, making plans on teaching practices, and applying and evaluating these practices in the classroom (Luke, Luke & Mayer, 2000). As a result, the roles of teachers greatly affect the students and students' roles in learning and teaching process (İncik, 2018). Based on these data, it is seen that students should be aware of the responsibilities of the teaching profession and they should consider these responsibilities while deciding to choose this profession since a wrong profession choice can lead to long term failure and disappointment and prevents individuals from being effective, productive and achieving the desired goals in their business lives (Kazi & Akhlaq, 2017). As a result, giving the correct decisions on profession choice has significant value.

On the other hand, philosophy of education has a great role in making decisions related to the educational programs (Doğanay & Sari, 2003). In addition, philosophy of education influences the selection and interpretation of the goals, organizing, presenting and teaching process of the content, and decisions on how to evaluate the success of the programs (Ornstein & Hunkins, 2009). Therefore, teachers' educational beliefs directly influence their decisions and applications in the teaching process and classroom environment.

It can be suggested that an elaboration of these quantitative findings with in-depth qualitative research is recommended for future researchers (e.g., case studies of teachers having different reasons for choosing teaching profession and educational beliefs) to contextualise the factors identified as important. Such studies would provide further information concerning teachers' experiences and opinions related to their reasons to choose this profession and educational beliefs.

Research findings of the present study are limited to teachers from different branches working at the secondary school level in four different cities of Turkey. The study was applied in limited sample. Accordingly, further research should be conducted using different universes and samples to increase the generalizability of the results of this study.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Gonulal, T. (2020). Improving listening skills with extensive listening using podcasts and vodcasts. *International Journal of Contemporary Educational Research*, 7(1), 311-320.
DOI: <https://doi.org/10.33200/ijcer.685196>

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Improving Listening Skills with Extensive Listening Using Podcasts and Vodcasts

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Abstract

The present study investigated the potential of podcasting and vodcasting technology in promoting extensive listening and improving overall L2 listening skills. Forty-nine college-level EFL students took part in this year-long study. Data, coming from listening log assignments, listening progress tests, proficiency tests and a listening log questionnaire, were both quantitatively and qualitatively analyzed and interpreted. Results show that students spent approximately one hour per week on extensive listening with podcasts or vodcasts outside the classroom. Vodcasts were found to be less commonly preferred than podcasts by students. Further, as measured by listening progress tests and proficiency tests, students were able to make significant progress in their overall listening skills by the end of the year. Additionally, students found extensive listening practice with podcasts and vodcasts highly effective not only in helping them improve as L2 listeners but also enhancing their pronunciation abilities and knowledge of words and phrases. Yet, students reported being occasionally frustrated with the pace of speech in podcasts and vodcasts. Overall, this study suggests that developing certain language skills can be boosted with digital technologies at our fingertips.

Key words: Extensive listening, L2 listening skills, Podcast, Vodcast

Introduction

Humans tend to listen more than they read, speak, or write, which arguably puts listening at the heart of the language learning process. Indeed, as Rost (2001) pointed out, the basic distinction between high-achieving and low-achieving language learners pertains to “their ability to use listening as a means of acquisition” (p. 94). Despite its salience, listening is often treated as the Cinderella skill in second language (L2) learning (Nunan, 2002) simply because much valuable class time is questionably devoted to reading, grammar, and vocabulary. Additionally, L2 learners are often not educated about the significance of listening as a language component and the development of listening skills (Berne, 2004; Vandergrift, 2007). Listening skills can be honed by extensive listening practices beyond the classroom. Thanks to the advancement in mobile technologies, the widespread availability of aural input on the Internet, and the easily-accessible online platforms, podcasts and vodcasts have emerged as a powerful tool for extensive listening practices to improve L2 listening skills. Given the role of extensive listening practice in the development of listening skills and the abundance of online audio and video materials, this study attempted to explore the potential of podcasts and vodcasts in developing L2 listening skills beyond the classroom in an EFL context.

Extensive Listening

Listening is undoubtedly best improved by simply listening. Increased exposure to a large amount of comprehensible aural input is called extensive listening (EL) (Rost, 2006; Vandergrift & Goh, 2012). The EL practices can be both teacher- and learner-initiated, and can be conducted outside the classroom. The fundamental step in EL is that learners do a variety of meaningful listening practices. As learners become exposed to ample aural input, they begin to automatically process the data and obtain a reasonable level of comprehension. Chang and Millet (2014) defined this as listening fluency. Developing listening fluency in an L2 context is a challenging process as it requires consistent practice with abundant exposure to spoken language (Rost, 2006). According to Vandergrift and Goh (2012), there are three important principles for effective EL

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practice: variety, frequency, and repetition. L2 learners need to listen to a variety of listening materials on various topics and themes so that they become familiar with the structures of different listening texts. Furthermore, EL practice should be done frequently and regularly. A sustained extensive listening practice can be between five minutes and one hour. Repetition is also another key to EL as it can increase the level of comprehension and help listeners focus more on details and features of the listening material. Podcasting and vodcasting technology can support these three principles of EL and provide the rich and sustained aural input much needed in EL (Vandergrift & Goh, 2012).

Podcasting and Vodcasting in L2 Contexts

Today, digital technology is preferred by many as the first go-to source of a dynamic hub of knowledge and learning (Merzifonluoğlu & Gonulal, 2018). In light of this trend, language learning has, to some extent, transmuted into a more flexible and cost-effective format without being limited to a physical space or time (Kukulska-Hulme, 2009). Indeed, recent mobile technologies (e.g., smartphones, tablets) and widespread availability of L2 materials on the Internet can greatly benefit L2 learners. From this perspective, one particular method that can both embrace mobile technology, and combine flexible and extensive learning is the implementation of podcasting and vodcasting technology (Abdous, Camarena & Facer, 2009).

Podcasts are the audio files that are distributed over the Internet through subscription. Podcasts are usually in the format of an MP3 and can be played on any digital device, such as laptops, tablets, and smartphones. Podcasts are automatically delivered to subscribed users and they can listen to them whenever and wherever they want (Shelly & Frydenberg, 2010). Vodcasts are the podcasts with video content instead of audio (Dupugne, Milette & Grinfeder, 2009). For this reason, vodcasts are also known as video podcasts. As of January 2020, there were more than 850,000 podcasts and 30 million episodes available around the globe, and these numbers are increasing daily (Winn, 2020).

Apart from the increasing number of podcasts and vodcasts, the themes and topics addressed in them vary far and wide. Further, podcasts and vodcasts can provide authentic, contemporary, culturally-rich, and easily-accessible materials, which makes them a highly useful and practical language learning resource. Indeed, there are numerous digital materials that are especially designed for ESL and EFL learners on the Internet (Stanley, 2006). In line with the premises of mobile-assisted language learning (MALL) (Burston, 2015; Gonulal, 2019a, 2019b; Kukulska-Hulme, 2009, 2012), L2 learners can utilize podcasts and vodcasts anywhere, anytime. First and foremost, L2 learners can listen to a variety of podcasts and vodcasts of their own choice in their own time outside the classroom. Furthermore, podcasting and vodcasting technology provides L2 learners with rich and authentic listening input which is highly needed in EFL contexts. Additionally, L2 learners, depending on their needs and levels, can obtain the utmost use out of podcast- and vodcast-based listening practice by controlling the listening input with pause, replay and slow-down options (Alm, 2013).

The potential of EL, combined with the affordances of podcasting and vodcasting technology, has motivated a number of scholars to further investigate this area of research. Although the viability of vodcasts for language learning has been under-investigated, compared to that of podcasts, there has been some scholarly attention given to the implementation of EL with podcast and vodcasts in L2 contexts to improve L2 learners' listening skills (Alm, 2013; Bakla, 2018; Chen, 2019; Faramarzi, Tabrizi & Chalak, 2019; Rodgers, 2016; Schmidt, 2016; Yeh, 2013). For instance, in a recent extensive listening study informed by Vandergrift and Goh's (2012) metacognitive approach, Alm (2013) examined the use of podcasts for EL practice in an intermediate German class. Twenty-eight students of German listened to German language podcasts as well as wrote reflective blogs on their podcast use over a semester. The results indicated that the podcast use was highly effective in helping German students become exposed to authentic German input and that the freedom of students to choose their own podcasts increased their enjoyment and engagement with the listening materials. In a similar study, Yeh (2013) conducted a podcast-based EL study with a group of 23 undergraduates in an integrated English speaking and listening course. The results showed that the students found podcast-based listening highly influential and effective in improving their language proficiency as well as knowledge of the world. Despite being mostly satisfied, the students were sometimes frustrated due to the pace of the speakers in the podcasts. In a more recent study, Faramarzi et al. (2019), working with 120 college-level learners, examined the potential of vodcasts in developing listening comprehension in a pre-test/post-test design study. They utilized 20 teacher-selected vodcasts of varying genres (from grammar vodcasts to news vodcasts) over a period of 12 weeks. The results indicated that students significantly increased their listening comprehension scores by the end of the 12-week treatment. Further, there was a positive association between the L2 listening achievement and the level of engagement with vodcasts.

Although there has been a burgeoning interest in the implementation of EL in L2 classrooms, there is still scarce research on the employment of EL with podcasts and vodcasts in different educational settings. A comprehensive investigation of the potential of podcasting and vodcasting technology in the development of language skills, more specifically the listening skill, can benefit L2 learners, teachers and researchers. Given the role of EL in developing listening skills and the upsurge of interest in podcasting and vodcasting technology, the following research questions were addressed in the present study:

RQ1: What are learners' podcast and vodcast use behaviors for extensive listening practice?

RQ2: To what extent does podcast- and vodcast-based extensive listening improve learners' L2 listening skills?

RQ3: What are learners' experiences with podcast- and vodcast-based extensive listening?

Method

The current study employs an action research design which includes a concurrent process of taking action and doing research by reflecting one's own practices (Creswell, 2012). That is, one of the primary purposes in action research is to improve and refine practice through implementation of change. This research design was the most appropriate method for the present study considering that the researcher intentionally studied his own practice by assessing where any change on the extensive listening practice was valuable, along with focusing on student outcome and perceptions.

Participants

Forty-nine (33 females and 16 males) college-level students, who were majoring in an English Language Teaching program at a state university in Turkey, took part in this study. Their ages ranged from 18 to 32 years old ($M = 18.90$, $SD = 2.17$). At the time of the study, the students were taking compulsory preparatory English courses, and the data in this study came from the integrated listening and speaking course. This class met for five hours every week, totaling 140 contact hours (28 weeks) in two semesters.

Before being enrolled in the compulsory English courses, all the students ($N = 61$) took an IELTS-like English test covering all four skills and grammar at the beginning of the academic year. This English test also acted as a placement test for the compulsory preparatory class, and the students with a score of 70 or above were considered successful. Forty-nine students were not successful, and these students were automatically registered for the year-long compulsory English courses. The students' average overall score on the proficiency test was 39.62 ($SD = 9.52$) out of 100, and the average listening score was 30.42 ($SD = 16.22$) out of 100 (the listening section accounted for 20% of the overall score but was converted to 100 for comparison).

Procedure

After the second week of the course, the students were introduced to the one-year long listening log project, which was an additional, extensive listening project supporting the regular, in-class listening instruction. They were first asked to subscribe to English language podcasts and vodcasts to receive weekly authentic aural input. They were free to subscribe to any podcasts and vodcasts of at least five minutes in length provided they were suitable to discuss in follow-up classroom activities. However, some students had difficulties in finding appropriate podcasts and vodcasts. Therefore, the instructor created a sample list of suitable podcasts and vodcasts and shared it with the students (see Appendix A). The students were to listen to their podcasts and vodcasts weekly and provide a summary of their listening materials. In the first semester, students were asked to write a 150-word summary. In line with the tenets of action research, the instructor reflected on this practice, and decided that oral summaries would be not only more useful but also would break the boredom of doing the same extensive listening project in the second semester. Thus, the students were asked to record a three-minute oral summary in the second semester. They had to email their summaries to the course instructor before the beginning of each class. The instructor checked whether the students were doing the summaries but did not provide any comprehensive feedback on them. However, in each class, students had to speak about their podcasts and vodcasts for about two minutes during a speaking line activity in which they lined up facing each other and talked to each other. The students completed ten listening logs in each semester, totaling 20 listening logs. They earned 1.5 points for each listening log they completed.

In order to check the students' progress, six listening progress tests (three tests in the first semester and three in the second semester) were administered. Each listening progress test consisted of approximately 30 items tapping while-listening and note-taking skills, and lasted 30 minutes on average. In addition, although the

students occasionally provided brief oral feedback on their extensive listening practice at different times during the extensive listening project, they were asked to complete a questionnaire (see Appendix B) to report on their opinions of, and experiences with, the weekly listening logs using their mobile devices. The students took the questionnaire in the last class of the second semester, and reflected on several open-ended questions (e.g., *How effective was the extensive listening with podcasts and podcasts in developing your listening skills? What kinds of challenges did you have while doing the extensive listening?*). Finally, the students took an English proficiency test to pass the compulsory preparatory English class and enroll in the first-year courses.

Data Analysis

The data in the present study came from six listening progress tests, two proficiency tests, and a listening log questionnaire (see Appendix B). The listening test data (i.e., six listening progress tests and two proficiency tests) were quantitatively analyzed, whereas the students' responses on the questionnaire were qualitatively analyzed. Before running any statistical tests for the quantitative analyses, the data were carefully screened for normality, outliers, and missing values. The Q-Q plots and Shapiro-Wilk test showed that the data were non-normally distributed. A missing value analysis was also performed to deal with missing data. The proportion of missing values was found to be less than 5%, and thus conventional missing data management methods (i.e., list-wise and pair-wise deletion methods) were applied when necessary (Gonulal, 2019c; Schafer & Graham, 2002). Then, frequencies, percentages, descriptive statistics, confidence intervals, and the Wilcoxon signed-rank test were calculated, and parallel coordinate plots were created. Finally, a content analysis was conducted on the qualitative data to better understand the students' experiences with, and opinions of, the extensive listening practice with podcasts and vodcasts, and to identify any latent effects of this MALL-oriented intervention. First, the written responses to the open-ended questions on the questionnaire were manually compiled on a Word document, and a total of 2,268 words were obtained. Then, the compiled textual data were analyzed to classify the student responses into groups of similar meanings (Schreier, 2012).

Results

The first research question addressed the podcast and vodcast use behaviors of the students for extensive listening practice. The results indicated that 68% of the students used only podcasts for practicing L2 listening outside the classroom whereas only 32% of them practiced extensive listening with vodcasts. Further, while doing extensive L2 listening practice, 74% of the students used smartphones, followed by laptops (23%). Only 3% of the students used a tablet.

Table 1. Descriptive statistics for students' listening log practice

	N	Min	Max	Median	M	SD	95% CI
Length of the listening materials (in mins.)	47	5	15	5	6.31	2.43	[5.61, 7.01]
Time spent on doing listening logs (in mins.)	47	15	180	60	61.33	36.19	[50.93, 71.72]

Additionally, as can be seen in Table 1, the average length of the podcast and vodcast they listened to when doing each listening log was around 6 minutes. The students approximately spent one hour for per listening log assignment each week.

Table 2. Descriptive statistics for listening tests (out of 100)

Test	N	Min	Max	Median	M	SD	95% CI
<i>1st Semester (2018, Fall)</i>							
Listening Test 1	49	25	60	45	42.65	7.68	[40.44, 44.85]
Listening Test 2	46	22	60	50	49.80	6.84	[47.77, 51.83]
Listening Test 3	47	40	85	60	59.89	11.95	[56.38, 63.40]
<i>2nd Semester (2019, Spring)</i>							
Listening Test 4	43	35	95	62	61.48	11.77	[57.86, 65.11]
Listening Test 5	42	38	85	60	60.85	10.44	[57.60, 64.11]
Listening Test 6	47	50	90	70	69.34	8.67	[66.79, 71.88]

The second research question focused on the extent to which extensively listening to podcasts and vodcasts improved students' L2 listening skills. In order to gauge students' progress, six listening tests were administered in two semesters. Table 2 and Figure 1 show the students' progress based on these tests. As presented in Table

2, the students indicated a significant improvement in the listening scores, which increased from 42.65 ($SD = 7.68$, 95% CI [40.44, 44.85]) in the first listening test to 69.34 ($SD = 8.67$, 95% CI [66.79, 71.88]) in the last listening test. However, the students did not always show a linear pattern of progress during the listening logs project. As reflected in listening tests 4 and 5, at some points, the progress was barely noticeable in terms of scores.

Figure 1 is a parallel coordinates plot in which individual changes from the first listening test to the last listening test are visualized. Each student is represented with a line and each listening test with a vertical bar. The figure indicates that although there were some fluctuations in the students' progress throughout the year, most students showed an upward progress in the end. In other words, the students succeeded in increasing their listening test scores from the beginning to the end of the year.

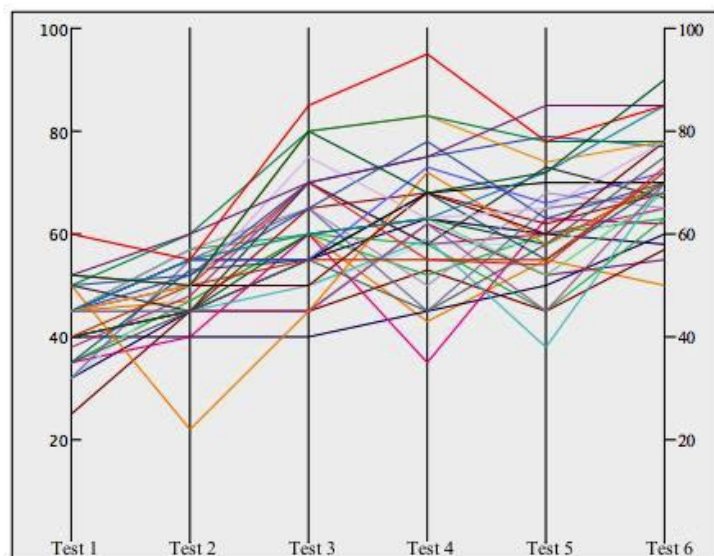


Figure 1. Parallel coordinates plot from listening test 1 to listening test 6

Similarly, when looking at the students' progress in the proficiency tests, they also exhibited similar pattern of progress. As can be seen in Figure 2, except for a few students, all made substantial progress in their performance in the final proficiency listening test. More specifically, the students increased their proficiency listening test scores from 30.42 ($SD = 16.22$, 95% CI [25.71, 35.13]) to 65.31 ($SD = 10.55$, 95% CI [62.22, 68.41]) in two semesters by doing extensive listening practice. The Wilcoxon signed-rank test showed that the extensive listening with podcasts and vodcasts elicited a statistically significant improvement in the students' L2 listening skills ($Z = -5.917$, $p = .001$, $r = .87$).

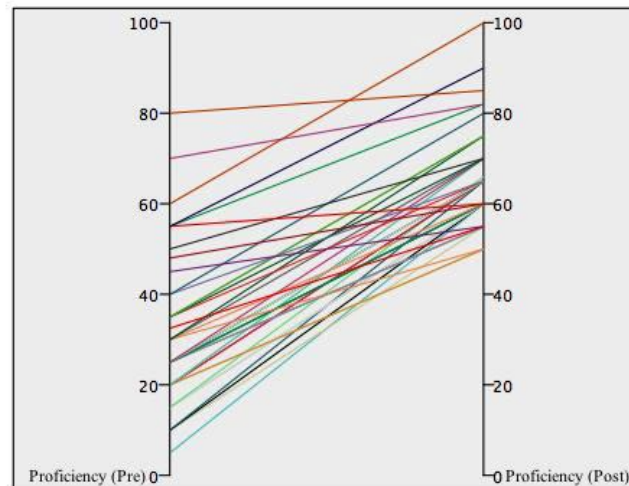


Figure 2. Parallel coordinates plot from pre-course to post-course proficiency listening scores

When looking at the students' perceptions, a great majority (88%) of the students stated that they enjoyed the podcasts- and vodcast-based extensive listening project and they would probably continue to make use of them in the future. Regarding the students' experiences with the extensive listening with podcasts and vodcasts, a largely positive tone was prevalent in the student responses. Further, the expressions such as "I used to...but now", "I improved...", and "I learned/realized that" prevailed in the student comments. More specifically, a great majority of the students mentioned that listening logs with podcasts and vodcasts significantly contributed to their overall listening development. Examples 1-4 from student responses reflect this point.

Example 1: It's really effective for developing my listening skills. Because at first time I didn't understand the speakers so much but day by day I've developed my listening skills.

Example 2: At first, it was difficult to listen to and write a summary of the podcasts but later I noticed that I improved my skills both in writing and listening.

Example 3: It improved my overall listening and note-taking skills. I also learned to summarize a topic that I listened to.

Example 4. At the beginning of the class, I was not good at listening at all. But after the listening logs, I was able to listen carefully. My listening skills have improved a lot thanks to listening logs.

Listening to podcasts and vodcasts was not only helping students improve their overall listening skills but also their pronunciation skills. The following three examples illustrate this aspect of listening logs.

Example 5. I think listening logs have been good for developing my listening skills. I could also improve my pronunciation abilities.

Example 6. I think listening logs improved my listening skills and when I watched [a vodcast] I also learned the pronunciations of the words.

Example 7. It helps us learn new words and idioms. Also, when we listen, we can change the wrong pronunciations of words.

Apart from the positive aspects of listening logs, some students also reflected on the issues they had while doing the listening logs. The first and foremost difficulty that they faced was related to the speed of the speakers and the unfamiliar accents. As illustrated in Examples 8-10, the students had to get familiar with the speeches of fluent native speakers and speakers with different accents as they were listening to a variety of listening materials.

Example 8. Some speakers spoke fast, so sometimes I felt angry. Also, I sometimes did not catch some important information due to fast speakers.

Example 9. Some speakers were speaking so fast but actually it was good for me and over time my progress has increased.

Example 10. At first, I couldn't get used to it. I couldn't understand what the speaker said and I couldn't catch the words because of the speaker's fast speech.

Of course, a few students also mentioned that they had issues of varying degrees with the Internet connection while listening to the podcasts and vodcasts at their dorms or homes. Additionally, some students reported that doing listening logs each week during two semesters was a bit tedious, and finding podcasts and vodcasts that suited their interests and levels were challenging.

Discussion and Conclusion

The purposes of the current study were threefold: (a) to provide a snapshot of L2 learners' podcast and vodcast use behaviors for extensive listening practice, (b) to examine the effectiveness of podcast- and vodcast-based extensive listening on the development of L2 learners' listening comprehension, and (c) to probe into the pros and cons of podcast- and vodcast-based extensive listening.

First, as might be expected, smartphones were the most preferred device of the students while doing the extensive listening practice. Only a quarter of the students used their laptops, whereas tablets were preferred by only a few students. This finding is substantially different from the findings of Chan's (2014) study in which laptops were favored by almost all the participants and mobile phones by a third of the participants. Considering the increased use of mobile devices in educational contexts in recent years (e.g., Gonulal, 2019a, 2019b; Kukulska-Hulme, 2009, 2012; Stockwell, 2008; Stockwell & Hubbard, 2013), this finding should not be surprising. In fact, this finding also partially explains why students preferred podcasts over vodcasts although they had the freedom to subscribe to podcasts, vodcasts, or both. One plausible explanation is that it is not very convenient to watch a vodcast on a small-screened device such as a smartphone. Additionally, the relatively fewer number of available vodcasts that are suitable to use for educational purposes and the comparably large file sizes of vodcasts to download might have forced students to use more podcasts. The amount of weekly exposure to the aural input was a key point in the effectiveness of the extensive listening project. In the current study, the average length of the podcasts or vodcasts that students listened to was about seven minutes, but students reported spending almost one hour on their listening log assignment including listening to the podcasts or vodcasts and preparing the summaries. In a similar study (Yeh, 2013), students mostly listened to two or three podcasts and spent less than 30 minutes per week.

Second, the year-long extensive listening practice with podcasts and vodcasts had significantly positive influences on the development of listening skills. That is, the students managed to double their listening test scores by the end of year. Evidence supporting the potential of podcasting and vodcasting technology in developing listening skills has also been previously reported (e.g., Abdous et al., 2009; Alm 2013; Bakla, 2018; Chen, 2019; Faramarzi et al., 2019; Yeh, 2013). However, it is important to note here that the increase in students' listening scores might not be solely explained by regular and extensive exposure to authentic aural input outside the class. The overall listening development of students might be partially attributed to the formal, in-class listening instruction because it is common sense for students to have some gains in listening test scores after taking a course on listening. Yet, the typical in-class listening instruction often consists largely of text-book recordings, which are usually modified, and associated comprehension questions (Brown, 2011; Siegel, 2014; Vandergrift, 2007). Nonetheless, this type of instruction does not seem to suffice to help students improve noticeably and quickly as listeners. Therefore, it would not be wrong to claim that the extensive listening practice with podcast and vodcasts was particularly effective in developing L2 listening skills, especially considering that the magnitude of the effect ($r = .87$) was remarkably large. Furthermore, a great majority of the students explicitly stated in their comments that listening to podcasts and vodcasts regularly and extensively helped them to improve overall as L2 listeners. Indeed, although the students might have done a lot of things both inside and outside the class such as playing games (e.g., dictation activities), watching videos or movies, the extensive (and regular) listening using podcasting and vodcasting technology was probably the key factor in the development of their listening fluency because it enabled consistent practice with abundant exposure to spoken language (Rost, 2006).

When looking more closely at students' experiences with, and opinions of, the extensive listening practice with podcasts and vodcasts, students voiced similar ideas regarding the effectiveness of podcast- and vodcast-based extensive listening on L2 listening skill development. That is, students largely believed that they significantly augmented their overall listening skills by the end of the year thanks to the extensive listening assignments. Similarly, the students in Yeh's (2013) study reported that podcast-based extensive listening projects helped them improve their English listening ability. Furthermore, almost a quarter of the students in the current study also pointed out that their pronunciation improved reasonably as a result of listening to authentic aural input constantly and regularly. On the other hand, there were several issues raised by several students regarding the implementation of extensive listening with podcasts and vodcasts. On a large scale, students stated that they had

initially experienced some serious issues with the pace of native speakers but as they continued to listen to podcasts and vodcasts each and every week they found such fast speech more manageable and beneficial for preparing them for real-life situations. Similar findings are also reported in other studies on extensive listening and podcast/vodcast-based listening practices (Alm, 2013; Chen, 2019; Renandya & Farrell, 2011; Siegel, 2012; Yeh, 2013). Apart from the fast speech rate of native speakers, the unfamiliar words, in particularly idiomatic expressions, uttered in podcasts or vodcasts caused students some difficulty with understanding the listening texts. This drawback of podcasts and vodcasts has been pointed out in other studies as well (Alm, 2013; Chen, 2019). Using the pause, slow-down and replay functions of podcasts and vodcasts or resorting to dictionaries were the strategies that students commonly used. A non-negligible number of students also stated that they had some technological mishaps such as poor Internet connection when downloading the podcasts or vodcasts to their devices.

Although the current study shed light on the potential of podcasting and vodcasting technology in the improvement of L2 listening skills, the findings should be treated with care due to several limitations. First and foremost, this was a small-scale study in that the number of participants was relatively small. Furthermore, due to the nature of action research study, there was no control group in the present study, so we are not completely sure whether the extensive listening with podcasts and vodcasts produced more favorable results than the traditional L2 listening instruction. Future studies might expand on this research area by including a control group to obtain a better understanding of the impact of podcasts and vodcasts on L2 listening skill development. Additionally, this study did not focus on the distinct affordances of podcasts and vodcasts. Future studies might address this point by comparing the podcast-based listening with vodcast-based listening given the slightly different features and advantages each offers.

In line with the pervasiveness of digital devices and the recent scholarly work in the area of MALL (Burston, 2015; Gonulal, 2019a, 2019b, 2019, November; Kukulska-Hulme, 2009, 2012, and others), many new digital avenues for L2 listening such podcasts and vodcasts are now available for language learners and educators. The findings in this study can help language teachers and learners recognize the educational power of podcasting and vodcasting technology in developing L2 listening skills. As a pedagogical suggestion for language teachers and learners who wish to utilize podcasts and vodcasts, it is important for them to become familiar with the digital resources available such as podcasts and vodcasts suitable for language use purposes (see Appendix A). There are numerous available podcasts and vodcasts that suit to the needs and levels of ESL and EFL learners (Stanley, 2006). Additionally, podcasting and vodcasting technology is highly suitable for effective EL practice since they can make the three elements of EL possible: variety, frequency, and repetition (Vandergrift & Goh, 2012). Language teachers who decide to make use of podcasts and vodcasts are highly likely to be rewarded with classrooms of engaged and motivated language learners who are satisfied with their substantial progress in listening skills. For most EFL learners, it is necessary to receive large amounts of aural input to fully develop as component L2 listeners. Considering that, podcasting and vodcasting technology not only bring freedom to obtain exposure to the target language anywhere, anytime, but they also provide examples of real-life English use on various topics. By hearing the authentic language use in podcasts and vodcasts, learners can improve their overall listening comprehension and pronunciation skills. The promising results of the current study regarding the effectiveness of podcasts and vodcasts in developing L2 listening skills would be an encouraging starting point for language teachers and learners to further explore these digital tools.

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Appendix A. List of Sample Podcasts and Vodcasts

1. TED Talks: <https://www.ted.com/talks>
2. NPR (National Public Radio): <https://www.npr.org/>
3. Learn English Podcasts: <http://learnenglish.britishcouncil.org/en/learnenglish-podcasts>
4. All Ears English: <https://www.allearsenglish.com/episodes/>
5. The English We Speak: <https://www.bbc.co.uk/programmes/p02pc9zn/episodes/downloads>
6. Podcasts in English: <https://www.podcastsinenglish.com/>
7. Voice of America Learning English: <https://learningenglish.voanews.com/>
8. Fun English Lessons: <https://player.fm/series/fun-english-lessons>
9. This American Life: <https://www.thisamericanlife.org/archive>
10. Luke's English Podcast: <https://teacherluke.co.uk/>

Appendix B. Listening Logs Questionnaire

1. Age:
2. Gender:
3. What was the proportion of podcasts and vodcasts you used in your listening log assignments (e.g., 70% podcasts + 30% vodcasts)? Podcasts_____ Vodcasts_____
4. On average, how long was your choice of podcasts/vodcasts (e.g., 10 minutes)? _____
5. On average, how much time did you spend when doing the listening log assignments (e.g., 1 hour)? _____
6. What kinds of devices did you use when listening to the podcasts/vodcasts (e.g., 70% smartphone + 20% laptop +10% tablet)?
 - a. Smartphone _____
 - b. Laptop _____
 - c. Tablet _____
 - d. Other _____
7. Did you find the listening logs effective? Yes____ No____
8. How effective do you think the listening logs have been for developing your listening skills?
9. What kinds of issues have you had when doing the listening logs?
10. Would you like to continue to use podcasts/vodcasts in the future? Yes____ No____



International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Tabak, H. & Çalık, T. (2020). Evaluation of an educational reform in the context of equal opportunities in Turkey: Policy recommendations with evidence from PISA. *International Journal of Contemporary Educational Research*, 7(1), 321-334. DOI: <https://doi.org/10.33200/ijcer.685893>

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Evaluation of an Educational Reform in the Context of Equal Opportunities in Turkey: Policy Recommendations with Evidence from PISA*

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Abstract

The purpose of this research is to identify the current situation regarding equality of educational opportunity after the implementation of 12-year compulsory education which serves as a reform in Turkey on the basis of key indicators and to suggest policy recommendations to provide equality of educational opportunity. The research, aiming to define some variables of student academic success in science, reading and mathematics literacy levels according to PISA 2012 and 2015 panel data for ensuring equality of educational opportunity in Turkey, is in survey model. The research revealed that the extension of the compulsory education period in the context of equal opportunities hadn't increased student success. Delivery of opportunities to the home environment affects the family's socio-economic and socio-cultural variables, which themselves affect student academic success. In this context, supportive policy proposals such as an independent budget, regional economic index creation and direct assistance to the child were presented to the relevant parties and stakeholders.

Key words: Educational reform, Equality of educational opportunity, Educational policy recommendations

Introduction

The level of realization of the goal of transforming the information produced by related parties which are sensitive to the needs of the economy and interacting with each other is passed through the educational systems of societies (Mingat, Tan & Sosale, 2003). Despite improvements in education, in particular, access to education, the need to improve the quality of education and to reduce the level of differences in achievement among regions and school types remain important (Hansen, Chalk & Ladd, 1999; Hutmacher, Cochrane & Bottani, 2001; Wiseman, 2010). In this context, in addition to increasing the duration of compulsory education, to ensure equality of opportunity/EO in education by boosting the quality of learning environments in accordance with the principle of equality, certain variables directly within the school are important, such as schooling rates, increased physical capacity and a strengthened technological infrastructure (State Planning Organization [SPO], 2010; Ministry of Development [MoD], 2013). Even though it is not directly within education, one can say that student gender, the socio-cultural and socio-economic status of the parents and variables which affect the educational performance also affect EEO and student academic success.

Equality of Educational Opportunity/EEO

Equality debates are intensively focused on the access and participation of different social groups in education at different levels of education, indicating that the issue of equality should be considered more integrated (Lynch, 2000). Equality is a situation related to values in the context of desire, happiness and preference (Frankfurt, 1987). It is possible to define equality as a limited talent provided by the environment of trust which is composed of conditions, options and knowledge (Carter, 2011). Equality, in John Roemer's theory of equality, is

* This study was based on PhD dissertation titled "Policy recommendations for evaluation and development of equal opportunity in education in Turkey" and was presented at the 9th International Education Management Forum that was held in Antalya, Turkey on 1-4 November, 2018.

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defined as choices made with free will. The basic idea of the algorithm for Roemer's theory can be summarized as being objective in situations you want to make equal. In addition, it is emphasized that a balance between "choices" and "conditions" can be achieved by "being fair" (Risse, 2002). The concept of equality is also considered in the context of EO. EO is a widely accepted principle in many countries (Gamoran & Long, 2007; Gabay-Egozi, Shavit & Yaish, 2015; Tikly & Barrett, 2011; White, 1982). The education system plays an important role in implementing this principle. Equality of opportunity in education (EEO) is provided by equal education resources for all individuals or by equalizing the educational attainment of individuals (Peragine & Serlenga, 2008). It is stated that the provision of education services should be based on equal opportunities, as the goal is to have the concept of equality is providing education services to each individual to enable them to reach the development potential (Aristoteles, 2013, s. 165). Similarly, according to Kant (2009, p. 21), each individual has many different abilities. Education has a great role in enabling individuals to develop their abilities in accordance with each other at appropriate rates. The factors that provide the EEO which is tried to be explained from a theoretical perspective include school management (building, education program, teachers, etc.), students' educational background, moral structure, schooling rates and the following general elements (Coleman, 1968):

1. Ensuring participation in the workforce by training up to a level.
2. Providing a curriculum with common points for all children regardless.
3. Ensuring that disadvantaged children from different backgrounds with low population density attend the same school,
4. Provision of resources for schools to ensure equality within the framework of certain guideline by local governments

Equal Opportunity in the World

Ensuring efficiency in the implementation of the rights-based approach in equality practices will increase the child's participation. The United Nations has developed standards of practice to foster both efficiency and cost-effectiveness in EEO practices. These standards, in summary, are; (i) developing systems for the equal participation of all children; (ii) maintaining flexibility in developed systems sufficient to meet the needs for children; (iii) considering variables such as age range, gender and children's abilities, as well as student performance-oriented educational performance; (iv) providing a democratic means of benefiting from opportunities among peers and placing this attitude in children; and (v) setting up environments where adult-family and community support will be achieved. Education for All EFA objectives include equality and equality of opportunity-based targets such as meeting the learning needs of all young people and adults through fair access to appropriate learning and life skills programs, and ensuring gender equality in primary and secondary education (UNICEF & UNESCO, 2007). The realization of these objectives is closely linked to the mutual nourishment of the state and the economic well-being of families. Parents with a low family economy do not prefer education. In these families, children will likely have low economic well-being. To increase the economic prosperity of families, the state can keep the family income status to a certain standard by means of spending per student or direct family aid plans (UNESCO, 2009). It is observed that expenditures made per student by educational institutions increase with the education level in almost all countries, though the size of the differences has changed significantly among countries. Even in countries where expenditure per student is similar, resource allocation to various levels of education can vary widely. Among OECD countries in 2014, spending per student at the primary education level was USD \$8,733, while the amount was \$3,589 in Turkey. Spending per student in secondary education was \$3,268 in Turkey while the OECD average was \$10,106. On average, expenditures on secondary education are 1.2 times higher than primary school spending. While this rate varies up to 1.5 in the Czech Republic, France, Hungary and the Netherlands, it is less than 1 in Turkey (OECD, 2017). These differences in the annual expenditure of educational institutions per student in each level of education can be greater when they are reflected in the cumulative expenditure per student.

Equal Opportunity in Turkey

Turkey in 1997 and in 2012 underwent reforms in terms of the duration of compulsory education. In 1997, the duration of compulsory education was increased to 8 years, while in 2012 it was increased to 12 years. The 4 + 4 + 4 model has been adopted for the duration of compulsory education as in a 4-year period for primary, secondary and secondary education (MoNE [Ministry of National Education], 2012a). With the increase in pre-school education by the 4 + 4 + 4 reform, the rates of schooling in primary and secondary education increased. It can be said that efforts to integrate the education system with the duration of compulsory education have facilitated the transition between stages depending on the increase in schooling rates. If the opportunities that the state offers are generally evaluated, some variables such as schooling rates, schools, teachers, students, classrooms and number of branches during the compulsory education period are noteworthy (MONE, 2012b).

However, in the long term, schooling rates are not the only variable in achieving success in education in terms of equal opportunity or opportunity inequality (Wößmann, 2008). More comprehensive policies must be developed by examining the interrelationships between the resources allocated to education levels and the distribution of student academic success. Educational expenditure per student in Turkey increased by 16.7% between the years 2011-2016. The level of education with the highest increase in education expenditures in 2016 compared to 2015 was secondary education (30.7%). According to 2016 Turkstat education spending statistics, education spending in Turkey increased by 18.9% in 2016 compared to 2015 and became 160,873,000,000 TL. In 2016, secondary education (31.6%) and higher education (20.3%) had the highest level of education expenditures compared to the previous year (Turkstat, 2017). It is possible to find a number of national and international studies about EO in education and its variables (Dinçer & Uysal, 2010; Engin-Demir, 2009; Gelbal, 2008; Güven, 2007; O'Dwyer, Aksit & Sands, 2010; OECD, 2007; World Bank, 2013). General, financial factors play a more important role in most countries; in some countries, financial resources are of considerable importance. Social factors, on the other hand, have less impact. In many countries, educational differences such as school and program type mediate the relationship between socioeconomic status and academic achievement. This relationship is stronger in education systems that divide students into groups such as school/class/program type according to students' cognitive abilities. It is stated that these factors express 60% of the impact of socioeconomic status on success. In Turkey, as a result of changes occurring in the compulsory education period after 1997, educational gains should be investigated under the following titles; (1) the completion of the differences, (2) regional and gender differences and (3) educational level and child labor (Akkoyunlu-Wigley and Wigley, 2008).

EEO Indicators and Educational Performance

Schools are the smallest units of education. They are the areas where education systems and evaluations are applied. Therefore, maintaining the perspective of realizing both the implementation and the analysis of education policies at the school base is expected (Hanushek, 1986). What can be done to ensure the EEO: (a) provides direct support to the central and local level of education; (b) provides complementary public education which offers support; (c) takes measures to meet the cost of education; (d) designs activities that support education on an international scale and (e) establishes relations which increase the basic level of literacy and which support the school (Edwards, 1946). Some characteristics of the elements should be considered in making education investments. First, it is stated that the conditions for equal distribution of resources are not appropriate and standard. In some cases, more educational resources must be invested in the areas of children with disabilities or children who need special education. Second, in regions where disadvantaged children live, the taxes that families pay should be reduced. Third, considering the right of appeal, it is necessary to ensure that the practices with respect to education finance are fair (Anderson, 2007). Traditional or modern attitudes of actors such as teachers and school principals differ in terms of providing EEO. It is emphasized that in the carrying out of EO policy practices, the efficiency of student academic success, which is considered an output of the system, in academic upskilling should be considered. In addition, the effort to provide a suitable environment for different socio-economic and skill levels among students is an action that strengthens EEO. Finally, the introduction of cultural features in the provision of EO increases the effectiveness of the practices (Richards, 1997). It is noteworthy that research on EEO focuses mostly on; (a) the strength of the student academic success relationship, (b) the effect of the process that changes the relationship between academic achievement and socio-economic level and (c) related suggestions (Ammermuller, 2005; Cappellari & Jenkins, 2007; Gamoran & Long, 2007; Ganzeboom, Graaf & Treiman, 1992; Jencks, 1988; OECD, 2012).

Context and Rationality of Research

Since 2012, the duration of compulsory education in Turkey has increased to 12 years from 8 years. Compulsory education period change reform is determined to be the 4 + 4 + 4 form, including 4-year primary school, second-grade 4-year secondary school and third-grade 4-year secondary education. This change extended the duration of education and rearranged the education levels. For this reason, the education statistics also differed. After the transition to compulsory education with 4 + 4 + 4, education reform change in schooling rates was observed. If the opportunities provided by the state are evaluated in general, some variables are noteworthy, such as schooling rates, school, teacher, students, classrooms and branch numbers during the compulsory education period. However, in the long term, schooling rates are not the only variable for student academic success in education in terms of equal opportunity or inequality of opportunity. Therefore, the research aims to evaluate the level of the main objective of ensuring equality of opportunity under international education for all [EFA] objectives focusing on the output of the reforms carried out in the context of the educational performance-based assessment of student academic success in Turkey. This research is different from other studies in that it conducts the evaluation at the level of effect and is composed of Programme for

International Student Assessment [PISA] data, which provides big data on the basis of countries. In this context, the study's main aim is to test how the increase in the duration of compulsory education affects the equality of opportunity in education. As a result, it seeks to make policy suggestions that predict possible situations in the future and ensure equality of opportunity. The research, in this general purpose, seeks answer to the following questions; are the variables of (1) mother's education level, (2) father's education level, (3) student gender and (4) home facilities significant predictors of the provision of equal opportunities in education in Turkey according to students' science, math and reading achievement in PISA 2012 and 2015 data? As a result of the findings, what might the policy and planning suggestions be?

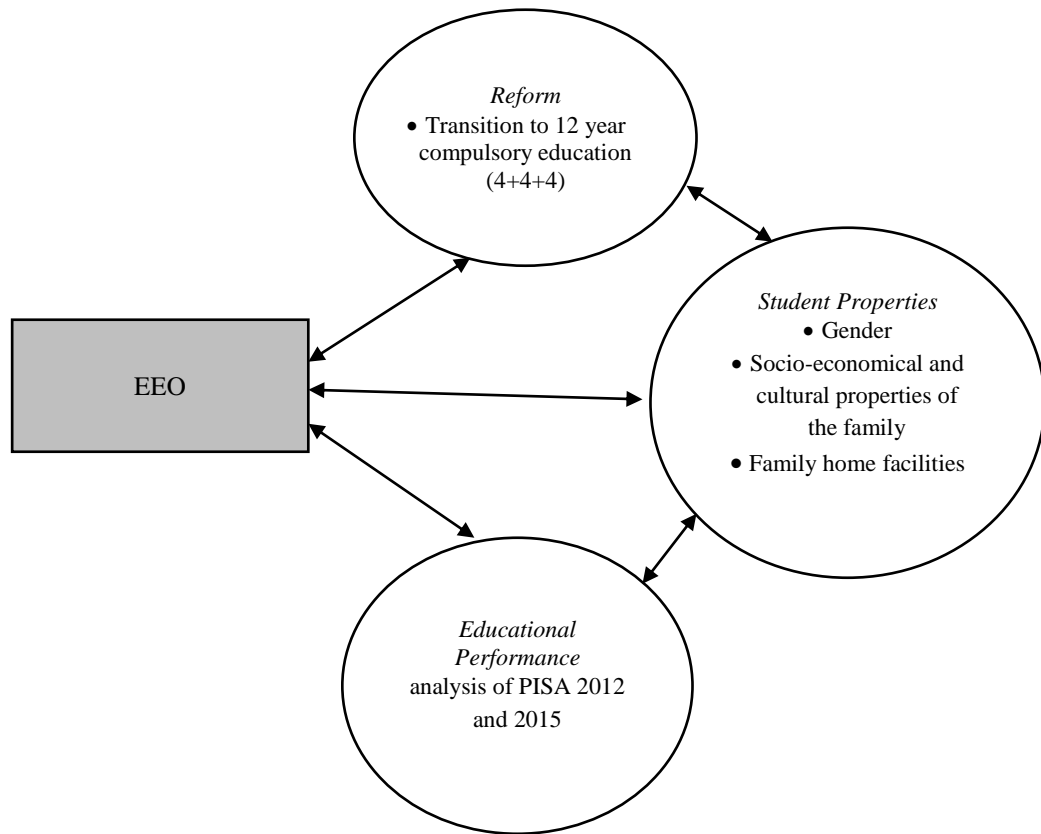


Figure 1. Research Context

Method

Research Model

This study, aiming to determine the effect of the variables of; (1) mother's education, (2) father's education, (3) student's gender and (4) home facilities on student academic success in equality of educational opportunity in Turkey according to PISA 2012 and 2015 panel data, is designed using the quantitative descriptive research model. The main purpose of quantitative descriptive research is to define the characteristics of anything. The aim of this kind of research is to determine the relationship between variables by determining one or more characteristics of a group or population, such as age, gender, religious preference and attitudes towards school (Fraenkel & Wallen, 2009).

Participants

Turkey's sample from PISA 2012 and 2015 was determined by stratified random sampling, considering the strata of type of education, type of school, location of school and administrative forms of schools. This is also done by random selection. Stratification is a sub-component of random sampling. The stratified sample aims to represent the sub-groups in the universe in the sample with their weight in the universe (Büyükoztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2009).

A total of 510,000 students from 65 countries in the 15-year-old age group responded to the PISA 2012 application to represent about 28 million students. The 15-year-old age group student universe in the PISA 2012 Turkey application was 1,266,638, while the Turkey universe that was able to participate in the application was 955,349 students. In addition, 4,848 students from 57 provinces and 170 schools representing 12 regions according to the Classification of Statistical Region Units (CSRU) Level 1 participated in the application (MoNE/ÖDSGM, 2015; OECD, 2012a; 2014). For PISA 2015 in Turkey, on the other hand, the number of applications among the 15-year-old student universe was 1,324,089 while the Turkey universe that was able to participate in the application was 925,366 students.

In the PISA study, the school sample was determined by the stratified random sampling method. In the first stage, for the implementation of PISA 2015, from 61 cities which represent 12 regions according to Nomenclature of Territorial Units for Statistics Level 1, 187 schools and 5,895 students participated in PISA 2015 (MoNE/ÖDSGM, 2016; OECD, 2015; 2016). The demographic characteristics of the student data used in the research are given in Table 1.

Table 1. Demographic characteristics of the students in the research sample

Variable			PISA 2012		PISA 2015			
			<i>f</i>	%	<i>f</i>	%		
Gender	Woman		2370	48,9	2938	49,8		
	Man		2478	51,1	2957	50,2		
Education status*	Mother	Higher Education ^{d, e, f, g}	772	16,7	836	14,4		
		Secondary Education ^c	108	2,3	846	14,5		
		Secondary School ^b	837	18,1	1158	19,9		
		Elementary School ^a	2214	47,9	2182	37,5		
		Has not completed the education period	688	14,9	796	13,7		
	Father	Higher Education ^{d, e, f, g}	1362	29,3	913	15,7		
		Secondary Education ^c	238	5,1	1108	19,0		
		Secondary School ^b	1164	25,0	1612	27,7		
		Elementary School ^a	1614	34,7	1840	31,6		
		Has not completed the education period	275	5,9	349	6,0		
		Home Facilities	Owning a table	Yes	4052	85,2	4919	84,8
				No	704	14,8	884	15,2
Owning a special room	Yes		3259	68,8	4108	71,1		
	No		1476	31,2	1673	28,9		
Owning a studying area	Yes		3929	82,8	4807	83,3		
	No		815	17,2	965	16,7		
Owning a computer	Yes		3208	67,8	3882	67,4		
	No		1521	32,2	1880	32,6		
Owning software	Yes	1558	34,8	2344	41,9			
	No	2921	65,2	3244	58,1			
Having internet	Yes	2684	56,9	3635	63,0			
	No	2031	43,1	2137	37,0			

* International Standard Classification of Education – ISCED 2011

^a ISCED 1: Secondary/elementary school

^d ISCED 5: Higher education/college

^f ISCED 7: Higher education/ masters

^b ISCED 2: Secondary/middle school

^e ISCED 6: Higher education/bachelors

^g ISCED 8: Higher education/PhD

^c ISCED 3: Middle school

(This classification has been adapted from OECD, European Union & UNESCO Institute for Statistics. (2015). ISCED 2011 Operational Manual Guidelines for Classifying National Education Programmes and Related Qualifications

Data Collection

The International Student Assessment Program (PISA) is an international assessment of 15-year-old students' math, science and reading skills. It is a program designed to monitor the knowledge and skills of students in various countries and of students in groups that have different demographic characteristics in each country. It can be mentioned that the PISA evaluation is based on three main principles: (1) Basic indicators of students' knowledge and skills, (2) contextual indicators of how student skills relate to important demographic, social, economic and educational variables, and (3) indicators linking background variables to the levels of the student and school and the results obtained (OECD, 2012b; 2015).

In the PISA studies, the student questionnaire which is used to gather data associated with student performance provides information about /characteristics. More than 80 index, standard total score and variable were defined as the sub-dimensions within the thematic groups of items included in the student questionnaire (MoNE/ÖDSGM, 2015, p. 127; MoNE/ÖDSGM, 2016). The results of PISA are calculated as 500 in all three areas and the standard deviation is 100 (OECD, 2012a; 2015). The PISA 2012 and 2015 study included students and school questionnaires designed to evaluate students' academic performance by using cognitive tests aimed at measuring that performance, although they also include reading skills and science literacy (MoNE/ÖDSGM, 2015). The data obtained from the PISA 2012 and 2015 results, which aim to measure students' mathematics, science and reading skills, are presented in various program formats at <http://www.oecd.org/pisa/data/>. The panel data for the use of SPSS which is presented on the relevant page has been downloaded and prepared for analysis.

Data Analysis

The PISA 2012 data provides the fit index values of the 1st-level single-factor measurement model established with 5 items in the tool of mathematics, reading and science literacy. Before the creation of Confirmatory Factor Analysis (CFA), an investigation was conducted as to whether the assumption of multivariate normality was achieved. As Relative Multivariate Kurtosis = $1.230 > 1.00$, it does not provide the assumption of multivariate normality. As the chi-Square value $0 \leq \chi^2/(df) = 0.95 \leq 2$ is in the critical value, it is observed to be in the perfect range. When the RMSEA value is less than the 0.05 critical value, it shows that it has a perfect fit index (Schermelleh-Engel, Moosbrugger & Müller, 2003). GFI, AGFI, CFI, NFI and NNFI values have a perfect fit index compared to critical values. It is seen that the measurement model established with 5 items constituting the home facilities is confirmed. As the correlation value of the five scoring types calculated according to the mathematics, reading and science literacy levels of students in the sample of Turkey PISA 2012 is over 0.90, mathematics, reading and science literacy, the measurement model fit index values, which were established by 5 scoring, gave excellent results. Since the items are inclusive of each other and the other two items are the sub-components of the "owning a studying area" item, the model was tried to be improved by modification in the error covariance.

The multivariate normality assumption was tested before the fit index values of the Level 1 single-factor measurement model established in PISA 2015 (10 items in mathematics, 10 items in reading and 8 items in science literacy). As Relative Multivariate Kurtosis is $= 1.068 > 1.00$, it does not provide the assumption of multivariate normality. Because the chi-square value $2 < \chi^2/(df) = 2.03 \leq 3$ is in the critical range, it appears to be acceptable. When the RMSEA value is less than the 0.05 critical value, it shows that it has a perfect fit index (Schermelleh-Engel, Moosbrugger and Müller, 2003). GFI, AGFI, CFI, NFI and NNFI values have a perfect fit index compared to critical values. It is seen that the measurement model established with 10 items constituting mathematical literacy has been confirmed. As the correlation value calculated in terms of the levels of math, reading and science literacy for PISA 2015 students in the Turkey sample is above 0.81, the fit index value of measuring models of mathematics, reading and science literacy was excellent. Since the items are inclusive of each other and the other two items are the sub-components of the "owning a studying area" item, the model was tried to be improved by modification in the error covariance.

To analyze the effect of the variables of home facilities, parents' education and student academic success on the provision of equal opportunities in education in Turkey on the basis of PISA 2012 and 2015, a micro-model impact analysis was performed by multiple regression.

Table 2. Skewness and Kurtosis Values in Terms of Students' PISA 2012 and PISA 2015 Data of Mathematics, Science and Reading Skills Variables

	PISA 2012		PISA 2015	
	Skewness	Kurtosis	Skewness	Kurtosis
Maths	.50	-.22	.24	-.28
Reading	.01	-.24	-.03	-.23
Science	.22	-.44	.27	-.43

At the stage of multiple regression analysis, the Mahalanobis values of mathematics literacy, science literacy and reading skills scores related to PISA 2012 and PISA 2015 data were analyzed. When the probability values in the chi-square distribution of the Mahalanobis values of the PISA 2012 data are examined, nine data are

obtained with values less than 0.001. In the PISA 2015 data, it is determined that there are five data for each of the three success points and multiple regression equations have been established by subtracting these values. In multiple link status analysis, which is one of the multiple regression analysis assumptions, it is understood that if the tolerance value, which is the variance ratio that cannot be explained by other independent variables, is lower than $(1-R^2)$.20, and if the variance magnification factor value is higher than 10, multiple connections exist between the independent variables (Tabachnick & Fidell, 2007). Tolerance and VIF values were interpreted by considering these criteria. In this study, because the skewness and kurtosis coefficients of the variables were between -1 and +1, it was assumed that the data were normally distributed in the sample group. As a result of the regression analysis, it was observed that the relationship between the variables was linear and that this relationship level was not high; the relationship levels were below .70 (Morgan, Leech, Gloeckner & Barrett, 2004, p. 50).

Results

Based on the results of Confirmatory Factor Analysis for home facilities, mathematics literacy, reading skills and science literacy variables, the models with single factor level 1 were examined by comparing them with the fit index values. Then multiple regression analysis findings were revealed.

The fit index values of the 1st-level single-factor measurement model established with six items in the PISA 2012 and 2015 home facilities tool are given above. Before making CFA, an examination was conducted as to whether the assumption of multivariate normality was achieved. As the Relative Multivariate Kurtosis is $= 1.081 > 1.00$, it does not provide the assumption of multivariate normality. Because the chi-square value is in the critical value range $2 < \chi^2/(df)=2,13 \leq 3$, it appears acceptable. When the RMSEA value is considered, it is smaller than the 0.05 critical value and the GFI, AGFI, CFI, NFI and NNFI values have a perfect fit index compared to critical values (Schermelleh-Engel, Moosbrugger & Müller, 2003). In this respect, it is seen that the measurement model established with six articles constituting PISA 2012 and 2015 home facilities has been confirmed. Figure 2 shows the measurement models of home facilities.

Table 3. Compliance Index Values of PISA 2012 and 2015 Turkey Data for Home Facilities Variable

Compliance Index Values	Year	$SB\chi^2/(df)$	RMSEA	GFI	AGFI	CFI	NNFI	NFI	Relative Multivariate Kurtosis
Home Facilities	2012	$12.80/(6)=2.13$	0.034	0.97	0.96	1.00	0.98	0.97	1.081
	2015	$27.89/(6)=4.65$	0.025	0.95	0.93	0.98	0.99	0.97	1.134

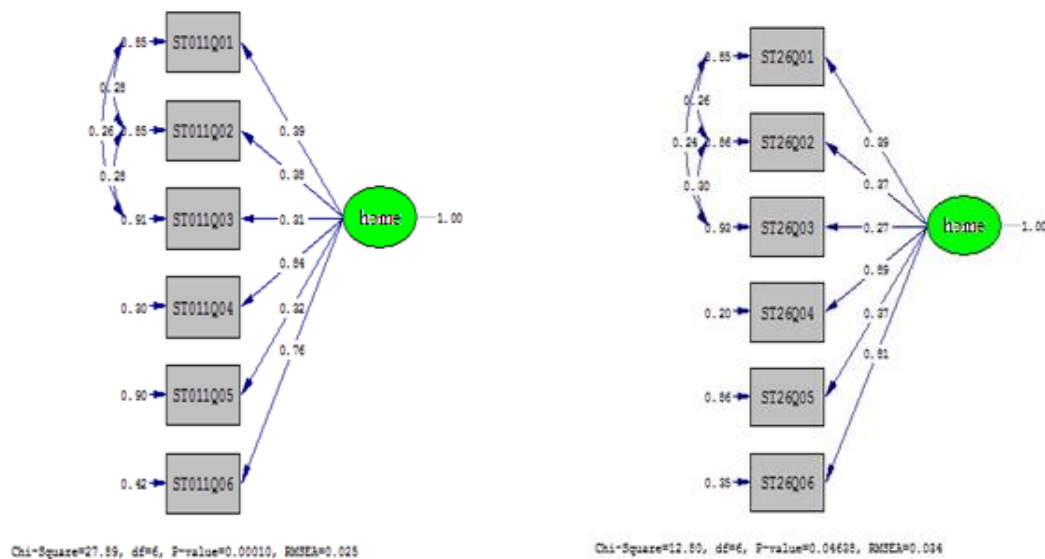


Figure 2. PISA 2012 and 2015 1st-Level Single-Factor Measurement Model for Home Facilities

According to the data of PISA 2012 and 2015, when the R^2 values of the home facilities are examined, it can be seen that having a computer ($R^2 = 0.80/0.70$) and the effects of internet presence at home have the highest value of $R^2 = 0.65/0.58$. Owning a table ($R^2 = 0.15/0.15$), a room ($R^2 = 0.14/0.15$), software ($R^2 = 0.14/0.10$) or working area ($R^2 = 0.07/0.09$) cases were found to affect success to a lesser extent.

Table 4. R^2 Values of Items in Home Facilities Measurement Model

Items	R^2	
	2012	2015
Owning a table	0.15	0.15
Owning a room	0.14	0.15
Owning a studying area	0.07	0.09
Owning a computer	0.80	0.70
Owning software	0.14	0.10
Having Internet	0.65	0.58

When the results of the PISA 2012 multiple regression analysis equation are examined, mathematics, reading and science are predictive of student academic success ($F_{(4-4494)}=237,89$, $p=,00/F_{(4-4494)}= 343,92$, $p=,00/F_{(4-4494)}= 180,60$, $p=,00$). It is seen that the independent variables of gender, mother's education, father's education and home facilities explain 18% ($R^2 = 0.18$) of the mathematics literacy score, 23% ($R^2 = 0.23$) of the reading skill score and 14% ($R^2 = 0.14$) of the science literacy score. When PISA 2015 examines the effect of gender, mother's education, father's education and home facilities on the total score for student academic success, a multiple regression analysis equation is examined. Maternal educational variable for mathematics and reading achievement; the standardized regression coefficient (β) of gender variable for science achievement was 0.026, and t-statistic was removed from the multiple regression analysis equation because it did not significantly predict the t-statistic $t = 1.84$, $p = 066 > .05$. When the results of the PISA 2015 multiple regression analysis equation are examined, mathematics, reading and science are predictive of student academic success.

It is seen that the independent variables of gender, father's education and home facilities explain 11% ($R^2=0.11$) of the mathematics literacy score, 14% ($R^2=0.14$) of the reading skill score and 11% ($R^2=0.11$) of research variables of the science literacy score. When PISA 2012 data are examined, the relative importance of predictive variables on mathematics and science success is as follows; home facilities score, father's education, mother's education and gender. The order of relative importance on reading skill is; gender, home education score, father's education and mother's education. According to the results of PISA 2015, the order of relative importance with respect to mathematics and reading success is; home facilities, father's education and gender. The relative importance with respect to science literacy is; home facilities, father's education and mother's education.

Table 5. Results of Multiple Regression Analysis on the Effects of Gender, Mother's Education, Father's Education and Home Facilities Variables on Student Academic Success

Year	Success Type	Variable	B	Standard Error _B	β	t	p*	Binary r	Partial R	Tolerance	VIF
2012	Mathematics ¹	Invariant	1773,91	19,45	-	91,21	,000	-	-	-	-
		Gender	-69,42	12,11	,08	-5,74	,000	-,08	-,09	1,00	1,00
		Mother's Education	45,30	5,92	,13	7,66	,000	,31	,11	,66	1,51
		Father's Education	64,46	5,534	,19	11,65	,000	,34	,17	,67	1,49
		Home Facility	51,51	3,95	,20	13,03	,000	,32	,19	,80	1,25
	Reading ²	Invariant	1816,53	16,99	-	106,90	,000	-	-	-	-
		Gender	208,89	10,58	,26	19,75	,000	,253	,283	1,00	1,00
		Mother's education	48,34	5,17	,15	9,35	,000	,317	,138	,66	1,51
		Father Education	52,58	4,84	,17	10,87	,000	,327	,160	,67	1,49
		Home Facility	47,02	3,45	,20	13,62	,000	,327	,199	,80	1,25
	Science ³	Invariant	1920,16	16,81	-	114,26	,000	-	-	-	-
		Gender	33,21	10,46	,04	3,18	,002	,040	,047	1,00	1,00
		Mother's Education	38,68	5,11	,13	7,57	,000	,284	,112	,66	1,51
		Father's Education	41,36	4,78	,15	8,65	,000	,289	,128	,67	1,49
		Home Facility	42,55	3,42	,19	12,46	,000	,300	,183	,80	1,25
2015	Mathematics ¹	Invariant	3472,68	30,98	-	112,08	,000	-	-	-	-
		Gender	-97,97	18,17	,07	-5,39	,000	-,06	-,07	1,00	1,00
		Father's Education	109,55	8,11	,17	13,52	,000	,24	,18	,92	1,09
		Home Facility	100,37	5,54	,23	18,12	,000	,28	,23	,92	1,09
	Reading ²	Invariant	3381,51	30,90	-	109,43	,000	-	-	-	-
		Gender	245,60	18,12	,17	13,55	,000	,17	,18	1,00	1,00
		Father's Education	106,64	8,08	,17	13,19	,000	,24	,17	,92	1,09
		Home Facility	106,04	5,52	,24	19,20	,000	,30	,24	,92	1,09
	Science ³	Invariant	3473,441	30,665	-	113,272	,000	-	-	-	-
		Mother's Education	18,562	8,330	,03	2,228	,026	,17	,02	,746	1,340
		Father's Education	100,406	9,007	,16	11,148	,000	,24	,15	,745	1,342
		Home Facility	97,638	5,624	,23	17,362	,000	,28	,22	,891	1,122
	¹ : Mathematics Literacy=1773,91-69,42*gender+45,30*mother's education+64,46*father's education+51,51*home facility score (R= 0,42/R ² =0,18/F= 237,89/p=,000*) ² : Reading Skills=1816,53+208,89*gender+48,34*mother's education +52,58*father's education+47,02*home facility score (R= 0,48/R ² =0,23/F= 343,92/p=,000*) ³ : Science Literacy=1920,16+33,21*gender+38,68*mother's education+41,36*father's education+42,55*home facility score (R= 0,37/R ² =0,14/F= 180,60/p=,000*)										
	¹ : Mathematics Literacy =3472,68-97,97* gender +109,55* father's education +100,37* home facility score (R= 0,33/R ² =0,11/F= 244,01/p=,000*) ² : Reading Skills =3381,51+245,60* gender +106,64* father's education +106,04* home facility score (R= 0,38/R ² =0,14/F= 316,73/p=,000*) ³ : Science Literacy =3473,44+18,562*mother's education+100,406** father's education +97,638* home facility score (R= 0,33/R ² =0,11/F= 235,33/p=,000*)										

*p<,05

Conclusion and Discussion

In general, among home facilities, owning a computer has the most significant effect on student academic success; on the other hand most significant is having the Internet at home. Reading skills are mostly predicted by the variables of gender and mother's and father's education. In this respect, PISA 2012 and 2015 reveal similar results within the scope of research variables. These results can also be said to be similar to the results of

family socio-cultural and economic impact on student academic success in the literature (Bol, Witschge, Van de Werfhorst & Dronkers, 2014; Brandsma, 2002; Cemalcılar & Gökşen, 2012; Coleman, 1968; Cresswell & Ainley, 2006; Dinçer & Uysal, 2010; Durmuş, 2008; Ferreira & Gignoux, 2010; Mohammadi, Akkoyunlu & Şeker, 2011; Smits & Gündüz Hoşgör, 2006; Tansel & Bircan Bodur, 2012; Tomul, 2011; World Bank, 2010; Yıldırım, Özdemir & Sezgin, 2014). There are three basic research results of the study of Mohammadi, Akkoyunlu and Şeker (2011) aiming to define the relationship between School Resources, Family Characteristics and Student Performance in Turkey: (1) students' individual characteristics significantly affect success, (2) the mother's level of education positively affects the student's academic success and (3) the intellectual aspect of the parents (i.e., number of books at home, number of social activities, number of activities carried out at the end of the week, etc.) has a positive and significant effect on the student's academic success. Indeed, Dincer and Uysal's (2010) study of student academic success in Turkey indicated that the type of educational programme and the student's socio-economic status are important determinants of student academic success in the PISA 2006 Science Test. The most determinative factor of the program type in student academic success is the student's socio-economic status. Student academic success is also similar in schools – a situation that is constantly renewing itself. In this case, it is emphasized that the education system reproduces instead of removing the existing disadvantages arising from the socio-economic situation.

In general, the family's income level affects the degree to which the family invests in its children's education. When the current situation in Turkey is analyzed, although the attitude towards education changes from region to region, the first group that has been forbidden to receive compulsory education is girls. In addition, the financial and gender role of the mother affects the participation of girls in terms of attitude and education (Smits & Gündüz Hoşgör, 2006).

When the status of the families of students who left school is analyzed in terms of social capital, risk factors include the mother's literacy, a lack of social security, the father's lack of a permanent job, the working of male students during school times and school drop-out due to migration (Cemalcılar & Gökşen, 2012; Ferreira & Gignoux, 2010; World Bank, 2010). Similarly, the studies of Gökşen, Cemalcılar and Gürlesel (2008) defined as having "dropped out" those children who did not attend any other educational institutions and who left school for a reason other than death or health problems before completing the eight-year compulsory education. According to the findings of the study, whose field research was conducted in Istanbul, Diyarbakir, Sanliurfa, Mardin, Erzurum and Konya, the factors leading to school dropout are (i) the education system and school conditions (ii) and socio-cultural and economic conditions.

Theoretically, the main reason for the provision of educational services is the positive externalities that these services have. In addition, due to the fact that not all individuals can fully comprehend the importance of education services, the state offers the first education services without compensation. Thus, the alternative cost of reading for poor students and their families is very high, and education loans are not easy to obtain, even in developing countries (Durmüş, 2008). In addition to talking about the economic effectiveness of educational investment, the return on investment can take about a quarter of a century to achieve. The return on investment among disadvantaged children is high, while the return on investment among children with a higher socioeconomic level is relatively low (Brandsma, 2002). In addition to debates over educational investment made by the public, the cost of education is related to the family's economic situation, educational perspective and socio-cultural aspects. Bol, Witschge, Van de Werfhorst and Dronkers' (2014) survey coincides with the social selection mechanism and the finding that the differentiation of students affects inequality.

When the income comparison of men in Turkey is compared between 1994 and 2002, it can be seen that the threshold of inequality is high. Another result is the high level of the inequality threshold when income is compared in terms of education levels (Tansel & Bircan Bodur, 2012). In 2001, as a result of the crisis, the implementation of the Conditional Cash Transfer Program launched in 2001 investigating the perspectives of beneficiaries (Yıldırım, Özdemir & Sezgin, 2014).

Tomul's study aiming to evaluate educational inequality in Turkey between 1975 and 2000 according to the Gini index reached the conclusion that, in all regions of Turkey, the educational level of the population increased between 1975 and 2000 (Tomul, 2011). In Engin-Demir's (2009) study, which aimed to investigate the factors that influence academic achievement in low-income students who live in the city centers of Turkey, the variables of the regression model were found to affect academic achievement to the degree of $\frac{1}{4}$.

When a comparison was conducted among countries using PISA 2000 data to define the importance of economic and social-cultural sources and schools for socio-economic inequalities in education, Marx, Cresswell and Ainley (2006) found that although cultural factors play a more important role in most countries, material resources are of considerable importance in some countries. Social factors have less impact. In many countries, educational differences such as school and program type mediate the relationship between socioeconomic status

and academic achievement. This relationship is even stronger in education systems that divide students into groups such as school/class/program type according to their cognitive abilities.

Implication

When equality and equal opportunity are considered theoretically, it is possible to determine that equality is the same practices at every point and that equality of opportunity can be defined as the equalization of conditions by revealing, as much as needed, anything with different situations. Therefore, in the most general sense, it may be advisable to distribute the budget appropriately in the proportion of deficiencies determined by a needs analysis, not according to the equality principle.

Different projects such as the “Haydi Kızlar Okula” (Girls Let’s Go to School) project from the Ministry of National Education and the Conditional Cash Transfer program from the Social Policy Ministry have been carried out in Turkey for children with special needs and to promote access to education for both genders. In this way, the development of facilitating models with a numerical increase can be achieved. Quality improvement can take place through government-created plans. Another important policy that will help provide equal opportunities in education is to establish a minimum quality standard in schools. As a result of school-based assessments, policies that improve equality of opportunity in education can promote parity among students with socio-economic levels by monitoring and evaluating the characteristics of pupils with low achievement.

When problems arising from inequality are investigated, one can conclude that groups of students have similar characteristics. These problems cannot be solved immediately and it can be said that they have disordered properties as well. In this respect, the presence of students with similar characteristics is an indication of a problem at the regional level. Considering the basic variables of equal opportunities in education, the creation of a regional economic index or regional training index can help uncover solutions to the problems that are encountered. When cultural and economic factors are thought to affect the role of gender in education in Turkey, the design of measures to be taken and the raising of awareness about the problem can lead to another benefit.

If education systems prioritize early childhood and basic education, the beginning of a strong education is ensured and its basic structure starts to emerge. It may be advisable to take measures in public policy, early childhood education and childcare. In this way, children have the ability to improve their lives. One of these policies may be to make early childhood education free of charge. According to the socio-economic situation, it may be more appropriate to charge the benefit of early childhood education. When out of the current situation in Turkey Fee considered early childhood (preschool) education advisable to make legally required. Most schools do not have the budget to meet their needs in a timely manner. To improve their physical structure and organize social events, many schools must seek donations from parents. Therefore, it may be advisable to develop a system by which schools can engage in direct spending.

Limitations

Two important reform movement that took place in Turkey since 2010. The first reform 12 years of the compulsory education period is intended to provide the educational levels of technology integration by strengthening its technological infrastructure of schools in Turkey. In this context, since the integration of Technology Increasing Opportunities and Technology Improvement Movement (Fatih Project) contains a number of topics that should be researched within itself. Therefore, this study examines the context of student academic success, an output indicator of the education system, with the reform of compulsory education to 12 years.

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International Journal of Contemporary Educational Research (IJCER)

www.ijcer.net

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To cite this article:

Akman, Y. (2020). The role of classroom management on confidence in teachers and educational stress. *International Journal of Contemporary Educational Research*, 7(1), 335-345. DOI: <https://doi.org/10.33200/ijcer.687109>

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The Role of Classroom Management on Confidence in Teachers and Educational Stress

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Abstract

Discussions on the quality of education have been continuing up to the present day. Especially teachers' educational efficacies, teacher-student relations and educational stress-which is thought to be related to them and which affects learning in negative ways- attract attention. Accordingly, this study aims to analyse the correlations between teachers' classroom management efficacies, students' confidence in teachers and the perception of educational stress. The study group was composed of 608 secondary school students in Altındağ district of Ankara province in 2018-2019 academic year. The research data were collected through classroom management scale, confidence in teachers scale and educational stress scale. The study employs relational survey model, and it analyses the data in quantitative techniques. The results obtained indicated that human management behaviours- one of the efficacies of classroom management- predicted confidence in teachers scale and of educational stress scale significantly. In this context, it may be recommended that pre-service and in-service training be offered to develop human management behaviours emphasising mutual respect, love and tolerance in teacher-student relations.

Key words: Classroom management, Confidence in teachers, Educational stress, Students, Secondary school

Introduction

Educated individuals can be considered as the driving force in the development of societies. The skills that individuals gain in the process of education secure both individual and social development. It can be said that the educational efficacies of teachers will promote the effectiveness of the educational process. Students' continual interactions with teachers in their life of education also prioritises teachers' roles. Teachers' competence in their area of expertise and in pedagogy will also influence students' levels of learning. Teachers' educational approaches employed in the classroom can facilitate students' integration with school, teachers and classes.

Classroom management has been regarded as one of the most important factors influencing learning by many educators and researchers for a long time, and its correlations with several variables such as discipline, self-control, responsibility and psychological well-being affecting educational outcomes have been investigated (Bean, 2007; Brophy, 1988; Fareh, 2018; Jones & Jones, 1998; Marzano, Marzano, & Pickering, 2003; Savage & Savage, 2010; Van de Grift, Van der Wal, & Torenbeek, 2011; Wang, Haertel, & Walberg, 1993). Teachers' understanding of students' behaviours and their considering students' thoughts important, their support, respect and affection for students will lead to mutual trust in teacher-student relations and thus will increase devotion to school. Brewster and Bowen (2004) also state that students' commitment to school will be influenced in positive ways if they are supported by their teachers. Teachers' management efficacies in the classroom can affect students' attitudes towards classes in positive ways and can cause academic and behavioural development. Students who have gained teachers' trust, who take part in learning activities and who have set up good relations with their friends can be thought to be more positive in well-being in the classroom. This situation will make inculcate students a sense of self-confidence and make them feel better. According to Cothran and Ennis (1997), teachers' reassuring behaviours affect students' behaviours as well as the classroom atmosphere (Raider-Roth, 2005) in positive ways. In support of this, Stelter (2013) points out that learning is built upon relations of mutual trust. The opposite situation can result in teachers with low efficacy in classroom management, teachers' failure to go down to the level of students and to appeal to them, teachers' failure to engage students in lessons, failure

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to generate fast and effective solutions to behavioural problems and thus can make students get away from school. It is probable that students who cannot become integrated with school and with teachers will have decrease in their interest in school and that their academic achievement will fall. Failure and unmet expectations can cause students to have stress. Sun, Hou and Xu (2013) also found that low academic achievement and conflicts with teachers caused increase in educational stress. From the students' point of view, analysing the relationships between teachers' classroom management skills, confidence in teachers, and educational stress can provide multiple benefits. Namely, it has been pointed out in various studies that teachers' professional development is not at the desired level. Classroom management skill is a competence that needs to be reviewed and developed frequently in a rapidly changing world. Determining teachers' classroom management competencies through the eyes of students can enable new policies and practices to be developed both in-service and pre-service training. In addition, it can be thought that students who are just at the beginning of adolescence can meet their physical, social and psychological changes in a healthy way, which will affect academic success and educational stress. Particularly human and behaviour management competencies, which are among the classroom management skills of teachers, enable students to interact positively with the students and cause them to meet the adolescence changes more effectively. It can also be predicted that the trust felt in the school environment in this process will affect the psychology of students positively and reduce the stress of education.

This study aims to analyse the correlations between teachers' efficacies in classroom management, students' confidence in teachers and their perceptions of educational stress. It may be said that teachers' classroom management efficacies will positively affect the school climate, and that students will develop their confidence in teachers. Students who are in a positive school atmosphere can be thought to struggle with educational stress better. No studies were found in the literature analysing the three variables together and investigating the correlations between them. Therefore, it can be predicted that the findings to be obtained by analysing the correlations between the variables will shed light on the practices which influence the quality of education. In this context, it seeks answers to the following questions:

1. What is student' perception about teachers' efficacies in classroom management, students' confidence in teachers and educational stress?
2. Are there any significant correlations between teachers' efficacies in classroom management, students' confidence in teachers and educational stress?
3. Do teachers' efficacies in classroom management, academic achievement and gender have a significant predictive effect on students' confidence in teachers and educational stress?

Conceptual Framework

Classroom Management

Classroom management indicates teachers' roles in creating a classroom environment helping to learn effectively by establishing the discipline in the classroom and by maintaining it (Savage and Savage, 2010). Besides, the process of classroom management also includes the principles and strategies teachers use in establishing a classroom environment of good quality. According to another definition, classroom management is the system of educating which regulates the physical environment of the classroom and which affects students' behaviours so as to facilitate learning (Bean, 2007). Fareh (2018) argues that effective classroom management creates an environment appropriate for learning and thus plays an indispensable role in encouraging learning. There are studies supporting the idea that students display disruptive and maladaptive behaviours in circumstances where classroom management is weak (Little E. & Hudson, 1998; Oliver, Wehby, & Reschly, 2011). According to Walker, Ramsey and Gresham (2004), such problematic behaviours hinder the teaching process, they result in ineffective learning environments and give harm to students' ability to continue learning. They state, on the other hand, that qualified teachers are actualised when management skills and strategies are used in classrooms. It can be thought that teachers can prevent the destructive behaviours influencing the teaching-learning process in negative ways through such skills and strategies.

Jones and Jones (1998) state that classroom management is discussed in the context of three approaches. The first one is the approach of counselling which is concerned with keeping students under discipline and with what students should do after their erroneous behaviour. The second is the behaviourist approach focusing on the techniques teachers use in modifying students' undesirable behaviours. The third one is the preventive approach focusing on how teachers hinder students' wrong behaviours by prioritising the process of effectiveness. On considering the those approaches as a whole, it can be said that teachers need to have adequate skills in human, course and behaviour management for effective classroom management. Brown (2001) reports that classroom

management includes several variables from regulating the classroom environment to teachers' teaching approaches. Classroom management contains such elements as teachers' ability to use their voice and body language, knowing how to manage the time, comprehensive knowledge of teaching strategies, considering students' differences and respecting them, empathising with students and motivating them. Özcan and Gülözer (2017) associate teachers' classroom management efficacies with various behaviours included in human, course and behaviour management. Behaviours such as close relations with students, considering students' thoughts important, respecting and taking into account are meant with human management. Course management, however, lays emphasis on working to a plan, students' involvement and competence in using methods, techniques and materials. Behaviour management focuses on behaviours related to establishing order in the classroom, attracting students' attention and giving feedback.

Confidence in Teachers

Confidence is described as reciprocation in the context of perception of physical and emotional confidence in interaction between individuals (Raider-Roth, 2005). Cunningham and Gresso (1993), on the other hand, refer to it as "the basis for school effectiveness". Bryk and Schneider (1996) state that confidence is composed of mutual respect, understanding and expectations. The studies mentioned stress that the trust relationship between teachers and students is on the basis of learning (Bryk & Schneider, 2002; Forsyth 2008; Furrer & Skinner, 2003; Mitra, 2009; Stelter, 2013). It is argued that trust relationships are the sources of motivation (Wentzel, 1991) for students in coping with the problems they encounter at school. It is also emphasised that such relations influence their psychological perceptions about themselves in positive ways. Additionally, the students who set up relations of confidence with their teachers were observed to display more positive and constructive behaviours and to suffer from stress and anxiety less (Baker, Grant, & Morlock, 2008; Lee, 2005; Stelter, 2013). In support of this, Gregory and Ripski (2008) found that teachers who had positive relations with their students encountered less student resistance and opposition. This situation was attributed to students' confidence in their teachers. Ennis and McCauley (2002) say that in the opposite case, when there is no confidence in teacher-student relations, students' level of involvement will be lower.

It is possible to achieve the educational objectives through confidence underlying interaction. Teachers have important roles in creating a classroom having an atmosphere of confidence. According to Hughes and Kwok (2006), confidence-based interaction in teacher-student relations is dependent on the presence of such elements as interest, respect, communication and cooperation. They will facilitate the formation of the environment of confidence. Crosnoe, Johnson and Elder (2004) claim that creating a strong tie between generations is one of the important elements increasing students' social integration. They also point out that teachers' positive interpersonal behaviours influence students' commitment to school (Hallinan, 2008) and their well-being (Van Petegem, Aelterman, Van Keer, & Rosseel, 2008). According to Ingersoll (2005), teachers' social relations with other staff in school as well as with students are an important part of teaching profession. Apart from that, some studies emphasise that relations based on confidence have also positive effects students' academic achievement (Goddard, Tschannen-Moran, & Hoy, 2001; Hamre & Pianta, 2001; Hughes & Kwok, 2006).

Educational Stress

Most researchers performed research on stress and its outcomes since stress suffered in educational environments can cause various psychological and behavioural problems. Educational stress was described to be the consequence of mental confusion arising due to academic or educational failure (Lal, 2013). Truc, Nguven, Dixon, Sun and Dunne (2015) describe educational stress as a subjective case arising as a response to the probable consequences which individuals' perceive academic performance cause and to such external sources of stress as humans (teachers, parents, etc.) and schooling system. Studies have demonstrated that students can face various situations such as taking examinations, studying hard, competing and failure to meet teachers' and parents' expectation throughout their school life which can cause stress (Mulyadi, Rahardjo, & Basuki, 2016; Dunne & Hou, 2012). Besides, Ghosh (2016) emphasises that children with high levels of stress are not supported emotionally by their parents. In a similar way, it was found that weak parent, teacher and peer relations also affected educational stress significantly (Van der Doef & Maes, 1999).

High educational stress can cause such serious psychological problems as depressed mood and bias towards suicide in students. Studies indicated that academic subjects were among the important sources of chronic stress for students all over the world (Brown, Teufel, Birch, & Kancherla, 2006; Bjorkman, 2007; Kouzma & Kennedy, 2004; Millar & Gallagher, 1996; Page, West, & Hall, 2011; Tang & Westwood, 2007). Some of the studies found that demographic variables such as gender, socio-economic status and ethnicity were correlated with students' educational stress (Bjorkman, 2007). Putwain (2007) said that educational stress was correlated

with several cognitive and educational factors such as anxiety, depression, performance, self-inability and laziness. Seçer, Veyis and Gökçen (2015), on the other hand, conceptualised educational stress as despair about expectations, workload, success anxiety and pressures from study.

Method

This study analysing the correlations between teachers' classroom management skills, students' confidence in teachers and students' educational stress- was conducted in relational survey model.

Study Group

The study was carried out in 2018-2019 academic year. The study group was composed of 608 secondary school students studying in Altındağ district of Ankara province, 293 (48.2%) of whom were female and 315 (51.8%) of whom were male. While 131 of them (21.5%) were the fifth graders, 164 (27%) were the sixth graders, 188 (30.9%) were the seventh graders and 125 (20.6%) were the eighth graders. In addition, in terms of academic achievement, it was determined that 356 of the students had 85 and less points (58.6%) and 252 had 86 and more points (41.4%).

Data Collection Tools

The research data were collected with *Classroom Management Scale* developed by Özcan and Gülözer (2017), *Confidence in Teachers Scale* adapted by Özer and Tül (2014) and *Educational Stress Scale* adapted by Seçer, Veyis and Gökçen (2015).

Classroom management scale contained 18 items and 3 factors (human management, course management and behaviour management). The Cronbach's Alpha coefficient for the scale was .85. The validity of the factor was analysed through confirmatory factor analysis (CFA). Following the analysis, item 1 (t- value was meaningless), item 4 (high standard error, >.99) and item 5 in the factor of human management were removed from the scale. In the process, the analysis was repeated after each item was removed. Following the analysis, the calculations were: $\chi^2 = 35.8$; $df = 9$ ($p < .0001$); $\chi^2/df = 3.97$; AGFI = .96; NFI = .95; CFI = .96; IFI = .96; RMR = .05 and RMSEA = .06 ($N=608$). It was found that there was perfect fit in the factor of course management. Fit indices were found to be adequate in the factor of behaviour management [$\chi^2 = 22.75$; $df = 9$ ($p < .0001$); $\chi^2/df = 2.52$; AGFI = .97; NFI = .97; CFI = .98; IFI = .98; RMR = .05 and RMSEA = .05]. On evaluating the model as a whole, it was found that the factors of classroom management could be used in this research. Also second level CFA was performed to verify the three-factor structure of the classroom management. The values in the analysis results indicated the adequacy of the goodness of fit value [$\chi^2 = 318.01$; $df = 77$ ($p < .0001$); $\chi^2 / df = 4.13$; AGFI = .91; NFI = .91; CFI = .93; IFI = .93; RMR = .08 and RMSEA = .07]. Additionally, the Cronbach's Alpha was calculated as .75, .50 and .70 for the factors, respectively. Nunnally (1978) stated that reliability coefficient above .70 indicated adequacy. Cresswell (2005) attributed small values yielded by reliability coefficient to the small number of items in a factor. In this case, inter-item correlation average was calculated to support reliability. This value was found to be .257. If value is between .2 and .4, it is expressed as a sign of reliability.

Confidence in teachers scale contained 12 items and one factor. The Cronbach's Alpha coefficient for the scale was .93. The findings in relation to the validity of the scale indicated that the scale could be used in the present data set $\chi^2 = 183.85$; $df = 54$ ($p < .0001$); $\chi^2/df = 3.40$; AGFI = .93; NFI = .98; CFI = .98; IFI = .98; RMR = .07 and RMSEA = .06] ($N=608$). Reliability and validity analyses were repeated. Reliability coefficient was found as .90.

Educational stress scale contained 16 items and 4 factors (despair about expectations, workload, success anxiety, pressures from study). The Cronbach's Alpha coefficient for the adapted scale was found to be .85. The goodness of fit values for the factor of pressures for studying were found as $\chi^2 = 10.74$; $df = 2$ ($p < .0001$); $\chi^2/df = 5.37$; AGFI = .96; NFI = .99; CFI = .99; IFI = .99; RMR = .03 and RMSEA = .08 following the CFA ($N=608$). The factor of workload was found to have perfect fit. Correlations were formed between items 8 and 9 by taking the recommendations for modification into consideration in the factor of despair about expectations. Following CFA, the values of $\chi^2 = 10.92$; $df = 4$ ($p < .0001$); $\chi^2/df = 2.73$; AGFI = .97; NFI = .99; CFI = .99; IFI = .99; RMR = .04 and RMSEA = .05 were found. In addition to that, the factor of success anxiety was found to yield the values of $\chi^2 = 10.13$; $df = 2$ ($p < .0001$); $\chi^2/df = 5.06$; AGFI = .96; NFI = .98; CFI = .99; IFI = .99; RMR = .05 and RMSEA = .08. Also second level CFA was performed to verify the four-factor structure of the educational stress. The values in the analysis results indicated the adequacy of the goodness of fit value [χ^2

= 326.87; sd = 90 ($p < .0001$); $\chi^2/sd = 3.63$; AGFI = .93; NFI = .92; CFI = .94; IFI = .94; RMR = .07 ve RMSEA = .06]. According to Çokluk, Şekercioğlu and Büyüköztürk (2016), having the χ^2/df value smaller than 5 and the RMSEA value at the .05-.08 interval and the CFI, NFI, IFI and AGFI values above .95 indicates that a model is adequate as a whole. The reliability coefficients for the factors were found to be .77, .71, .75 and .70, respectively. The reliability and validity values indicated that the scale was usable.

Procedures and Data Analysis

The schools where the scales would be administered in the process of data collection were contacted first. 650 students- who were included in the research on the basis of volunteering were given the scales and the application lasted 10 minutes. The completed scales were collected and 42 of them were excluded from analyses due to various problems (items not completed, more than one marking for an item, etc.). After that, the remaining 608 scales were put to the computer and the skewness-kurtosis values of the data set, the Q-Q graph and the extent to which the uni-directional and multi-directional normality assumptions were met were analysed. Having skewness-kurtosis values between -2 and +2 and having the image in the form of a 45 degree ellipsis on the Q-Q graph was interpreted as meeting the normality assumption (Kalaycı, 2014, p. 8). The intervals of averages 1.00-1.80 were interpreted as “very low”, 1.81-2.60 as “low”, 2.61-3.40 as “medium”, 3.41-4.20 as “high” and 4.21-5.00 as “very high” in this study. Also, the significant relationships between variables .00-.30 were interpreted as “low”, .31-.70 as “medium” and .71-1.00 as “high” (Büyüköztürk, Çokluk, & Köklü, 2012, p. 92). Mean was used in determining the perceptions about the variables, Pearson’s Moments correlation analysis was used in determining the correlations between the variables and multiple linear regression analysis was used in determining the effects in this study.

Findings

This study analysed secondary school students’ perceptions of teachers’ classroom management skills, of their confidence in teachers and of educational stress relatively and the correlations between those variables. It also investigated the predictiveness of teachers’ classroom management skills on confidence in teachers and on students’ educational stress. The findings obtained through mean and Pearson’s moments correlation analysis are shown in Table 1.

Table 1. Descriptive statistics and the findings for the variables

Scale	Factor	\bar{X}	df	1	2	3	4	5	6	7	8
CM	1.HM	3.69	.91	-							
	2.CoM	3.22	.98	.14**	-						
	3.BM	3.41	.87	.27**	.57**	-					
CT	4.CT	3.82	.85	.39**	.38**	.54**	-				
ES	5.PS	2.65	1.13	-.33**	-.08*	-.11**	-.19**	-			
	6.Wo	2.95	1.21	-.35**	-.12**	-.17**	-.17**	.44**	-		
	7.DE	3.20	.98	-.18**	.01	.02	-.03	.51**	.39**	-	
	8.SA	3.74	.99	-.04	.18**	.15**	-.15**	.24**	.19**	.51**	-

** $p < .01$; $N=608$

CM: Classroom management

CT: Confidence in teachers

ES: Educational stress

HM: Human management

CoM: Course management

BM: Behaviour management

DE: Despair about expectations

Wo: Workload

SA: Success anxiety

PS: Pressure from study

As is clear from Table 1, teachers’ competence in human management ($\bar{X}=3.69$) and in behaviour management ($\bar{X}=3.41$) is “high but their competence in course management ($\bar{X}=3.22$) is “medium”. Besides, students’ perceptions of confidence in teachers ($\bar{X}=3.82$) were found to be “high”. In addition to that, students’ perceptions of pressures from study ($\bar{X}=2.65$), workload ($\bar{X}=2.95$) and despair about expectations ($\bar{X}=3.20$) were found to be “medium” and their perceptions of success anxiety ($\bar{X}=3.74$) were found to be “high”.

The correlations between teachers classroom management efficacies, confidence in teachers and educational stress were analysed by using the enter model in this study. The analyses were done at two stages. At stage one, gender and academic achievement were coded in the form of dummy variables as control variables (female: 1, male: 0; 86-100:1; 0-85:0). While classifying academic success, it was aimed to reveal the effect of students with high achievement (86-100). At stage two, human management, course management and behaviour

management- the sub-factors of classroom management- were included in analyses. Durbin-Watson and VIF values were examined for the problem of multicollinearity. Having Durbin-Watson (DW) value of between 1.5 and 2.5, VIF value below 10 and CI value below 30 is regarded as the indicator that there are no multicollinearity problems (Kalaycı, 2014, p. 267-268; Çokluk, Şekercioğlu & Büyüköztürk, 2016, p. 38). In this context, the DW was found to be between 1.78 and 1.89, the VIF to be between 1.08 and 1.56 and the CI to be between 1.0 and 13.87. The values indicated that there were no multicollinearity problems. The results of multilinear regression analysis are shown in Table 2.

Teachers' classroom management efficacy along with the control variables in terms of students' confidence in teachers explained 37% of the total variance ($F=73.017, p<.05$). It was found that demographic variables did not have significant effects. Teachers' competence in human management ($\beta=.259, p<.05$) course management ($\beta=.107, p<.05$) and behaviour management ($\beta=.421, p<.05$) was found to be significantly correlated with confidence in teachers. Teachers' classroom management efficacy along with the control variables in terms of students' perceptions of pressures from study explained 12% of the total variance ($F=16.248, p<.05$). Demographic variables on their own were found to explain 1% of the total variance ($F=4.185, p<.05$). Thus, it was found that teachers' human management efficacy ($\beta=-.319, p<.05$) was significantly correlated with students' perceptions of pressures from study. Teachers' classroom management efficacy along with the control variables in terms of students' perceptions of workload explained 13% of the total variance ($F=19.094, p<.05$). Demographic variables on their own explained 1% of the variance ($F=3.611, p<.05$). It was found that academic achievement ($\beta=-.075, p<.05$) and teachers' human management efficacy ($\beta=-.323, p<.05$) were significantly correlated with students' perceptions of workload.

Table 2. Multilinear regression analysis results

	Confidence in Teachers			Pressures from study			Workload			Despair about expectations			Success anxiety		
	B	t	R ²	β	T	R ²	β	t	R ²	β	t	R ²	β	t	R ²
			.004			.013			.013			.038			.028
G	.02	.76		-.05	-1.46		-.04	-1.18		.06	1.60		.10	2.75*	
AA	.00	.16		-.07	-1.90		-.07	1.96*		-.18	-4.68*		.10	2.62*	
			.378			.121			.139			.074			.070
HM	.25	7.74*		-.31	-8.01*		-.32	-8.19*		-.19	-4.79*		-.09	-2.39*	
CoM	.10	2.71*		-.01	-.32		-.02	-.50		.02	.53		.13	2.71*	
BM	.42	10.4*		-.02	-.41		-.07	-1.54		.05	1.20		.10	2.01*	

N=608. Control variables were coded as dummy- Gender: Female (1), Male: (0); Academic achievement: 86-100: (1), 0-85: (1)

G: Gender, AA: Academic achievement, HM: Human management, CoM: Course management, BM: Behaviour management

* $p<.05$.

Teachers' classroom management efficacy along with the control variables in terms of students' perceptions of despair about expectations explained 7% of the total variance ($F=5.094, p<.05$). It was found that academic achievement was significantly correlated with teachers' human management efficacy ($\beta=-.196, p<.05$) and with students' perceptions of despair about expectations. Teachers' classroom management efficacy along with the control variables in terms of students' perceptions of success anxiety explained 7% of the total variance ($F=7.865, p<.05$). Demographic variables on their own explained 2% of the variance ($F=5.153, p<.05$). It was found that teachers' human management ($\beta=-.098, p<.05$), course management ($\beta=.131, p<.05$) and behaviour management ($\beta=.100, p<.05$) efficacies were significantly correlated with students' perceptions of success anxiety.

Discussion, Results and Recommendations

This study aimed to analyse the correlations between teachers' classroom management skills, confidence in teachers and students' perceptions of educational stress on the basis of views stated by 608 secondary school students. Previous studies indicated that teachers with developed classroom skills affected students' behaviours in positive ways (Emmer & Emertson, 2013; Fareh, 2018; Raider-Roth, 2005; Walker, Ramsey, & Gresham, 2004). It was also found by studies that students' confidence in teachers improved teacher-student relations. It was also found that trust-based relations increased students' academic outcomes (Mitchell, Forsyth, & Robinson, 2008), well-being and academic optimism (Murray & Zvoch, 2011) while decreasing alienation to school and educational stress (Stelter, 2013).

It was found in this study that teachers' human management skills were very developed. No studies were found in the literature supportive of this finding. However, it can be said that devotion to teaching profession in Turkey causes teacher-student relation to be like family relations. Akman and Özdemir (2019) point out that teachers feel the sense of commitment most to their students. The finding can be said to overlap with teachers' human management skills at least indirectly. Another finding was that confidence in teachers was high. The finding is supported by various studies (Akman, Abaslı, & Polat, 2018; Özer & Tül, 2014; Özer, Dönmez, & Atik, 2016). UNESCO Global Monitoring Report (2017) also emphasised that confidence in teachers is an approach prevalent in societies. Accordingly, students- the members of society- can be expected to have similar thoughts in terms of socialisation. Besides, students mostly stated that they felt success anxiety. The findings obtained in Kaya and Sezgin (2017) are also similar. Universities are valued very much in Turkey in students' getting a job. It can be predicted that this situation causes anxiety since students' proficiency is considered to be the reflections of their academic achievement especially in university entrance examinations. Similarly, it can be thought that secondary school students may be anxious during the transition to high school.

This study found that gender was a significant predictor of success anxiety. Thus, it was found that female students had higher success anxiety than male students. This was a finding supported by the one obtained in Acun Kapıkıran (2008). The reason for it can be the demand for encouragement, appreciation and approval and especially female students' thoughts to prove themselves through education and to attain success in this way. Their failure to achieve success can cause their school life to end and can reduce the probability to have a voice first in their family and then in the society family due to the patriarchal structure in Turkish society. Those factors can be thought to increase girls' success anxiety. Academically, it was observed that the students who were above 85 points had a significantly higher success anxiety. The situation might have stemmed from belief that appreciation and approval which are the results of achievement may be lost. Another finding was that students with scores below 85 had higher perceptions of workload and despair about expectations. It was found in relevant literature that students who were academically unsuccessful developed negative attitudes towards school (Parmaksızoğlu Cebenoyan, 2008). The situation can cause students to become alienated from school and to find causes for their failure. These reasons include reduced free time and fatigue due to the excessive course load. Thus, failure of time constraints in a vicious circle form and failure to meet the expectations of students as a result of academic failure may lead to despair.

The findings demonstrated that there were significant correlations between classroom management skills, confidence and educational stress. It is known that teachers' competence in classroom management improves teacher-student relations (Kayıkçı, 2009; Sun, 2015). In a similar way, confidence in teachers is remarkable as an element reducing students' stress (Lee, 2005; Sotardi, 2018). The findings obtained in the study demonstrated that classroom management was an important element influential in students' perceptions of confidence and stress. Especially the significant correlations between human management and students' perceptions of confidence, despair about expectations, workload and pressures for studying were prominent. Accordingly, the thing measured in human management was that each student was an individual, that their feelings and thoughts were taken into consideration, were supported and that students were the entities deserving respect. In other words, students consider behaviours which touch their internal world and their entity and which value them important rather than the materials used in classes, the way they are made to sit in the classroom or presentation techniques used in classes. Several studies point to the importance of close and careful relations students develop with their teachers (Capern & Hammond, 2014; Kaniuka & Vickers, 2010). In brief, feelings are emphasised. Findings that processing and the information and mental processes are influenced by feelings are remarkable in studies (Owens, Stevenson, Hadwin, & Norgate, 2012; Viljaranta, Aunola, Mullola, Virkkala, Hirvonen, Pakarinen, & Nurmi, 2015). Besides, Zagonc (1980) also states that feelings are a system which are more prominent than cognitive processes and which regulate emotions. In addition to that, factors such as failure, examination pressures and extreme workload were also found to affect students' psychological health in negative ways (Li & Zhang, 2008). Lin and Chen (1995) point to the fact that high academic pressures increase bias towards violence and that they cause students to experience various developmental problems. It can be thought that the problems students can encounter can be overcome with the guidance of teachers having high efficacy of classroom management. Additionally, it was observed in the light of current and previous research findings that teachers who could understand students' feelings through efficient interaction and who could develop practices accordingly could create more positive learning environments (Romero, 2015). This can be regarded as a reflection of effective classroom management skills. In addition to that, Thompson (2016) claims that sense of confidence increases students' academic and behavioural achievement. In this context, the interpretation that confidence-dominated relations between teachers and students will reduce students' stress can be made. It is evident that the key to an intimate atmosphere in which students can share their feelings with their teachers is in relations which are built upon trust. It can be predicted in this context that teachers who make students feel that they are valuable can influence students' psychology and can reduce their anxiety.

In conclusion, teachers' classroom management efficacies were found to have significant effects on confidence in teachers and on students' stress. Especially the fact that human management efficacies predicted all variables significantly pointed to the importance basing teachers' relations with students on affection, respect and tolerance. Accordingly, it may be recommended to the future studies that (i) the study be repeated with larger samples, (ii) studies be conducted in qualitative or mixed methods; and in terms of application it can be recommended that (i) pedagogical efficacy be prioritised in teacher training process, (ii) social activities to promote teacher-student relations be increased, (iii) pre-service and in-service training to increase the behavior management skills of teachers and prospective teachers.

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International Journal of Contemporary Educational Research (IJCER)

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To cite this article:

Güriçin, C. & Sevinç, Ö.S. (2020). Determination of teacher candidates' awareness of environmental ethics. *International Journal of Contemporary Educational Research*, 7(1), 346-361. DOI: <https://doi.org/10.33200/ijcer.643329>

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Determination of Teacher Candidates' Awareness of Environmental Ethics*

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Abstract

The aim of this study is to determine the awareness levels of teacher candidates about environmental ethics. A survey model from quantitative research methods was used to determine the environmental ethics awareness levels of teacher candidates. An environmental ethics awareness scale was used as the data collection tool, and the working group of the study consisted of all teacher candidates studying in the Faculty of Education of a state university in the Western Black Sea region of Turkey. The data collected were analyzed in terms of statistical methods, including arithmetic means, standard deviations, the Kruskal Wallis H test, and the Mann Whitney U test. According to the findings of the study, environmental ethics awareness levels of teacher candidates were higher than average. Furthermore, there were no differences for gender, maternal education, paternal education, high school graduated from, department of study, monthly income of the family, class level, or residence of the student prior to university.

Keywords: Environmental ethics, Environmental ethics awareness, Environmental awareness, Teacher candidate

Introduction

The environment can be defined as the area in which all living beings carry out all their vital activities on Earth, where inanimate elements such as soil, air, and water complement each other and often provide resources. This concept may be given different definitions according to various branches of science, as well as different areas that can be described as environmental in light of scientific developments (Ağbuğa, 2016). When we look at the components of environmental concepts, it is seen that the environment can only survive with the harmony of these components. The way to achieve such harmony is through the regulation of human activities, because the most important factor affecting environmental dynamics both directly and indirectly is human activity. At this point, in addition to creating environmental awareness by explaining what environmental problems are, it is necessary to combine this with the concept of value and address the conscience as well as the mind. Awareness should be combined with giving importance and value so that disruptive activities can be prevented. Today, the concept and approach of 'environmental ethics', which blends environmental knowledge with an ethical approach, pursues this mission. Being aware of this has also given rise to the concept of 'environmental ethics awareness'.

Environmental crises such as the threat of global desertification, the increasing carbon footprint, and the sudden emergence of environmental problems as never before have laid the groundwork for the development of the concept of environmental ethics (Hens & Susanne, 1998: 116). The main aim of environmental ethics is to guide and shape attitudes and behaviors that will guarantee the protection of all living creatures' habitats (Kılıç, 2008). Environmental ethics also brings a new and deeper perspective on the environment, distinguishes itself from traditional ethics by being extensible, and exposes environmental problems beyond individual societies and nations by being global in scope (Yang, 2006: 23-24). According to environmental ethics, nature should be perceived as a moral partner (Nasibulina, 2015: 1080). Indeed, to preserve such ethics, individual-environment relations today, and the future security of environmental assets, conscience and harmony with regulating concepts such as responsibility (Kaypak, 2010) are required while examining the natural environment and environmental behaviors that protect the value of the field, and this is a growing topic of research (Gül, 2013). Environmental issues are being explored in depth by examining solutions to develop interdisciplinary works by raising awareness of 'practical ethics' in the field (Oguz et al., 2005). The general form of expression is the

*This study was produced from the master's thesis entitled "Determination of the awareness of teacher candidates for environmental ethics", prepared by the first author under the supervision of the second author.

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systematic examination of the moral relations between humans and their natural environment (Des Jardins, 2006: 46). Accordingly, environmental ethics examines the moral basis of environmental responsibility by asking questions about humans and their environment (Ojomo, 2011: 573).

Innovations in the current curriculum of teacher education were required in Turkey, and the Board of Higher Education has gradually implemented such change from the academic year of 2018-2019 within the undergraduate curriculum for faculties of education in the field of teacher training. With these changes to the content of the curriculum, the most noticeable change has been in the primary education section (Yurdakal, 2018). In this context, based on awareness of environmental ethics, the chain is so important (2018a), the new approach to teacher training in degree programs is organized as follows: "In today's higher education in the field of Educational Sciences and for teachers in the field of education, increasingly ethical, moral, and cultural issues and the importance of these issues are increased significantly". "The renewed licensing program for teacher candidates in terms of professional knowledge and skills related to the field, in addition to adequate equipment in terms of social, cultural, moral, and intellectual aspects of personality, will aid in having a sophisticated, well-equipped, more humane, and virtuous country and the world will take an active role in the construction of moral and cultural values needed among those to be trained as leaders." In addition to courses that directly address the concepts of ethics and values, such as character and value education, or ethics and ethics in education, for example, "environmental sensitivity and studies related to environmental sensitivity in the world" will be provided in the context of environmental education. Similarly, "rethinking human-nature relations on the sustainability axis" (YÖK, 2018b) in sustainable development and education courses is another important subject in this field. In this context, it is important for educators to have good morals and ethical and professional values, and to have thoroughly assimilated these into their lives. It will be possible for us to avoid human and moral breakdowns and problems with educators who will be role models in these issues.

The literature includes studies with different contents and sizes on environmental ethics. For example, some studies analyzed the attitudes of students and teacher candidates and environmental biocentrism, ecocentrism, anthropocentrism, and techno-centric approaches while performing research domestically and abroad (Erten, 2007; Erten, 2008; Saka, Sürmeli, & Öztuna, 2009; Karakaya, 2009; Erten & Aydoğdu, 2011; Çobanoğlu, Karakaya, & Türer, 2012; Karakaya & Çobanoğlu, 2012; Sürmeli & Saka, 2013; Cappellaro, 2016; Thompson & Barton, 1994; Thompson, 1998; Schultz & Zelezny, 1999; Kortenkamp & Moore, 2001; Casey & Scott, 2006; Özdemir, 2014; Kasalak, Yurcu, & Akıncı, 2018; Bozdemir & Faiz, 2018). In addition to those studies, students' awareness and perceptions about environmental ethics (Özdemir, 2012; Bülbül, 2013; Özer, 2015; Gerçek, 2016; Sungur, 2017; Dikicigil, 2018) and their environmental sensitivities (Kiper, Korkut, & Topal, 2017) have also been explored in some works. Other works in the literature have addressed students' values in relation to the nature of their orientation, the nature of their choices of study (Dervişoğlu & Kılıç, 2013), patterns of moral reasoning on environmental issues among socio-scientific program students (Uzel, 2014), the necessity of bioethics education (Bakar, 2010), attitudes towards environmental ethics and sustainable environment (Tunç & Yenice, 2017), and knowledge of environmental ethics (Wongchantra & Nuangchalerm, 2011).

When the studies conducted with the participation of teacher candidates are examined, other factors found to have impacts on environmental knowledge, attitudes, and behaviors have included the gender factor (Şama, 2003; Çabuk & Karacaoğlu, 2003; Deniz & Genç, 2007; Manzaral, Barreiro, & Carrasquer, 2007; Erten, 2008; Kahyaoğlu, Daban, & Yangın, 2008; Karakaya, 2009; Şenyurt, Temel, & Özkahraman, 2011; Wongchantra & Nuangchalerm, 2011; Çobanoğlu, Karakaya, & Türer, 2012; Kiper, Korkut, & Üstün Topal, 2017; Karakaya & Yılmaz, 2017), the licensing department (Şama, 2003; Çabuk & Karacaoğlu, 2003; Kahyaoğlu, Daban, & Yangın, 2008; Karakaya, 2009; Saka, Sürmeli, & Öztuna, 2009; Şenyurt, Temel, & Özkahraman, 2011; Can, 2012; Kiper, Korkut, & Üstün Topal, 2017), class level (Çabuk & Karacaoğlu, 2003; Manzaral, Barreiro, & Carrasquer, 2007; Can, 2012; Sungur, 2017), place of residence (Şama, 2003; Karakaya, 2009), education status of the father (Şama, 2003), enrollment in courses on the environment (Deniz & Genç, 2007; Saka, Sürmeli, & Öztuna, 2009; Bakar, 2010; Bayık Temel & Özkahraman, 2011), and family income level (Şama, 2003). In the literature, to assess teachers candidates' environmental ethics awareness, gender, environmental ethics, the department of study, grade level, university region (Bülbül, 2013; Özer, 2015; Dikicigil, 2018; Sönmez, 2018) have been demonstrated to be effective variables.

As a result, when the field is examined, it is seen that the research conducted to date is generally oriented towards determining the participants' approaches, attitudes, knowledge, and perceptions of the environment. There are a limited number of studies examining environmental ethics awareness, including the concept of environmental valuation. In addition, it is observed that studies on environmental ethics awareness are usually conducted with only undergraduate students from a single department and that they incorporate a small number of variables. Therefore, it is necessary to contribute to the literature with research that will be conducted with different undergraduate departments and that will take into account a larger number of variables thought to be

related to environmental ethics awareness.

In this study, it is aimed to provide data on the environmental ethics awareness levels of teacher candidates and on the relationships of the variables that are thought to have an effect on this awareness. This study and similar studies for raising awareness and gathering data on environmental ethics in terms of activities to contribute to environmental training programs to improve the content of higher education courses will help improve the thinking on environmental ethics in the future.

The Aim of Research

The aim of this study is to determine the environmental ethics awareness levels of teacher candidates in the Faculty of Education and to investigate whether their environmental ethics awareness levels are related to some specified variables. For this purpose, the answers to the following questions were sought:

- 1- What is the level of environmental ethics awareness of teacher candidates?
- 2- Is there a significant difference between the awareness levels of environmental ethics in terms of the personal characteristics of teacher candidates (gender, parents' education levels, place of residence before coming to university, high school type, level of study, department of education)?

Method

Research Model

The research was designed in descriptive design as defined by (Fraenkel, Wallen & Hyun, 2012) as a kind of general research types. Descriptive studies are generally carried out to clarify a given situation, to make assessments in line with standards, and to reveal possible relationships between events (Çepni, 2007). In addition, descriptive research is defined as research that describes a given situation as fully and carefully as possible (Büyüköztürk et al., 2010).

Study Group

The study group consists of a total of 871 teacher candidates from the Faculty of Education of a university in a province of the Western Black Sea region of Turkey. Since it was possible to reach the teacher candidates who made up the population of the research, no sampling method was selected. Of the 871 data collection tools distributed to the students, 38 forms were excluded from the evaluation because they were not filled out properly and 833 forms were thus taken for evaluation. Of the individuals who participated in the study, 78% were female (655 participants) and 21% were male (178 participants). All departments of the faculty and all grade levels were included in the study, and the participants' personal characteristics are shown in Table 1.

Table 1. The demographic features of participants

Demographics		Number	Percent (%)	Demographics		Number	Percent (%)
Gender	Female	655	78.6	Type of High School	Religious Vocational High School	54	6.5
	Male	178	21.4		Vocational High School	53	6.4
Education Level of Mother	Primary	502	60.3		Other	182	21.8
	Secondary	125	15	Class Level	1st Year	245	29.4
	High School	134	16.1		2nd Year	206	24.7
	University	44	5.3		3rd Year	210	25.2
Education Level of Father	Primary	319	38.3		4th Year	172	20.6
	Secondary	157	18.8	Department	Science Teaching	121	14.5
	High School	219	26.3		Preschool Teaching	61	7.3
	University	127	15.2		English Teaching	57	6.8
Residence Before University	Village	102	12.2		Turkish Teaching	100	12
	Town	291	34.9		Psychological Counseling and Guidance	267	32.1
	City	437	52.5		Classroom Teaching	227	27.3
Type of High School	Anatolian High School	523	62.8				
	Science High School	14	1.7				

Data Collection

In order to collect data, a 10-item personal information form was prepared and the Environmental Ethics Awareness Scale was used. Expert opinions were obtained from two specialists in the field of educational

sciences and one in a science field, and 8 variables regarding personal information were included in the study accordingly. These variables are gender, class level, department, family income status, mother's education level, father's education level, place of residence before coming to university, and the type of high school that the participant graduated from. As another data collection tool in the research, the Environmental Ethics Awareness Scale developed by Özer and Keleş (2016) was used after obtaining the required permission. This scale contains 23 questions and was prepared as a 5-point Likert-type scale. The question groups formed by grouping 23 items constitute the sub-dimensions of the scale. The first sub-dimension is "Definition of Environmental Ethics" (DEE) (questions 1-7), the second sub-dimension is "Aim of Environmental Ethics" (AEE) (questions 21-23), the third sub-dimension is "Reasons for the Emergence of Environmental Ethics" (REEE) (questions 16-20), and the fourth sub-dimension is "Measures to be Taken for Environmental Ethics" (MTEE) (questions 8-15). Each question on the scale could be given the highest score of 5 and the lowest score of 1. Upon selecting these data collection tools, necessary permission was obtained from the Dean of the Faculty of Education.

The Cronbach alpha coefficient (α) for the overall scale was calculated to ensure the reliability of the data obtained. It was calculated as 0.944. In relation to the sub-dimensions, for "Definition of Environmental Ethics" α was 0.913; for "Aim of Environmental Ethics" it was 0.902; for "Reasons for the Emergence of Environmental Ethics" it was 0.781; and for "Measures to be Taken for Environmental Ethics" it was 0.842.

To ensure the validity of the scale, confirmatory factor analysis (CFA) was also applied over the data obtained. Accordingly, the alignment indices of the model were examined and it was determined that $\chi^2/df = 1184.892/224 = 5.736$. It was observed that the value obtained from this calculation fit well. Values of DFA = RMSEA = 0.075, NFI = 0.90, RFI = 0.89, IFI = 0.92, TLI = 0.90, and CFI = 0.92 were also observed to coincide with the alignment index values of the scale.

Data Analysis

Data were analyzed using a statistical package program. The mean values of the study were defined as 'strongly disagree' for 1 to 1.79, 'disagree' (low level) for 1.80 to 2.59, and 'neutral' (middle level) for 2.60 to 3.39. They were defined as 'agree' between 3.40 and 4.19 and 'absolutely agree' (high level) between 4.20 and 5.00. Frequency (f) and percentage (%) were also used for descriptive statistical analyses of the demographic information of the participants. The distribution of the dataset was examined with the Kolmogorov-Smirnov test to determine the tests to be used to compare the environmental ethics awareness of the teacher candidates according to the overall scale and sub-dimensions. Nonparametric tests ($p > 0.05$) were used because the variables in the lower problems of the scale were not normalized. The Mann-Whitney U test and the Kruskal-Wallis H test were used for the gender variable because the environmental ethics awareness dataset did not show normal distribution. The Mann-Whitney U test was used to test the differences between the categories of the Kruskal-Wallis H test.

Findings

In this section, analyses performed to determine the students' awareness of environmental ethics are presented within the subcategories of the environmental ethics awareness levels of teacher candidates and the comparison of the environmental ethics awareness levels.

A- Environmental Ethics Awareness Levels of Teacher Candidates

The results of the analysis to determine the environmental ethics awareness levels of the teacher candidates are shown in Table 2 below.

Table 2. Environmental ethics awareness levels of teacher candidates

Dimensions	N	Mean	SD
DEE	833	4.64	0.58
AEE	833	4.72	0.57
REEE	833	4.40	0.59
MTEE	833	4.42	0.55
Environmental Ethics Awareness	833	4.52	0.51

According to Table 2, environmental ethics awareness levels were higher than average (mean > 4.20) overall and in terms of sub-dimensions among the teacher candidates participating in the study. According to the findings, it can be said that the teacher candidates have an awareness of environmental ethics.

B. Comparison of Environmental Ethics Awareness Levels of Teacher Candidates

In this section, a comparison of environmental ethics awareness of teacher candidates is made based on the following variables: 1. Gender, 2. Monthly income level of the family, 3. Education level of the mother, 4. Education level of the father, 5. Residence before coming to university, 6. Type of high school that the participant graduated from, 7. Year of education, 8. Mann-Whitney U and Kruskal-Wallis H test results.

1- Comparison of Environmental Ethics Awareness of Teacher Candidates According to Gender

Table 3. Mann-Whitney U test results on teacher candidates' awareness of environmental ethics in terms of gender

Dimensions	Group	N	Mean Rank	Rank Sum	U	p
Environmental Ethics Awareness	Female	655	431.97	282940.00	48490.00	0.001
	Male	178	361.91	64421.00		
DEE	Female	655	431.71	282767.5	48662.50	0.000
	Male	178	362.88	64593.5		
MTEE	Female	655	427.65	280107.50	51322.50	0.014
	Male	178	377.83	67253.50		
REEE	Female	655	432.26	283132.00	48298.00	0.000
	Male	178	360.8	64229.00		
AEE	Female	655	428.75	280829.00	50601.00	0.001
	Male	178	373.78	66532.00		

$p < 0.05$

According to Table 3, environmental ethics awareness and its sub-dimensions differ significantly according to gender ($p < 0.05$), and the averages of female participants are significantly higher than the averages of males. According to this, we can say that females have higher levels of environmental ethics awareness than males.

2- Comparison of Teacher Candidates' Environmental Ethics Awareness in Terms of Their Parents' Monthly Income Levels

Teacher candidates' environmental ethics awareness levels did not differ significantly according to their parents' monthly incomes ($\chi^2 = 4.825$ and $p = 0.185 > 0.05$). DEE did not differ significantly among the sub-dimensions of the scale ($\chi^2 = 4.272$ and $p = 0.234 > 0.05$). The values for MTEE ($\chi^2 = 4.721$ and $p = 0.193 > 0.05$), REEE ($\chi^2 = 4.318$ and $p = 0.229 > 0.05$), and AEE also did not differ significantly ($\chi^2 = 3.273$ and $p = 0.251 > 0.05$).

Accordingly, it can be said that the monthly income of the family is not a factor affecting the environmental ethics awareness of the teacher candidates both in general and on the basis of the sub-dimensions.

3- Comparison of Environmental Ethics Awareness of Teacher Candidates According to Maternal Education Level

Table 4. Kruskal-Wallis H test results of environmental ethics awareness of teacher candidates in terms of maternal education level

Dimensions	Education Level of Mother	N	Mean Rank	Chi-square	df	p	Difference
Environmental Ethics Awareness	Primary School (1)	502	415.76	5.255	3	0.154	
	Elementary	125	392.57				

School (2)						
	High School (3)	134	383.12			
	University (4)	44	347.64			
DEE	Primary School (1)	502	418.24			
	Elementary School (2)	125	395.21	8.425	3	0.038
	High School (3)	134	375.18			1-3
	University (4)	44	336.01			1-4
REEE	Primary School (1)	502	411.08			
	Elementary School (2)	125	386.65	3.797	3	0.295
	High School (3)	134	405.63			
	University (4)	44	349.23			
MTEE	Primary School (1)	502	412.16			
	Elementary School (2)	125	395.42	2.673	3	0.445
	High School (3)	134	388.34			
	University (4)	44	364.68			
AEE	Primary School (1)	502	414.67			
	Elementary School (2)	125	397.88	6.449	3	0.092
	High School (3)	134	368.88			
	University (4)	44	388.36			

$p < 0.05$

As shown in Table 4, environmental ethics awareness did not differ significantly according to the maternal education level ($\chi^2 = 5.255$ and $p = 0.154 > 0.05$).

DEE values differed significantly among the sub-dimensions of the scale ($\chi^2 = 8.425$ and $p = 0.038 < 0.05$). In terms of the differences between the types of schools from which participants' mothers graduated, the findings were found to be in favor of primary school graduates ($U = 30037.500$, $p = 0.048 < 0.05$) between primary school and university and in favor of primary school graduates ($U = 2349.000$, $p = 0.020 < 0.05$). This means that the awareness levels of the children of mothers who graduated from primary school are significantly higher. Families whose education level is at the primary school level can be said to have used their resources more painstakingly given their professional and economic situations.

Among the sub-dimensions of the scale, MTEE ($\chi^2 = 2.673$ and $p = 0.445 > 0.05$), REEE ($\chi^2 = 3.797$ and $p = 0.295 > 0.05$), and AEE ($\chi^2 = 6.449$ and $p = 0.092 > 0.05$) did not differ significantly.

4- Comparison of the Environmental Ethics Awareness of Teacher Candidates According to Paternal Education Level

Table 5. Kruskal-Wallis H test results for environmental ethics awareness of teacher candidates according to paternal education level

Dimensions	Education Level of Father	N	Mean Rank	Chi-square	df	p	Difference
Environmental Ethics Awareness	Primary School (1)	319	435.38	7.046	3	0.070	
	Elementary School (2)	157	417.06				
	High School (3)	219	385.86				
	University (4)	127	388.85				
DEE	Primary School (1)	319	429.58	5.006	3	0.171	
	Elementary School (2)	157	419.94				
	High School (4)	219	388.83				
	University (4)	127	394.76				
REEE	Primary School (1)	319	439.58	9.060	3	0.029	1-3
	Elementary School (2)	157	411.11				
	High School (3)	219	390.79				1-4
	University (4)	127	377.15				
MTEE	Primary School (1)	319	431.05	5.532	3	0.137	
	Elementary School (2)	157	420.07				
	High School (3)	219	385.81				
	University (4)	127	396.11				
AEE	Primary School (1)	319	424.94	2.639	3	0.451	
	Elementary School (2)	157	408.58				
	High School (3)	219	400.41				
	University (4)	127	400.49				

p < 0.05

As shown in Table 5, environmental ethics awareness did not differ significantly according to paternal education level ($\chi^2 = 5.255$ and $p = 0.154 > 0.05$).

REEE values did not differ significantly among the sub-dimensions of the scale ($\chi^2 = 4.272$ and $p = 0.234 > 0.05$). As a result of the test findings, the difference between school types; Elementary School – High School, between primary school graduates in favor of fathers ($U = 30776.500$ $p = 0.17 < 0.05$ to P); Primary School between elementary school and university were in favor of the dads ($U = 17172$ $p = 0.11 < 0.05$ p). In this context, it can be said that fathers with higher educational levels cannot provide their children with the necessary guidance on environmental issues.

Again, the DEE ($\chi^2 = 5.006$ and $p = 0.171 > 0.05$), MTEE ($\chi^2 = 5.532$ and $p = 0.137 > 0.05$), and AEE ($\chi^2 = 2.639$ and $p = 0.451 > 0.05$) sub-dimensions did not differ significantly.

5- Comparison of Teacher Candidates' Environmental Ethics Awareness According to Residence of the Student Prior to University

Environmental ethics awareness did not differ significantly according to the residence of the student before coming to university ($\chi^2 = 3.70$ and $p = 0.168 > 0.05$).

DEE values did not differ significantly among the sub-dimensions of the scale ($\chi^2 = 4.272$ and $p = 0.234 > 0.05$). There were also no significant differences for the sub-dimensions of MTEE ($\chi^2 = 3.889$ and $p = 0.143 > 0.05$), REEE ($\chi^2 = 2.094$ and $p = 0.351 > 0.05$), or AEE ($\chi^2 = 3.538$ and $p = 0.171 > 0.05$).

It can be said that none of the sub-dimensions of the Environmental Ethics Awareness Scale were affected by the places of residence of the teacher candidates before they came to university.

6- Comparison of Environmental Ethics Awareness of Teacher Candidates According to the High School That They Graduated From

Table 6. The results of the Kruskal-Wallis H test for environmental ethics awareness of teacher candidates according to the high school type from which they graduated

Dimensions	Graduated High School	N	Mean Rank	Chi-square	df	p	Difference
Environmental Ethics Awareness	Anatolian School (1)	High 523	402.21	5.381	4	0.250	
	Science School (2)	High 14	341.43				
	Religious Vocational School (3)	High 54	436.22				
	Vocational School (4)	High 53	439.74				
	Other (5)	182	437.11				
DEE	Anatolian School (1)	High 523	406.86	9.802	4	0.044	1-4
	Science School (2)	High 14	303.39				
	Religious Vocational School (3)	High 54	398.63				
	Vocational School (4)	High 53	488.44				
	Other (5)	182	423.65				
REEE	Anatolian School (1)	High 523	402.76	5.690	4	0.224	
	Science School (2)	High 14	336.57				
	Religious Vocational School (3)	High 54	450.98				
	Vocational School (4)	High 53	427.26				
	Other (5)	182	435.14				
MTEE	Anatolian School (1)	High 523	405.71	2.559	4	0.634	
	Science School (2)	High 14	389.25				
	Religious	54	429.82				

	Vocational School (3)	High					
	Vocational School (4)	High	53	405.42			
	Other (5)		182	435.25			
AEE	Anatolian School (1)	High	523	404.13			
	Science School (2)	High	14	370.00			
	Religious Vocational School (3)	High	54	445.31	5.072	4	0.280
	Vocational School (4)	High	53	440.62			
	Other (5)		182	426.43			
	p < 0.05						

As shown in Table 6, environmental ethics awareness did not differ significantly according to the type of high school from which the participants graduated ($\chi^2 = 3.381$ and $p > 0.05$). The values of REEE ($\chi^2 = 5.690$ and $p > 0.05$), MTEE ($\chi^2 = 2.559$ and $p > 0.05$), and AEE ($\chi^2 = 5.072$ and $p > 0.05$) also did not differ significantly.

DEE values differed significantly among the sub-dimensions of the scale ($\chi^2 = 4.272$ and $p = 0.234 > 0.05$). The difference between the type of graduated high school Anatolian High School and vocational school accessed as a result of the test between the findings in favor of Vocational High School ($U = 111333.500$ $p = 0.015 < p 0.05$); between the high school and vocational school in favor of Vocational High School of Science ($U = \text{about } 193,000$ $p = 0.004 < 0.05$) and between high school vocational high school Religious Vocational High School were in favor of ($U = 1106.000$ $p = 0.034 < 0.05$ p).

In this context, it can be said that the school activities and projects completed by students of vocational high schools supported the students' awareness of environmental ethics.

7- Comparison of Environmental Ethics Awareness of Teacher Candidates According to Year at University

The students' awareness of environmental ethics did not differ significantly by year of study for the overall scale ($\chi^2 = 2.840$ and $p = 0.417 > 0.05$). The sub-dimensions of DEE ($\chi^2 = 4.690$ and $p = 0.196 > 0.05$), MTEE ($\chi^2 = 5.067$ and $p = 0.167 > 0.05$), REEE ($\chi^2 = 656$ and $p = 0.884 > 0.05$), and AEE ($\chi^2 = 431$ and $p = 0.934 > 0.05$) also did not differ significantly. Thus, there was no significant difference between the environmental ethics awareness levels of the teacher candidates in different years of study.

8- Comparison of Environmental Ethics Awareness of Teacher Candidates According to the Departments

Table 7. The results of the Kruskal Wallis H test for the environmental ethics awareness of teacher candidates according to the departments.

Dimensions	Department	Mean Rank	Chi-square	df	p	Difference
Environmental Ethics Awareness	Science Teaching (1)	458.26	17.285	5	0.004	1-5
	Preschool Teaching (2)	469.99				
	English Teaching (3)	401.56				
	Turkish Teaching (4)	409.30				
	Psychological Counseling and Guidance (5)	373.98				
	Primary School	438.63				

Teaching (6)						
DEE	Science Teaching (1)	441.40				1-5
	Preschool Teaching (2)	477.39				2-4
	English Teaching (3)	435.99				2-5
	Turkish Teaching (4)	401.49	15.972	5	0.007	5-6
	Psychological Counseling and Guidance (5)	376.78				
	Primary School Teaching (6)	437.13				
REEE	Science Teaching (1)	449.68				1-5
	Preschool Teaching (2)	479.00				2-3
	English Teaching (3)	385.86				2-5
	Turkish Teaching (4)	412.95	12.265	5	0.031	
	Psychological Counseling and Guidance (5)	387.20				
	Primary School Teaching (6)	427.34				
MTEE	Science Teaching (1)	458.83				
	Preschool Teaching (2)	448.18				1-5
	English Teaching (3)	404.35				2-5
	Turkish Teaching (4)	410.80	17.297	5	0.004	5-6
	Psychological Counseling and Guidance (5)	372.41				
	Primary School Teaching (6)	444.68				
AEE	Science Teaching (1)	448.26				
	Preschool Teaching (2)	436.04				
	English Teaching (3)	376.9				
	Turkish Teaching (4)	403.47	9.180	5	0.102	
	Psychological Counseling and Guidance (5)	400.7				
	Primary School Teaching (6)	430.43				

$p < 0.05$

As shown in Table 7, there was a significant difference in environmental ethics awareness according to the departments in which the participants were studying ($\chi^2 = 17.285$ and $p < 0.05$). As a result of the findings about the differences between the departments, the following observations can be made.

Of Science Lecturer - Psychological Counseling and Guidance Teaching, the value in favor of the Departments of Science and Technology Teaching ($U=12918.500$ $p<0.05$); of Psychological Counseling and Guidance Teaching - Primary School Teaching, the value in favor of Primary School Teaching ($U = 25695.500$ $p<0.05$); of Pre-school teaching - Psychological Counseling and Guidance Teaching, value in favor of Pre-school Teaching (6279.000 $p<0.05$) was found.

The test results for the DEE sub-dimension of the scale also showed significant differences ($\chi^2 = 15.972$ and $p < 0.05$). As a result, Of Science Teaching - Psychological Counseling and Guidance Teaching, the value in favor of the Departments of Science and Technology Teaching ($U = 13560.500$ $p < 0.05$); of Preschool Teaching - Turkish Language Teaching, the value in favor of Preschool Teaching ($U = 2455.500$ $p < 0.05$); of Pre-school Teaching - Psychological Counseling and Guidance Teaching, the value in favor of Preschool Education ($U = 6206.000$ $p < 0.05$); and of Psychological Counseling and Guidance Teaching and Primary Education, the value in favor of Primary Education ($U = 26018.000$ $p < 0.05$) was found.

The reason why students in the Departments of Science Teaching and Primary School Teaching have higher levels of environmental ethics awareness than students of other departments may be related to the fact that environmental science and environmental education courses are offered in both of those departments.

The test results for the REEE sub-dimension of the scale also showed significant differences ($\chi^2 = 15.972$ and $p < 0.05$). As a result, it can be concluded that of Science Teaching - Psychological Counseling and Guidance Teaching, the value in favor of Science Teaching ($U = 13738.500$ $p < 0.05$); of Preschool Teaching - English Teaching, value in favor of Preschool Teaching ($U = 1356.000$ $p < 0.05$); Psychological Counseling and Guidance Teaching among them, it was found to be in favor of preschool teaching ($U = 6374.000$ $p < 0.05$).

The test results for the MTEE sub-dimension of the scale also showed significant differences ($\chi^2 = 17297$ and $p < 0.05$). As a result, it can be concluded that of Teaching of Science - Psychological Counseling and Guidance Department, the value is in favor of Science Teaching ($U = 12839.500$, $p < 0.05$); of Preschool Teaching and Psychological Counseling and Guidance the value is in favor of Preschool Teaching ($U = 6652.000$ $p < 0.05$); of the Psychological Counseling and Guidance Teaching - Primary School Teaching, the value is in favor of the Primary School Teaching ($U = 25140.500$ $p < 0.05$). The test results for the AEE sub-dimension of the scale did not show significant differences ($\chi^2 = 9.180$ and $p > 0.05$).

The reason for these findings may be that environmental education courses are included in the education programs of the Science and Primary Education Departments, as well as the Department of Preschool Education. It may also be that the course content on environmental and nature activities are concentrated in units on science education in early childhood, while courses on environmental education are not included in the Turkish and PDR teaching departments.

Discussion and Conclusions

Based on the findings, the teacher candidates' environmental ethics awareness was found to be higher than average based on both the overall scale and its sub-dimensions, and it was thus concluded that they had environmental ethics awareness. Similarly, Çolak (2017: 1672), in his research on science teacher candidates, found the environmental ethics awareness levels of teacher candidates to be very high. He commented that they were "more aware of the environment, defending the rights of future generations and demonstrating their opposition to the concept of unlimited exploitation for the protection of nature".

It was concluded that the level of environmental ethics awareness of female teacher candidates was significantly higher than that of male candidates, both for the overall scale and for its sub-dimensions. Therefore, the gender factor can be said to make a significant difference in environmental ethics awareness. Özer (2015), Sönmez (2018), & Dikicil (2018) also found environmental ethics awareness to be higher among females, which supports the results obtained in our study. A significant difference was observed in the students' perspectives, attitudes, sensitivity, and awareness (Şama, 2003; Deniz & Genç, 2007; Karakaya & Yılmaz, 2017; Fernandez-Manzanal, Rodriguez-Barreiro, & Carrasquer, 2007; Wongchantra & Nuangchaler, 2011; Alpak, 2016; Uitto et al., 2011). Sadık & Sarı (2007) found that there were differences in the environmental behavior subscale in favor of female students and in the environmental thinking subscale in favor of male students. On the contrary, however, some studies have concluded that students' perceptions of environmental ethics do not change according to gender (Sungur, 2017; Özdemir, 2012; Gerçek, 2016).

It was concluded that the environmental ethics awareness of the teacher candidates was not affected by the family income level for either the overall scale or its sub-dimensions. Similarly, in the study of Erol and Gezer (2006), students' attitudes towards the environment and environmental issues did not vary according to family income or status, and in Erol's study (2005) of students in the primary school teaching environment and environmental problems, interests, and attitudes, a significant relationship was not observed in terms of the level of the family's income. Şenyurt, Temel, and Özkahraman (2011) concluded that the income level of the family is not a sociodemographic factor affecting attitudes towards environmental problems. On the other hand, Şama (2003) concluded that students whose parents had middle and middle income levels developed more positive attitudes than those from families with low incomes.

Awareness of environmental ethics is significantly higher among the children of primary school graduates than high school and university graduates; that is, the higher the mother's education level, the lower the child's environmental ethics awareness. On the contrary, in a study by Arı (2015), which examined the relationship between environmental thinking and behaviors of university students, it was concluded that students with mothers having postgraduate education were more sensitive to environmental thinking than other students. On the other hand, in the study conducted by Erol and Gezer (2006) to determine the attitudes of teacher candidates towards the environment and environmental problems, maternal education levels did not make any significant difference.

It was further concluded that the awareness of environmental ethics among the children of fathers with primary school education is significantly higher than that of the children of fathers with high school and university education; that is, the higher the paternal education level, the lower the child's environmental ethics awareness. On the contrary, Sadık and Arı (2007) stated that there were no significant differences between the environmental knowledge and attitudes of primary school teacher candidates towards environmental problems in terms of paternal education levels. In the study of Erol and Gezer (2006), there was again no significant difference between the attitudes of teacher candidates towards the environment and environmental problems according to the level of the father's education. On the other hand, Şama (2003) found differences between environmental attitudes and paternal educational attainment in favor of those whose fathers graduated from high school or higher levels of education.

The environmental awareness levels of the teacher candidates do not differ for the overall scale or its sub-dimensions according to the students' residence prior to university. It was concluded that there was no difference between previous rural residents and urban residents in terms of environmental awareness. In other words, it has been concluded that environmental ethics are independent of place of origin in terms of rural versus urban locations. Dikicil (2018) also stated that there was no effect of the variable of residence on environmental ethics awareness levels of teacher candidates in a social studies teaching department. Similarly, in a study by Malkoç (2011), prospective teachers' attitudes towards environmental issues were examined and there was a significant difference in terms of the settlement types in which they had lived the longest. The data obtained by Yalçın (2009) also showed no statistically significant difference between teacher candidates' environmental awareness levels in terms of their places of residence. Erol and Gezer (2006) found no significant difference between the rates of teacher candidates noticing environmental problems relative to their residential areas, but they concluded that residents of large cities had more positive attitudes than those living in smaller cities.

Looking at the environmental ethics awareness levels of teacher candidates, it was concluded that the graduates of vocational high schools had significantly higher levels compared to the other types of high schools. Tuncer et al. (2005) studied students from private and public schools and found that students' awareness levels varied according to the type of school. In contrast, a study conducted by Kahyaoğlu, Daban, and Yangın (2008) found no significant relationship between the attitudes of primary school teachers towards the environment and the type of high school from which they graduated. In the study by Ekici (2005), the attitudes of high school students towards environmental education were examined in terms of some variables and it was determined that they did not differ according to the type of high school.

It was also found in the present study that the students' environmental ethics awareness was not significantly affected by their class level. Similarly, Aslan, Sağır, and Cansaran (2008) showed no difference in the environmental attitudes of students according to class level. Similar situations were also revealed in the studies by Gerçek (2016) and Deniz and Genç (2007). On the contrary, Sönmez (2018) evaluated the environmental ethics awareness of teacher candidates in different faculties according to class level and found that 4th year and 1st year students' awareness of environmental ethics was higher than that of students at primary school teaching department. This finding was associated with the teaching of environmental education in the 6th semester, i.e. in the 3rd year. The study by Özer (2015) also looked at environmental ethics awareness of science teacher candidates in the 3rd and 4th years, with the conclusion that their awareness of environmental ethics was higher than that of the students at primary school teaching department, and that may have been due to the environmental education course that the 3rd year students took in the 6th semester.

When we look at the environmental ethics awareness of the teacher candidates, it is concluded that the departments in which they are studying significantly affect their environmental ethics awareness level. It was concluded that the environmental ethics awareness of science teacher candidates is significantly higher than that of psychological counseling and guidance students, while primary school teaching teacher candidates and preschool teacher candidates also have higher levels than the students of psychological counseling and guidance; in other words, the curriculum applied for some students builds a higher level of environmental ethics awareness. Sönmez (2018) also found that there was no impact of the faculty being studied in for the environmental ethics awareness levels of higher education students, but the department being studied in had an

impact. It was concluded that there was no difference between the environmental ethics awareness levels of science education teacher candidates and primary school teaching teacher candidates due to the fact that environmental courses are taught in both departments. In the study by Dalbudak (2013) comparing 1st year students in biology and physics teaching departments to explore the differences between attitudes and behaviors of students towards the environment, it was concluded that the attitudes and behaviors of students of biology education were more positive than the attitudes and behaviors of students of physics education.

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