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The Examination of Learning Strategies of Vocational College Students Concerning Various Variables

Ali Osman ENGIN[1], Murat KORUCUK[2]

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ABSTRACT

Purpose: This study aims to examine the learning strategies of university students concerning various variables.

Method: The population of this study, which was a quantitative research method, included students studying at Sarikamis Vocational College of Kafkas University in the fall semester of 2018-2019 academic year. The sample of this study consisted of 341 students selected by a simple random sampling method. As data collection tools, "Personal Information Form" and "Learning Strategies Determination Scale" (LSDS) developed by Guven (2004) were used. As a result of the analyzes conducted to determine whether normality assumptions were met, the data were distributed normally and provided the necessary conditions for parametric tests. Thus, independent samples t-test and one-way analysis of variance (ANOVA) were used for data analysis.

Findings: In this study, the answers of the students to the Learning Strategies Determination Scale (LSDS) were evaluated, and it was determined that the learning strategy that students had the most (high level) was the rehearsal strategy and the least (middle level) was the organizational strategy**.**

Implications for Research and Practice: As a result of this research, statistically significant differences were found between the students' learning strategies and their gender, forms of level (daytime teaching/evening education), departments and high school achievement scores, and no statistically significant differences were found between the educational strategies of the students and the educational level of parents. Various suggestions have been developed in line with the results of this research.

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Introduction

In addition to the necessity of a sufficient level of field knowledge and field teaching knowledge to provide a quality teaching service to the students; it is also significant for students to be aware of learning, thinking, remembering, structuring information and motivating themselves (Hamurcu, 2002; Guven, 2004; Demirel, 2012; Alfian, 2016). According to Ormrod (1990) and Schunk (2014), learning, which can be expressed as continuous changes in behaviors or mental processes depending on human life, should be planned, directed, monitored, controlled and evaluated to reach the goals (Cirpan, Gurer, Gayef & Kaplan, 2017). This way of organizing learning is a strategy business. The concept of strategy is expressed as a way to achieve a predetermined goal (Turkish Language Society, 2005). The learning strategy, on the other hand, is the acquisition of information by the students while they are learning, adding to the memory and using the information when needed (Weinstein & Mayer, 1986; Guven, 2004). According to Ozer (2001), learning strategy is a method that facilitates individual self-learning, while for Demirel (2005), it is the mental tactics used by an individual in a special learning situation to facilitate the acquisition of knowledge and skills. On the other hand, to Arends (1997) and Guven (2004), the learning strategy and the activities carried out by the learners in the learning process are sorted as identifying learning, following the chosen strategy, working with high motivation until learning is completed and choosing the appropriate learning strategy. The main purpose of the learning strategy is to influence student's affective state and to enable him/her to receive, organize and structure the new knowledge with the previous one (Harmanli, 2000; Kistner, Rakoczy, Otto, Klieme & Buttner, 2015). The successful learning of an individual depends on his/her knowledge and skills in learning strategies. Therefore, teaching learning strategies to learners can contribute to learning (Gagne & Glasser, 1987; Senemoglu, 1998; Tasdemir & Tay, 2007; Babali, 2010). In other words, one of the most effective ways to increase the success level of learners and ensure their lifelong development is to learn their learning strategies (Acikgoz, 1998; Kocak, 2010; Shi, 2017). Thus, learners can contribute to their personal and professional development by directing their own learning.

There are different classifications about learning strategies (Saribas, 2009). According to Levin (1988), learning strategies are divided into three groups as comprehension strategies, recall strategies and application strategies. Gagne (1988), on the other hand, evaluated learning strategies in five groups as attention strategy, short-term memory storage enhancement strategy, coding strengthening strategy, facilitating recovery strategy, monitoring and managing strategy. According to Ozturk (1995), learning strategies are attention, rehearsal, elaboration, placement in mind, remembering, managing cognition and affective strategies. Learning strategies, which were put forward by Weinstein and Mayer in 1986 and later organized by Demirel (1993), Ozer (1998) and Guven (2004), can be classified as rehearsal strategies, elaboration strategies, organizing strategies, monitoring comprehension strategies and affective strategies. The classification of learning strategies to be used in this study designed by Weinstein and Mayer (1986), Demirel (1993), Ozer (1998) and Guven (2004) is rehearsal, elaboration, organization, monitoring comprehension and affective

strategies. The main reason for using this classification is that the learners can present their learning strategies in a simple way without causing confusion. A brief description of the learning strategies used in this research was found appropriate:

Rehearsal strategy: The basis of this strategy is mental repetition. It can be used in basic learning (Simsek & Balaban, 2010). The rehearsal strategy has two contributions to the learner: selection and acquisition. Selection is to ensure that learners can select the significant parts, while acquisition is the ability of learners to achieve gains with repetitions (Ozer, 1998; Erdem, 2005; Glogger, Schwonke, Holzapfel, Nuckles & Ankel, 2012).

Elaboration strategy: Means obtaining new information fused with the old information as a whole (Hamilton, 1989; Ozturk, 1995; Erden & Akman, 1998). Implicit and explicit repetition, coding, organizing, insertion and memory support techniques can be used in elaboration strategies (Tay &Yangin, 2008).

Organizational strategy: A strategy aiming to learn by rearranging information. Organizational strategy is used together with the elaboration strategy (Erdem, 2005). In this strategy, an individual can group new information. The individual can make new meaning and meaning for himself by restructuring new information and material (Subasi, 2000).

Strategy for monitoring comprehension: Is learner's determination of learning goals, evaluation of these goals and, if necessary, change the way of learning (Weinstein & Mayer, 1986). Comprehension monitoring strategies can be organized into three stages. These are to prepare to understand, to monitor comprehension and to direct comprehension (Somuncuoglu, 1998).

Affective strategies: This strategy emphasizes emotion control in the individual's learning process. It is a strategy that helps control negative emotions that may occur during learning and may affect learning negatively (Sonmez, 2007; Demirel, 2012). Intensifying attention, developing positive perception, increasing motivation and coping with stress are affective strategies (Ozer, 1998). There are many studies on learning strategies in the literature. Table 1 shows the current, significant and relevant research topics.

Table 1

Related Research

Date	Author Name	Article Name	Findings and Conclusion
2018	Yaacob, A., Shapii, A., Saad, A., Al-Rahmi, W. & Alias, N.	Vocabulary learning strategies (VLSS) through secondary students at Saudi School in Malaysia (SSM): A pilot study.	The learning strategies of the learners differ.
2017	Cırpan, K. F., Gurer, A. Gayef, A. & Kaplan, E.	Learning strategies of anesthesia students at the vocational school of health services.	Among the learning strategies they have, the most commonly used strategies are elaboration and affective strategies. Significant differences were found between students' forms of level and learning strategies.
2017	Shi, H.	Learning strategies and classification in education.	As students use appropriate learning strategies, learning-oriented confidence, motivation and achievement increase.
2016	Alfian, A.	The application of language learning strategies of high school students in Indonesia.	Significant differences were found between the gender and achievement of the students and their learning strategies.
2015	Kistner, S., Rakoczy, K., Otto, B., Klieme, E. & Buttner, G.	Teaching learning strategies: The role of instructional context and teacher beliefs.	Learners' learning strategies differ due to their beliefs and expectations.
2012	Demirel, M.	Language learning strategies used by university students	A significant difference was found in using learning strategies according to gender. As the level of using learning strategies increased, academic achievement level increased.
2012	Glogger, I., Schwonke, R., Holzapfel, L., Nuckles, M. & Ankel, A.	Learning strategies assessed by journal writing: Predicting learning outcomes by quantity, quality and combinations of learning strategies.	The students who participated in the research were generally more successful in a learning strategy. In learning strategies, learners should identify learning strategies with a more innovative approach.
2010	Babali, O.	Comparative analysis of the learning strategies and styles of girls in vocational high schools and general high schools.	Significant differences were found between students' learning strategies and their departments and genders.

Table 1 Continue

Date	Author Name	Article Name	Findings and Conclusion
2010	Kocak, S.	The effects of active learning method on students' success in information technology course and learning strategies.	Significant differences were found between the students' learning strategies and demographic variables.
2010	Simsek, A. & Balaban, J.	Learning strategies of successful and unsuccessful university students.	Students' correct determination and use of their learning strategies can contribute to their academic success.
2008	Tay, B. & Yangin B.	Learning strategies used by 4th-grade students in social studies class in the classroom environment.	The learning strategies of the students vary. Students can often use attention, rehearsal and motivation strategies.
2005	Erdem, A. R.	Effective ways of learning: learning strategies and teaching	It is emphasized that learning strategies should be given importance to students starting from daytime teaching.
2004	Guven, M.	Relationship between learning styles and learning strategies.	Learning strategies that students often use are elaboration and monitoring comprehension strategies. Students'learning strategies differ according to their gender and the department they study.
2002	Hamurcu, H.	Preschool teacher candidates' learning strategies.	The learning strategies used by preschool teacher candidates vary according to the class and age they are studying.
1995	Ozturk, B.	Use of general learning strategies by students.	Significant differences were found in the educational level of parents and the learning strategies of the students. Also, the students'learning strategies differ according to high school achievement status.

As shown in Table 1, according to Tay and Yangin (2008), Glogger et al. (2012), Kistner et al. (2015) and Yaacob et al. (2018), learning strategies of learners differ due to learners' interest, skills, expectations, and beliefs. For Cirpan et al. (2017), there are differences between students' forms of level and learning strategies. According to Shi (2017), as students use appropriate learning strategies, there is an increase in their learning-oriented confidence, motivation and achievement. In the studies conducted by Guven (2004), Babali (2010), Kocak (2010), Demirel (2012) and Alfian (2016), it is seen that there are differences between students' gender and learning strategies. According to Simsek and Balaban (2010) and Demirel (2012), academic achievement levels increased as the level/quality of learning strategies increased. According to

Hamurcu (2002), Guven (2004) and Babali (2010), there was a difference between the departments where the students study and their learning strategies. Erdem's (2005) research emphasizes the importance of learning strategies of students starting from daytime teaching. Ozturk's (1995) study showed significant differences between the educational level of parents of the learners and the learning strategies used. In addition, students' learning strategies differ according to their high school success. In the current information age, it is significant not to obtain the information as it is; but it is important to learn how to access change/use information. As American educator John Dewey put it, "Learning to think is teaching to learn (Bagceci, 2017). Therefore, priority should be given to students' learning to learn. In the literature, it is frequently emphasized that teachers should be interested in their students' learning strategies and raise awareness about this issue (Hartman, 1995; Pritchard, 2009). In order for students to learn how to learn, first of all, they need to know which learning strategy they have. With this research, it is aimed to determine the learning strategies of vocational college students. When the related studies are evaluated, in this research, it was found appropriate to determine statistically significant differences between learning strategies and gender, departments, forms of level, the educational level of parents and high school achievement scores of vocational college students. In this way, the academicians working in the vocational school can contribute to getting to know their students better; and this situation is essential in terms of causing positive changes in the learning processes of vocational college students.

The present study aims to investigate whether the learning strategies of the students of Sarikamis Vocational Collegeen rolled in the 2018-2019 academic year at Kafkas University for the fall term differ concerning variables like gender, department, forms of the educational level of parents and high school achievement score. Thus, the research problem has been determined as "What are the learning strategies of vocational college students? In addition to this research problem, the other sub-problems that are intended to be answered are:

Is there a statistically significant difference between the learning strategies of vocational college students and;

- their gender, departments, forms of levels,
- their mothers' educational level, and their fathers' educational levels,
- their high school achievement scores?

Method

Research Design

In this study, where the quantitative method was preferred, the survey method was used. Quantitative research can also be mentioned as a hypothesis testing or problem-solving process (Creswell, 2012; McMillan & Schumacher, 2014; He, 2017). The survey method is based on collecting data on the subject that is desired to be obtained about a population (Mills Gay & Airasian, 2012; Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2017). In this study, the survey method that is one of the

quantitative research methods was used to determine the learning strategies of vocational college students and to investigate these strategies by collecting data concerning various variables.

Research Sample

The population of this study consisted of the students of Kafkas University, Sarikamis Vocational College, in 2018-2019 academic year. In a study, sampling methods can be used because reaching the entire population is not economical and requires a long time and effort (Arli & Nazik, 2001). Although there are various sampling methods (Bustami, Corabime & Suarsini, 2017) because random sampling methods can better represent the population (Cristensen, Johnson & Turner, 2015; Buyukozturk et al. 2017), this study uses simple a random sampling method. The population and sample of this study are shown in Table 2.

Table 2

Population and Sample

CLASS / DEPARTMENT	1st Grades		2nd Grades		GRAND TOTAL
	Daytime	Evening	Daytime	Evening	
Logistics	44	---	37	---	81
Private Security and Protection	33	13	17	24	87
Early Childhood	66	66	54	53	239
Public Affairs	12	---	37	---	49
Occupational Health and Safety	45	---	28	---	73
Others"Closed Departments" (Tourism Animation, Tour. Hotel Man., Tour. Guid.).	---	32	---	---	32
Class Total	200	111	173	77	**561**
Grand Total (Population)	**311**		**250**		
Sample Size (Minimum)	**228**				
Sample Reached	**341**				

Accordingly, the number of vocational college students constituting the research population was 561. The sample size calculated using scientific methods (Krejcie & Morgan, 1970; Yazicioglu & Erdogan, 2004) should be at least 228 people. In this study, the researcher reached 341 people. Table 3 shows the distribution of the students participating in this research according to their gender, departments, forms of level, the educational level of parents and high school achievement level.

Attributes of Participants

Variable		n	%
Gender	Male	146	42,8
	Female	195	57,2
Forms of Level	Daytime Teaching	235	68,9
	Evening Education	106	31,1
Department	Early Childhood	146	42,8
	Private Security and Protection	51	15,0
	Public Affairs	44	12,9
	Occupational Health and Safety	43	12,6
	Logistics	57	16,7
Mother Education Levels	Not Attended School	101	29,6
	Elementary School Graduates	157	46,0
	Secondary School Graduates	51	15,0
	High School Graduates	32	9,4
Father Education Levels	Not Attended School	31	9,1
	Elementary School Graduates	123	36,1
	Secondary School Graduates	86	25,2
	High School Graduates	101	29,6
High School Achievement Score	51 - 60 Point	49	14,4
	61 – 70 Point	139	40,8
	71 – 80 Point	122	35,8
	81 – 90 Point	31	9,0

Research Instrument and Procedures

The data collection tool used in this research consisted of two parts. The first part included the "Personal Information Form (PIF)", and the second part included the "Learning Strategies Determination Scale (LSDS)". The PIF collects data on the variables of gender, department, forms of level, the educational level of parents and high school achievement level. The LSDS was developed by Guven (2004) and the necessary permissions were obtained from Guven to be used in this research. The subscales and the items of the sub-dimensions of LSDS are shown in Table 4.

Table 4

The Item Distribution of Learning Strategies Determination Scale (LSDS)

Learning Strategies	Item Numbers
Rehearsal Strategies	1, 10, 13, 20, 27, 36
Elaboration Strategies	2, 4, 9, 11, 15, 19, 24, 26, 28, 31, 35
Organizational Strategies	3, 6, 12, 18, 23, 32, 39
Strategies for Monitoring Comprehension	7, 14, 17, 21, 22, 25, 29, 33, 37
Affective Strategies	5, 8, 16, 30, 34, 38

The LSDS has a five-point Likert-scale assessment. Scores and meanings used in the five-point Likert-scale assessment are; point 1 is "Not at all suitable for me", point 2 is "Not suitable for me ", point 3 is "Slightly suitable for me", point 4 is "Quite suitable for me ", point 5 is "Totally suitable for me" (Erkus, 2016). Table 5 shows the score ranges and the values for the items in the data collection tool.

Table 5

Score Ranges of Data Collection Tool

Score Ranges of Options	Meaning	Value of Range
1.00-1.80	Not at all Suitable for Me	"Very Negative" score range
1.81-2.60	Not Suitable for Me	"Negative" score range
2.61-3.40	Slightly Suitable for Me	"Average" score range
3.41-4.20	Quite Suitable for Me	"Positive" score range
4.21-5.00	Totally Suitable for Me	"Very Positive" score range

Validity and Reliability

A data collection tool must be valid and reliable to work for its purpose (Spector, 1981; Secer, 2015). Thus, the validity and reliability of the data collection tool used in this study were first tested by Guven (2004), who developed this measurement tool. After conducting validity studies of exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and expert opinions, Guven (2004) calculated the Cronbach's alpha internal consistency coefficient (α) to test its reliability and accordingly (α) value of the subscales ranges were found rehearsal strategies dimension (α): .61 elaboration strategies dimension (α): .66, organizational strategies dimension (α): .72, strategies for monitoring comprehension(α): .73, affective strategies dimension (α): .70 and the whole scale (α): .74. In this study, CFA for LSDS was applied to a group of 210 individuals except for the sample. Table 6 shows the fit indexes obtained as a result of CFA.

Table 6

The Fit Indexes of the CFA

Indexes	Reference Value		Measurement	Result
	Good Fit	Acceptable Fit		
CMIN/DF	0< χ2/sd ≤ 3	3< χ2/sd ≤ 5	**3,397**	**Acceptable Fit**
TLI	,95< TLI≤ 1	,90 < TLI≤ ,94	**,93**	**Acceptable Fit**
RMSEA	0 ≤ RMSEA ≤ ,05	,05 ≤ RMSEA ≤ ,08	**,048**	**Good Fit**
SRMR	0≤SRMR≤.05	0.05≤SRMR≤.10	**,08**	**Acceptable Fit**
CFI	,95< CFI≤ 1	,90 < CFI≤ ,94	**,92**	**Acceptable Fit**
GFI	,95< GFI≤ 1	,90 < GFI≤ ,94	**,94**	**Acceptable Fit**
AGFI	,95< AGFI≤ 1	,90 < AGFI≤ ,94	**,95**	**Good Fit**
NFI	,95< NFI≤ 1	,90 < NFI≤ ,94	**,97**	**Acceptable Fit**
Sd			**208**	

As a result of DFA, item factor loadings of rehearsal strategies were .74, .71, .78, .79, .71, .80 respectively; the item factor loads of the elaboration strategies were 70, .71, .75, .73, .77, .69, .67, .75, .69, .72, .78, respectively; the item factor loads of organizational

strategies were 68, .67, .72, .72, .71, .67, .71, respectively; the item factor loads of the strategies for monitoring comprehension were.70, .69, 73, .73, .79, .77, .76, .66, .67, respectively and the item factor loads of affective strategies were .63, .65, .70, .71, .77, .72, respectively. As shown in Table 6, the fit indices are according to DFA $\chi 2$ / sd = 3,397, RMSEA = .048, SRMR = .08, CFI = .92, GFI = .94, AGFI = .95, NFI = .97, TLI = .93 as determined. The obtained data show acceptable and good agreement according to Meydan and Sesen (2011), Schermelleh-Engel, Moosbrugger and Muller (2003) and Yildirim and Naktiyok (2017). The internal consistency coefficient of Cronbach Alpha obtained as a result of the analysis of data collected from vocational college students was calculated for both the sub-dimensions and the whole scale. The (α) values reached as a result of calculation; rehearsal strategies dimension (α): .81 elaboration strategies dimension (α): .77, organizational strategies dimension (α): .78, strategies for monitoring comprehension(α): .77, affective strategies dimension (α): .82 and the whole scale (α): .81 were found. According to Ozdamar (1997), these values show that the measurement tool is quite reliable. To make the content validity of the scale used in this research, expert opinion was used. Thus, three field experts (Educational Sciences) and two Turkish Language experts at Kafkas University evaluated the measurement tool. According to the validity and reliability test results, the measurement tool is a valid and reliable measuring instrument.

Data Analysis and Process

To present the research results in an unbiased manner, statistical package programs were used for data analysis. In the data analysis, the significance level was determined as (.05). Normality and homogeneity tests should be performed before deciding which statistical methods will be used in the analysis of research data (Buyukozturk, Cokluk & Koklu 2010; Kalayci, 2010). Levene test value greater than .05 (p> .05) and normality tests p-value greater than .05 (p> .05) show that the distribution is normally and the variances are homogeneous (Mertler & Vannatta, 2005). To determine the normality of the distribution, the mean, mode, median values, skewness - kurtosis values and distribution graphs (Q-Q plot, box plot, histogram) were examined. Normality test results are shown in Table 7.

Table 7

Kolmogorov-Smirnov and Shapiro-Wilk Normality Test Results

Learning Strategies	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	Sd	p	Statistics	Sd	p
Rehearsal Strategies	,121	341	,060	,962	341	,050
Elaboration Strategies	,066	341	,071	,989	341	,059
Organizational Strategies	,084	341	,052	,989	341	,066
Strategies for Monitoring Comprehension	,063	341	,082	,982	341	,086
Affective Strategies	,113	341	,091	,961	341	,092

As shown in Table 7, Kolmogorov-Smirnov (test result for all dimensions: p> .05)

and Shapiro - Wilk (test result for all dimensions: p> .05) normality tests were applied, and the data were normal. Similarly, Levene test values (test results for all dimensions: p> .05) were determined and the variances were homogeneous. Thus, parametric techniques were used to determine the significant differences between the variables and to solve the research sub-problems, frequency analysis, one-way analysis of variance (ANOVA) and independent sample t-test were used.

Results

To answer the research question, the responses of the students to the data collection tool were evaluated, and their means were calculated. Table 8 shows the mean of students according to their learning strategies.

Table 8

Mean Distribution of the Students According to Learning Strategies

Learning Strategies	n	$\overline{X}$	ss	Value	Meaning
Rehearsal Strategies	341	4,22	,51	Very Positive (Very High)	Totally Suitable
Elaboration Strategies	341	3,87	,52	Positive (High)	Highly Appropriate
Organizational Strategies	341	3,38	,56	Moderate	Moderately Appropriate
Strategies for Monitoring Comprehension	341	3,90	,59	Positive (High)	Highly Appropriate
Affective Strategies	341	3,68	,55	Positive (High)	Highly Appropriate

As shown in Table 8, the mean scores of students' responses to LSDS were between the mean value of moderate ($\overline{X}$ = 3.38, ss = .56; organizational strategies) and the very positive (very high) value ($\overline{X}$ = 4.22, ss = .051; rehearsalstrategies). The values of students elaboration strategy ($\overline{X}$ = 3.87, ss = .52), strategies for monitoring comprehension ($\overline{X}$ = 3.90, ss = .59) and affective strategies ($\overline{X}$ = 3.68, ss = .55) were in the range of positive (high) value. Accordingly, the findings suggest that students learn more by rehearsal strategies than other learning strategies.

Table 9

Analysis of Learning Strategies in terms of Gender Variable

Learning Strategies	Gender	n	$\overline{X}$	ss.	sd.	t	p
Rehearsal Strategies	Female	195	4,29	,49	339	4,496	**,000***
	Male	146	4,05	,51			
Elaboration Strategies	Female	195	3,93	,47	339	1,276	,182
	Male	146	3,85	,58			
Organizational Strategies	Female	195	3,45	,66	339	1,383	,168
	Male	146	3,35	,65			
Strategies for Monitoring Comprehension	Female	195	4,00	,54	339	3,634	**,000***
	Male	146	3,77	,63			
Affective Strategies	Female	195	3,77	,47	339	3,775	**,000***
	Male	146	3,55	,62			

As shown in Table 9, according to the independent sample t-test results, it was seen that there was a statistically significant difference between rehearsal strategies of female students ($\overline{X}$ = 4.29, ss = .49) and the rehearsal strategies of male students ($\overline{X}$ = 4.05, ss = .51) ($t_{(339)}$=4.496, p<.05). There was a statistically significant difference between female students strategies for monitoring comprehension ($\overline{X}$ = 4.00, ss = .54) and male students' strategies for monitoring comprehension ($\overline{X}$ = 3.77, ss = .63) ($t_{(339)}$=3.634, p < .05). Similarly, there was a statistically significant difference between the affective strategies of female students ($\overline{X}$ = 3.77, ss = .47) and the affective strategies of male students ($\overline{X}$ = 3.55, ss = .62) ($t_{(339)}$ = 3.775, p < .05). However, there was no statistically significant difference concerning gender variable between vocational college students'elaboration strategies ($t_{(339)}$ = 1.276, p> .05) and the organizational strategies ($t_{(339)}$ = .383, p> .05).

Table 10

Analysis of Learning Strategies Concerning Forms of Level Variable

Learning Strategies	Form of Level	n	$\overline{X}$	ss.	sd.	t	p
Rehearsal Strategies	Daytime	235	4,12	,53	339	-3,642	**,000***
	Evening	106	4,33	,42			
Elaboration Strategies	Daytime	235	3,81	,54	339	-2,625	**,009***
	Evening	106	3,97	,46			
Organizational Strategies	Daytime	235	3,41	,65	339	,35	,972
	Evening	106	3,41	,67			
Strategies for Monitoring Comprehension	Daytime	235	3,87	,62	339	-1,320	,188
	Evening	106	3,97	,52			
Affective Strategies	Daytime	235	3,64	,58	339	-1,950	,052
	Evening	106	3,77	,48			

Table 10 shows the independent sample t-test to determine the difference between the type of teaching and learning strategies. Accordingly, a statistically significant difference was observed between the rehearsal strategies of daytime teaching students ($\overline{X}$ = 4.12 ss = .53) and the rehearsal strategies of evening education students ($\overline{X}$ = 4.33, ss = .42) ($t_{(339)}$ = - 3.642, p <.05). Similarly, there was a statistically significant difference between the elaboration strategies ($\overline{X}$ = 3.81 ss = .54) of daytime teaching students and the elaboration strategies ($\overline{X}$ = 3.97, ss = .46) of evening education students ($t_{(339)}$ = -2.625, p <.05). However, there was no statistically significant difference concerning forms of level variable between vocational college students' organizational strategies of ($t_{(339)}$=.35, p>.05), strategies for monitoring comrehension ($t_{(339)}$=-1.320, p>.05), and affective strategies ($t_{(339)}$ = - 1.950, p> .05).

Table 11

Analysis of Learning Strategies in terms of Department Variable

Learning Str.	Department	n	$\overline{X}$	ss.		sd.	Mean Squ.	F	p	Diff.
Rehearsal Strategies	1 Early Childhood	146	4,18	,50	Within Group	336	,639	2,482	,054	--
	2 Private Security and Protection	51	4,16	,50						
	3 Public Affairs	44	4,05	,55						
	4 Occupt. Health and Safety	43	4,06	,43	Between Group	4	,487			
	5 Logistics	57	4,19	,54						
Elaboration Strategies	1 Early Childhood	146	3,95	,47	Within Group	336	,827	3,088	**,016***	1>3, 1>4, 1>5
	2 Private Security and Protection	51	3,92	,57						
	3 Public Affairs	44	3,72	,59						
	4 Occupt. Health and Safety	43	3,75	,56	Between Groups	4	,268			
	5 Logistics	57	3,77	,49						
Organizational Strategies	1 Early Childhood	146	3,45	,67	Within Group	336	,252	,585	,673	--
	2 Private Security and Protection	51	3,46	,67						
	3 Public Affairs	44	3,34	,77						
	4 Occupt. Health and Safety	43	3,31	,46	Between Groups	4	,431			
	5 Logistics	57	3,40	,64						
Strategies for Monitoring Comprihension	1 Early Childhood	146	3,98	,53	Within Group	336	1,598	4,736	**,001***	1>3, 2>3, 4>3, 5>3
	2 Private Security and Protection	51	3,96	,58						
	3 Public Affairs	44	3,56	,84						
	4 Occupt. Health and Safety	43	3,86	,40	Between Groups	4	,337			
	5 Logistics	57	3,95	,57						

Table 11 Continue

Learning Str.	Department	n	$\overline{X}$	ss.		sd.	Mean Squ.	F	p	Diff.
Affective Strategies	1 Early Childhood	146	3,78	,45	Within Group	336	1,784	6,242	**,000***	1>3, 2>3, 5>3
	2 Private Security and Protection	51	3,81	,54						
	3 Public Affairs	44	3,38	,75						
	4 Occupt. Health and Safety	43	3,56	,42	Between Groups	4	,286			
	5 Logistics	57	3,62	,60						

As we can see in Table 11, there was a statistically significant difference between the departments of vocational college students and their elaboration strategies [$F_{(4-336)}$ = 3.088, p <.05]. According to the results of the LSD test performed to determine the source of the difference, there was a statistically significant difference between the mean of the students of the Early Childhood Department ($\overline{X}$ = 3.95, ss = .47) and the mean of the students of the Public Affairs Department ($\overline{X}$ = 3.72, ss = .59). Similarly, there was a statistically significant difference between the means of the Early Childhood Department students ($\overline{X}$ = 3.95, ss = .47) and the means of the Department of Occupational Health and Safety students ($\overline{X}$ = 3.75, ss = .56) and that of Logistics Department of students ($\overline{X}$ = 3.77, ss = .49). The findings showed that there was a statistically significant difference between vocational college students' strategies for monitoring comprehension and their departments [$F_{(4-336)}$ = 4.736, p <.05]. According to the results of the LSD test to determine the source of the difference, there was a statistically significant difference between the means of the students of the Public Affairs Department ($\overline{X}$ = 3.56, ss = .84) and respectively, the means of the students of the Early Childhood Department ($\overline{X}$ = 3.98, ss = .53), the means of the students of the Private Security and Protection Department ($\overline{X}$ = 3.96, ss = .58), the means of the students of the Occupational Health and Safety Department ($\overline{X}$ = 3.86, ss = .40) and that of students of the Logistics Department ($\overline{X}$ = 3.95, ss = .57).

There was also a statistically significant difference between the affective strategies and the departments of vocational college students [$F_{(4-336)}$ = 6.242, p <.05]. According to the results of the LSD test performed to determine the source of the difference, it can be concluded that there was a statistically significant difference between the means of the students of the Public Affairs Department ($\overline{X}$ = 3.38, ss = .75) and respectively, the means of the students of the Early Childhood Department ($\overline{X}$ = 3.78, ss = .45), the means of the students of the Private Security and Protection Department ($\overline{X}$ = 3.81, ss

= .54) and the means of students of the Logistics Department ($\overline{X}$ = 3.62, ss = .60). However, there was no statistically significant difference between vocational college students' departments and the means of rehearsal strategies [$F_{(4-336)}$ = 2.482, p> .05] and the means of organizational strategies [$F_{(4-336)}$ = .585, p> .05].

Discussion, Conclusion and Recommendations

In this study, the first research problem, the question of "What are the learning strategies of the vocational college students?" was answered. According to the results of this research, the utilized survey method, which is one of the quantitative research methods, the least (moderately) used learning strategy of the students is the organizational strategy. The learning strategy that students have the most is the rehearsal strategy which is determined as a high level. Signification, monitoring comprehension and affective strategies were determined as high value. Yaacob et al. (2018) reached similar results of the present research findings that it was concluded that the learning strategies of learners might differ. Glogger et al. (2012) concluded that students were generally successful in one learning strategy. Tay and Yangin also reached a similar finding with the findings of the research conducted in 2008; stated that students frequently use rehearsal strategies. However, Cirpan et al. (2017) obtained different results from this research that among the students' learning strategies, the most commonly used strategies were elaboration and affective strategies.

In addition to the research question, it was examined whether there is a statistically significant difference between the variables (gender, department, forms of level, the educational level of parents and high school achievement score) of the vocational college students to answer the determined sub-problems. According to the obtained results, there was a significant difference between the gender of the students and their learning strategies. The students' rehearsal strategies, monitoring comprehension and affective strategies differ according to their genders. It is seen that this differentiation is in favor of female students in all three learning strategies. In other words, it can be concluded that female students use rehearsal strategies, monitoring comprehension and affective strategies at a higher level than male students. Similar results were found in the studies conducted by Guven (2004), Babali (2010), Demirel (2012) and Alfian (2016). Significant differences were found between students' gender and learning strategies. In addition to the results of this research, it was found that there is a significant difference between the forms of level and learning strategies of vocational college students. The rehearsal strategies and elaboration strategies of the students differ according to their forms of the level. It is seen that this difference is in favor of the evening education students both in the rehearsal strategies and the elaboration strategies. According to this, it can be concluded that the evening education students use rehearsal strategies and elaboration strategies at a higher level than the daytime teaching students. Similar research results showed that Kocak (2010) and Cirpan et al. (2017); and significant differences were found between the forms of the level of students and their learning strategies. Another result of this study is that there is a significant difference between the students' education departments and learning

strategies. There is a significant difference between the students' departments and their elaboration strategies. It is seen that this difference is only in favor of the students of the Department of Early Childhood in all departments. It can be concluded that the students of the Department of Early Childhood use their elaboration strategies at a higher level than the students of other departments (Public Affairs, Private Security and Protection, Occupational Health and Safety and Logistics). Students' monitoring comprehension strategies and affective strategies differ according to their departments. It is concluded that these differences are only against the students of the Public Affairs Department in all departments. In other words, it can be concluded that the students of the Public Affairs Department use lower-level monitoring comprehension and affective strategies than the students of other departments (Early Childhood, Private Security and Protection, Occupational Health and Safety and Logistics). Similar research findings were found in the studies conducted by Hamurcu (2002), Guven (2004), Babali (2010), Tay and Yangin (2010) and Yaacob et al. (2018). It is concluded that there are significant differences between the departments of the students and their learning strategies. There was no significant difference between the educational level of parents, high school achievement scores and learning strategies of the vocational college students. However, in the study conducted by Ozturk (1995) and Yaacob et al. (2018), significant differences were found between the educational level of the parents and the learning strategies of the students. On the other hand, contrary to the results of the present research, Ozturk (1995), Tay and Yangin (2008), Kocak (2010) and Alfian (2016) found that there were significant differences between students' high school achievement scores and learning strategies.

Recommendations

Given that students have different learning strategies, it may be suggested that course content, teaching strategy, methods and techniques should be determined by considering the individual characteristics of the students.It may be suggested that the appropriate teaching-learning processes are planned for the rehearsal strategies, which is the most commonly used learning strategy by the students. It may be suggested to carry out activities to develop organizational strategies, which are the least used learning strategies by students. Given that female students use rehearsal, monitoring comprehension and affective strategies at a higher level than male students, it may be suggested to support the use of these learning strategies by female students and encourage male students to develop these learning strategies. When it is considered that the evening education students use the rehearsal strategies and the elaboration strategies at a higher level than the daytime teaching students, it may be suggested to support the evening education students for enhancing these learning strategies and to encourage daytime teaching students for developing for mentioned learning strategies. It may be suggested that students of the Public Affairs, Private Security and Protection, Occupational Health and Safety and Logistics Department should be encouraged to use the elaboration strategies. It may be suggested to plan activities for the students of the Public Affairs Department to develop their strategies for monitoring comprehension and affective strategies. It may be suggested that similar studies can be applied to different educational levels. This study is limited to

Kafkas University, Sarikamis Vocational College. Studies with different populations and samples may be recommended. It may be suggested that qualitative or mixed studies can be applied to examine the situation in more detail.

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Meslek Yüksekokulu Öğrencilerinin Öğrenme Stratejilerinin Çeşitli Değişkenler Açısından İncelenmesi

Atıf:

Engin, A. O., & Korucuk, M. (2019). The examination of learning strategies of vocational college students in terms of various variables. *Eurasian Journal of Educational Research 89, 1-24,* DOI: 10.14689/ejer.2020.89.1

Özet

Problem Durumu: İçinde bulunulan bilgi çağında önemli olan bilgileri olduğu gibi almak değil; bilgiye ulaşma/değiştirme/kullanma yollarının öğrenilmesidir. Amerikan eğitimci John Dewey'in de dediği gibi "Düşünmeyi öğrenme, öğrenmeyi öğretmektir". Bu sebeple öğrencilerin öğrenmeyi öğrenmelerine öncelik verilmelidir. Alanyazında öğretmenlerin öğrencilerinin öğrenme stratejileriyle ilgilenmesi ve bu konuda farkındalık yaratması gerektiğine sıklıkla vurgu yapılmaktadır. Öğrencilerin öğrenmeyi öğrenebilmesi için ise öncelikle hangi öğrenme stratejisine sahip olduklarını bilmeleri gereklidir. Bu araştırma ile meslek yüksekokulu öğrencilerinin öğrenme stratejilerinin belirlenmesi amaçlanmıştır. İlgili araştırmalar da değerlendirildiğinde; bu araştırmada meslek yüksekokulu öğrencilerinin öğrenme stratejileri ile cinsiyetleri, bölümleri, öğrenim türleri, anne-baba eğitim durumları ile lise başarı puanları arasında istatistiksel olarak anlamlı farklılıkların olup olmadığının belirlenmesi amaçlanmıştır. Böylelikle meslek yüksekokulunda görevli akademisyenlerin öğrencilerini daha iyi tanımalarına katkı sağlanabilir ki bu durum ise, meslek yüksekokulu öğrencilerinin öğrenme süreçlerinde olumlu değişikliklere sebep olabilmesi açısından önem taşımaktadır.

Araştırmanın Amacı: Bu çalışmanın amacı, Türkiye Cumhuriyeti'nin doğusunda bulunan bir devlet üniversitesi olan Kafkas Üniversitesi, Sarıkamış Meslek Yüksekokulu'nda 2018-2019 eğitim-öğretim yılında öğrenim gören öğrencilerin öğrenme stratejilerinin cinsiyet, bölüm, öğrenim türü, anne–baba eğitim durumu ve lise başarı puanları değişkenleri açısından farklılaşma durumlarının belirlenmesidir.

Araştırmanın Yöntemi: Bu çalışmada meslek yüksekokulu öğrencilerinin öğrenme stratejilerinin neler olduğu ve bu stratejilerin çeşitli değişkenler açısından veri toplanarak incelenmesi amaçlandığı için nicel araştırma yöntemlerinden tarama modeli kullanılmıştır. Bu çalışmanın evreni 2018-2019 eğitim-öğretim yılında öğrenim gören Kafkas Üniversitesi Sarıkamış Meslek Yüksekokulu öğrencilerinden (561 öğrenci) oluşmaktadır. Bilimsel yöntemler kullanılarak hesaplanan ve ulaşılması gereken örneklem büyüklüğü en az 228 kişi olmalıdır. Bu çalışmada ise 341 kişiye

ulaşılmıştır. Araştırmada kullanılan veri toplama aracı iki kısımdan oluşmaktadır. Birinci kısımda "Kişisel Bilgi Formu" yer alırken, ikinci kısımda ise "Öğrenme Stratejileri Belirleme Ölçeği (ÖSBÖ)" bulunmaktadır. Kişisel Bilgi Formu ile öğrencilere ait cinsiyet, bölüm, öğrenim türü, anne – baba eğitim durumu ve lise başarı durumu değişkenlerine ait veriler toplanmaktadır. Güven (2004) tarafından geliştirilen ÖSBÖ beşli likert tipi bir değerlendirmeye sahiptir. Ölçme aracı ile ilgili gerek daha önceki çalışmalarda yapılmış olan gerek bu araştırmada yapılan geçerlik – güvenirlik test sonuçlarına göre; ölçme aracının geçerli ve güvenilir olduğu sonucuna ulaşılabilir. Veri analizi yapılırken istatistik paket programlardan faydalanılmıştır. Veri analizinde anlamlılık seviyesi "p=.05" olarak belirlenmiştir. Araştırma verileri normal dağılım gösterirken varyansları da homojendir. Bu sebeple analiz sürecinde parametrik teknikler kullanılmıştır.

Araştırmanın Bulguları: Bu araştırmada elde edilen bulgulara göre öğrencilerin en az sahip oldukları öğrenme stratejisi orta düzey olarak tespit edilen örgütleme stratejisidir. Öğrencilerin en fazla sahip oldukları öğrenme stratejisi ise yüksek düzey olarak belirlenen yineleme stratejisidir. Anlamlandırma, anlamayı izleme ve duyuşsal stratejiler ise yüksek değer olarak belirlenmiştir. Bu araştırmada öğrencilerin cinsiyetleri ile öğrenme stratejileri arasında anlamlı bir farka rastlanmıştır. Öğrencilerin sahip oldukları yineleme stratejileri, anlamayı izleme ve duyuşsal stratejiler cinsiyetlerine göre farklılaşmaktadır. Bu farklılaşmanın üç öğrenme stratejisinde de kız öğrenciler lehine olduğu görülmektedir. Meslek yüksekokulu öğrencilerinin öğretim türleri ile öğrenme stratejileri arasında anlamlı bir farklılık olduğu da tespit edilmiştir. Öğrencilerin sahip oldukları yineleme stratejileri ve anlamlandırma stratejileri öğretim türlerine göre farklılaşmaktadır. Bu farklılığın hem yineleme stratejisinde hem de anlamlandırma stratejisinde ikinci öğretim öğrencileri lehine olduğu görülmektedir. Bu araştırmada öğrencilerin öğrenim gördükleri bölümleri ile öğrenme stratejileri arasında anlamlı bir farklılık olduğu da tespit edilmiştir. Öğrencilerin bölümleri ile sahip oldukları anlamlandırma stratejileri arasında anlamlı bir farklılık vardır. Bu farklılığın tüm bölümler içerisinde sadece Çocuk Gelişimi Bölümü öğrencileri lehine olduğu görülmektedir. Öğrencilerin sahip oldukları anlamayı izleme stratejileri ve duyuşsal stratejiler de bölümlere göre farklılaşmaktadır. Bu farklılıkların tüm bölümler içerisinde sadece Yerel Yönetimler Bölümü öğrencilerinin aleyhine olduğu belirlenmiştir.

Araştırmanın Sonuçları ve Önerileri: Meslek yüksekokulu öğrencilerinin öğrenme stratejileri ile cinsiyetleri, öğretim türleri ile bölümleri arasında anlamlı düzeyde farklılıklar bulunmaktadır. Ancak Meslek yüksekokulu öğrencilerinin anne – baba eğitim durumları, lise başarı puanları ve öğrenme stratejileri arasında ise yapılan istatistik testler sonucunda anlamlı düzeyde bir farklılığa rastlanamamıştır. Araştırma sonucunda öğrencilerin yineleme stratejisini diğer öğrenme stratejilerine göre daha fazla kullandığı sonucuna varılabilir. Diğer taraftan öğrencilerin en az kullandığı (orta düzey) öğrenme stratejisi ise örgütleme stratejisidir. Öğrenciler diğer stratejiler olan anlamlandırma, anlamayı izleme ve duyuşsal stratejileri ise (yüksek düzey) olarak kullanmaktadırlar. Bu araştırma sonuçları doğrultusunda birtakım öneriler geliştirilmiştir. Bu önerilerin başında öğrencilerin farklı öğrenme stratejilerine sahip

oldukları göz önüne alınarak ders içeriği, öğretim stratejisi, yöntem ve tekniklerinin öğrencilerin bireysel özelliklerinin göz önüne alınarak belirlenmesi gelmektedir. Öğrencilerin en çok kullandıkları öğrenme stratejisi olan yineleme stratejisine uygun öğretme – öğrenme süreçlerinin planlanması önerilebilir. Öğrencilerin en az kullandıkları öğrenme stratejisi olan örgütleme stratejilerinin geliştirilmesine yönelik faaliyetlerin yürütülmesi önerilebilir. Kız öğrencilerin yineleme, anlamayı izleme ve duyuşsal stratejileri erkek öğrencilere oranla daha yüksek seviyede kullandığı göz önüne alındığında; kız öğrencilerin bu öğrenme stratejilerini kullanmalarının desteklenmesi ve erkek öğrencilerin ise bu öğrenme stratejilerinin geliştirilmesine yönelik çalışmaların yürütülmesi önerilebilir. İkinci öğretim öğrencilerinin yineleme stratejileri ile anlamlandırma stratejilerini birinci öğretim öğrencilerine göre daha yüksek seviyede kullandığı değerlendirildiğinde; ikinci öğretim öğrencilerinin bu öğrenme stratejilerini kullanmalarının desteklenmesi ve birinci öğretim öğrencilerinin ise bu öğrenme stratejilerinin geliştirilmesine yönelik çalışmalar yürütülmesi önerilebilir. Yerel Yönetimler, Özel Güvenlik ve Koruma, İş Sağlığı ve Güvenliği ile Lojistik Bölümü öğrencilerinin anlamlandırma stratejisini kullanmasının teşvik edilmesi-özendirilmesi önerilebilir. Yerel Yönetimler Bölümü öğrencilerinin anlamayı izleme ve duyuşsal stratejilerinin geliştirilmesi amacıyla etkinlikler planlanması önerilebilir. Bu çalışmaya benzer çalışmaların farklı eğitim kademelerine de uygulanması önerilebilir. Bu çalışma Kafkas Üniversitesi, Sarıkamış Meslek Yüksekokulu ile sınırlıdır. Farklı evren ve örneklemler ile çalışmalar yapılması önerilebilir. Durumun daha detaylı incelenebilmesi için nitel veya karma çalışmaların da yapılması önerilebilir.

Anahtar Kavramlar: Öğrenme stratejileri, meslek yükokulu öğrencileri, öğrenmeyi öğrenmek.

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Evaluation of University Students' Rating Behaviors in Self and Peer Rating Process via Many Facet Rasch Model

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ABSTRACT

Purpose: When self and peer assessment methods become commonly used in the teaching process, the most important problem turns out to be the reliability of the ratings acquired from these sources. Increasing the rater reliability has great importance in the performance evaluation for the reliability of the measurement. This study aimed to determine rater behaviors university students display in the process of self and peer assessment. The research was based on a descriptive model. The participants were 58 students at the Guidance and Psychological Counseling Program in 2017-2018 academic year at a foundation university in Ankara.

Findings: Many Facet Rasch Model (MFRM) analysis was applied, and no statistically significant difference of raters' severity and leniency behaviors in the ratings was observed in terms of gender, but there was a statistically significant difference based on the rater types (self and peer). The raters seemed to be more lenient in self-assessments. The study also showed that while raters showed central tendency behavior on individual level, they did not show such tendency at the group level. It was concluded that individuals' ratings are more biased than group ratings when they evaluate group performance.

Implications for Research and Practice: Some of the raters had differentiating rating behaviors based on the groups. The teacher candidates made systematic mistakes in the performance evaluation process and showed behaviors that had negative effect on the validity of the rating. It is important for the raters to conduct studies to reduce the scoring bias of the raters.

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Introduction

It is clear that the main aim of higher education has inclined to support students to turn them into critical thinkers on their own professional practices, problem solvers and reflective practitioners (Falchikov & Goldfinch, 2000; Kwan & Leung, 1996). Individuals' gaining and developing those skills has also been the focus of programs of instruction. Thereby, observation and evaluation of those aforementioned skills by programs of instruction is in question. Classical assessment tools implemented for this purpose remain incapable in measurement of those mentioned features. This new understanding sees the participation of students in the evaluation of learning process also as important. Hence, this situation has highlighted the use of new evaluation approaches (Bushell, 2006; Falchikov & Goldfinch, 2000). Unlike traditional approaches, students are not only passive information recipients in new assessment approaches. Students' gaining higher level cognitive skills such as critical and creative thinking and problem solving constitutes the basis of this approach (Kutlu, Yildirim & Bilican, 2009). In performance evaluation which gained importance with new approaches, instead of choosing any of the options offered; the student should generate the answer herself/himself (Unal & Ergin, 2006). Thus, unlike multiple-choice tests that relate the student to retrieve information from memory, performance evaluation is based on the process of structuring knowledge actively (Moore, 2009). In this process, students should have an opportunity to interact with their peers and teachers. Thus, it becomes possible for students to structure the information and share the structured information. Assessment and evaluation are instruments for learning that is becoming increasingly desirable to ensure students to take responsibility for their own learning by involving them in this process (Dochy & McDowell, 1997).

Self-assessment and peer assessment are considered as important evaluation approaches for students to take responsibilities for their learning, and it is suggested to encourage students to participate actively in teaching process using these assessments.

Self- assessment is defined as a formative assessment process in which students evaluate their own studies in accordance with predetermined criteria and goals, and increase the quality of the studies by making arrangements according to the results of these evaluations (Andrade, Du & Mycek 2010). With the help of self-assessment, students take more responsibility for their own learning and actively participate in the process of "assessment for learning" (Ballantyne, Hughes & Mylonas, 2002; Matsuno, 2006). Self-assessment is determined by the teachers and minimizes the problems that may arise from the assessment based on the criteria that the students are not generally informed so that they allow the students to evaluate their own studies and learn new things from their mistakes. Puhl (1997) interpreted its biggest contribution as "one of the important skills that should be developed for students to take with them when they leave school and then use them for lifelong learning".

In peer assessment, which is another method of assessment, students are active participants in the whole process as in self-assessment. Peer assessment is defined as an arrangement for students of similar status to consider and take into account the

value or quality of the products of each other's learning output (Topping, Smith, Swanson & Elliot, 2000), and in this respect, it is seen as a planning job (Topping, 1998). In line with this planning, peer assessment serves to "both formative assessment which is based on observation with the aim of giving feedback and summative assessment which is based on placement in terms of determining success" (Temizkan, 2009). Studies show that students find peer assessment more useful in their learning (Landry, Shoshanah & Newton, 2015). Peer evaluation may also be one of the guiding elements in group work, which is necessary for today's business life. Accordingly, the peer assessment practice carried out in group work may contribute to the success of individuals as it may increase the responsibility of individuals.

Self-assessment and peer assessment make the assessment procedure more systematic and formal. Students compare their learning to their peers' and make inferences about their own learning. Also, as the number of evaluators increases, it is possible to get to know the student in a multi-faceted way. In other words, students will have a multidimensional feedback on the quality of their work more than to the extent that they can be evaluated by one instructor with classical methods (Millar, 2003).

When self and peer assessment methods are used in the teaching process, the most important problem is the reliability of the scores obtained (Donnon, Mcllwrick & Wololoschuk, 2013). Increasing the interrater reliability is of great importance in the performance evaluation to increase the reliability of the measurement. The results obtained from the performance measurement can be valid only if the scores are reliable (Jonsson & Svingby, 2007). Therefore, in the performance evaluations, it is necessary to examine the interrater consistency before evaluating the results (Cakici-Eser & Gelbal, 2013). The factors affecting the performance of the student are called rater effects (Farrokhi, Esfandiari & Vaez Dalili, 2011). In the process of self and peer assessment, various rater effects can be observed due to the raters.

Rater effects interfering with performance evaluation and affecting the reliability are examined under different titles such as rater severity and leniency, central tendency behavior, halo effect, range restriction (Saal, Downey & Lahey, 1980), bias and inconsistency (Myford & Wolfe, 2004). Research shows that peer scoring is made more severe but in self-assessment, raters are more lenient in scoring (Falchikov & Boud, 1989; Farrokhi, Esfandiari & Dalili 2011; Farrokhi, Esfandiari & Schaefer 2012; Karakaya, 2015; Lejk & Wyvill 2001; Topping, 2003). Nonetheless, the literature suggested various methods to be utilized such as scoring rubric to reduce the errors originating from raters (Author & Co-author, 2003; Andrade 2005; Oosterhof, 2003), training of raters (Hauenstein & McCusker, 2017; Lumley & McNamara, 1995; Rose, 2006), inclusion of more than one rater to the process (Kubiszyn & Borich, 2013), and including such practices more in classroom (Author, 2017; Bushell, 2006; Topping, 2003; Zhang, 2008), thus there would be less concern about the reliability of scores. In this study, both more than one rater and scoring rubric have been employed for more reliable measurement in the process of self and peer assessment of the students' performances.

The researchers recommend the Many-facet Rasch Model (MFRM) to determine the reliability of peer and self-assessment scores and eliminate the limitations of classical approaches (Baird, Hayes, Johnson, Johnson & Lamprianou, 2013; Kim, Park & Kang, 2012; Linacre, 1996; Lunz, Wright & Linacre, 1990). In assessing the performance of the students by MFRM, the factors that may affect the students' scores are not limited to the skill levels of individuals or the difficulty levels of the items used in the measurement process. Factors related to raters can also lead to variability in student performance scores (Johnson & Lamprianou, 2013). This feature of MFRM makes it a viable option for performance assessments affected by rater behavior (Mulqueen, Baker & Dismukes, 2000). MFRM is also considered to be a more powerful psychometric model according to the classical test theory in terms of features such as being able to identify the interactions between different sources of error (Haiyang, 2010), taking into account more than one source of error at the same time, producing higher ability estimates for validity (Ilhan, 2016), providing information at the individual level rather than at the group level for raters or individuals whose performances are being evaluated (Barkaoui, 2008).

When the studies about MFRM are examined, it is observed that some of the researchers (Guler, 2008; Macmillan, 2000; Sudweeks, Reeve & Bradshaw, 2005) benefited from MFRM in comparative studies with other theories. Some of these studies aim to determine the success of individuals and the severity/leniency of the raters (Akin & Basturk, 2012; Basturk, 2008; Engelhard & Stone, 1998; McNamara & Adams, 1991; Weigle, 1998; Weigle, 1999), some of them aim to investigate rater bias and factors affecting it (Aryadaust, 2015; Cetin & Ilhan 2017, Farrokhi & Esfandiari, 2011; Saito, 2008; Schaefer, 2008; Wolfe, 2004), and some others aim to investigate rater sources-self, peer and teacher-(Farrokhi, Esfandiari, & Dalili, 2011). This research considered the participation of teacher candidates in the assessment process (self and peer assessment) as contributing to improve their scoring behaviors and make the teaching processes more efficient. In addition, the research aimed to contribute to the literature concerning teacher candidates' scoring behaviors during the assessment of individual performance.

We emphasize that it is significant to use self and peer assessment in performance evaluation. It is also important to determine the errors committed by scorers during the assessment of individual performance when self and peer assessments are concerned. Therefore, the present study pointed to the type of evaluation for the errors and uncovered the scoring behaviors involved in the assessment. Besides, the use of Rasch Model, which provides a deeper and broader framework in performance evaluation, promoted the robustness of the study.

This study aimed to determine which rater behaviors university students were manifested during self and peer rating process with the help of MFRM. For this purpose, the questions sought to be answered in the study were as follows;

1. Do the severity and leniency behaviors of the raters differ significantly according to their gender?

2. Do the severity and leniency behaviors of the raters differ significantly according to the rater type (self and peer)?
3. Do the central tendency behaviors (rating categories, criteria, and groups) of the raters differ significantly from each other?
4. Do the raters show biased rating behavior?

Method

Research Design

The study showed a descriptive type of quantitative research feature as it aimed to reveal the rating behaviors of the prospective teachers in the process of scoring the research proposals they prepared. Since all the raters evaluated all group work, a fully crossed design was used. Due to the description of an existing situation in the research, there were five surfaces including the raters, gender of the raters, group work, rater type (self and peer), and criteria. The study aimed to examine the rating behaviors of self and peer assessment during the performance evaluation process. Both group-level statistics and individual-level statistics were conducted to determine rater attitudes the raters displayed.

Participants

The participants of the study were 58 volunteers among the students who took Scientific Research Methods class in 2017-2018 academic year at the Guidance and Psychological Counseling Program of the Faculty of Education at a foundation university in Ankara. Due to the fact that the participants were teacher candidates who were enrolled in the course taught by one of the researchers of this study at the time of the data collection, no permission was obtained, and participation in the study was on a voluntary basis.

Research Instruments and Procedures

The data included in the study were collected by an analytical scoring rubric (ASK) developed by the researchers. ASK was developed to evaluate any scientific research proposal. Firstly, expert opinions were taken for the measurement tool developed as a draft. The measurement tool took its final form in accordance with opinions and suggestions. Accordingly, the criteria of the measurement tool were determined as the statement of the problem, method, findings and result/comment. Each criterion of ASK was rated using a quadruple rating (rather inadequate, 0; quite adequate, 3).

After the application of the ASK, studies were conducted to determine the validity and reliability of the measurements. Exploratory factor analysis (EFA) was used for evidence of the validity of the measurements. The case of whether the assumptions of the exploratory factor analysis were met were examined, which demonstrated that the necessary assumptions were met. The KMO value for the corresponding data set was 0.775, Bartlett's test of sphericity was significant, all criteria of the scoring rubric were normally distributed, and there was no outlier or missing value. The mean score of 58 students in 12 group studies was calculated while AFA was performed. The results of

the EFA showed that the criteria in the ASK were collected under a single factor, and the explained variance was 93.121%. The factor loadings of the criteria for the relevant data set were as follows; 0.946; 0.973; 0.982; 0.958.

The reliability coefficient (ω) proposed by McDonald (1999) was used for the reliability of the measurements. Since the factor loadings of the variables were different from each other in the present study, it was preferred to use McDonald's coefficient for the more consistent predictions of such measurements (Osburn, 2000). As a result of the analysis, McDonald's coefficient was found to be 0.982 (%95 Confidence Interval: 0.952-0.994). According to this result, it can be argued that the measurements obtained from the ASK developed to measure student group work provided valid and reliable results.

Data Analysis

In the analysis of the data, MFRM was used. Analyses were conducted using FACETS software. The analysis had some assumptions. Compensating these assumptions served the validity of inferences based on the analysis results. Unidimensionality was examined as the first assumption, and it showed that the measurement tool had a single dimension as a data collection tool. Ensuring unidimensionality was considered as an indication that local independence was also met, and no action was taken for local independence. Finally, model data compliance was investigated. For model data compliance, the number of standardized residuals outside the ± 2 range should not be more than 5% of the total number of observations, and the standardized residual values outside the ± 3 range should not be more than 1% of the total number of data (Linacre, 2017). It was observed that the model data compliance was provided for the current study as the total number of observations was 2784 (58 x 12 x 4), the standardized residual values outside the ± 2 range were 116 (4.17%), and the standardized residual values outside the ± 3 range were 28 (1.01%) in this study.

Results

Within the scope of this study, rater severity, rater leniency, central tendency and rater bias behaviors were examined.

Rater Severity and Leniency

Before evaluating the self and peer assessments of the raters, the infit and outfit values of each rater were examined. It was determined that 4 out of 62 of the raters had poor compliance values (outliers) and were excluded from the analysis. Upon the exclusion, the analysis was repeated. The analytic outcomes of the gender of the raters in the evaluation of the group work (measurement report) are presented in Table 1.

Table 1

MFRM Analysis Outcome (Measurement Report) Regarding the Gender of Raters

Gender	Observed Average	Fair-M Average	Measure	Model S.E.	Infit	Outfit
Female	2.35	2.63	0.07	0.04	1.01	1.10
Male	2.36	2.59	-0.07	0.08	0.92	0.96
Mean	2,35	2.61	0.00	0.06	0.96	1.03
S (Population)	0.00	0.02	0.07	0.02	0.04	0.07
S (Sample)	0.00	0.03	0.10	0.03	0.06	0.10
Model, Population: RMSE =0.06 Adj (True) S.D. =.03 Separation = 0.53 Strata= 1.04 Reliability = 0.22						
Model, Sample: RMSE =0.06 Adj (True) S.D. =0.08 Separation =1.25 Strata = 2.00 Reliability = 0.61						
Model, Fixed (all same) chi-square: 2.60 d.f. = 1 significance (probability) = 0.11						

P.S. S.D: standard deviation, d.f.: degree of freedom, RMSE: root mean square error

Table 1 shows that the calculated separation rate, strata and reliability for the sample were low. These low values were considered to be an indicator of similar rater behaviors of male and female raters, in other words, their behavior of similar ratings/evaluations in the process of evaluation of individual performance. When the fixed chi-square value of the male and female raters to determine whether the ratings of male and female raters differed was evaluated, it was found as not statistically significant ($\chi 2(df) = 2.60(1)$, significance = 0.11>0.01). According to this result, in the process of determining the status of the group work, the rater severity and leniency showed no statistically significant difference between male and female raters.

After determining that the gender of the raters was not statistically significant in the performance evaluation process, the significance of the rater type (self and peer) in the performance evaluation process was examined.

Table 2

MFRM Analysis Outcome (Measurement Report) Regarding Rater Type

Rater Type	Observed Average	Fair-M Average	Measure	Model S.E.	Infit	Outfit
Self	2.72	2.80	0.90	0.16	1.37	2.30
Peer	2.32	2.35	-0.90	0.04	0.97	0.96
Mean	2.52	2.57	0.00	0.10	1.17	1.63
S (Population)	0.20	0.23	0.90	0.06	0.20	1.67
S (Sample)	0.28	0.32	1.27	0.09	0.29	1.95
Model, Population : RMSE = 0.12 Adj (True) S.D. = 0.89 Separation = 7.59 Strata = 10.45 Reliability = 0.98						
Model, Sample: RMSE = 0.12 Adj (True) S.D. = 1.26 Separation = 10.78 Strata = 14.71 Reliability = 0.99						
Model, Fixed (all same) chi-square: 117.20 d.f. = 1 significance (probability) = 0.00						

P.S. S.D: standard deviation, d.f.: degree of freedom, RMSE: root mean square error

Table 2 demonstrates the group level statistics, which indicated that the calculated separation rate, strata and reliability for the sample were high. It means that the levels of severity and leniency of the self and peer ratings were different in the process of evaluating the group work. The fixed chi square which was applied to determine whether the severity and leniency levels of self and peer ratings differ statistically showed that it was significant ($\chi 2(df) = 117.20(1)$, significance = 0.00<0.01). When the self and peer logit values (level of severity and leniency) were examined, it was observed that the raters had more lenient behavior in self-assessment while they showed more severe behavior during the process of peer assessment. Moreover, the standard errors of the self-assessments of the raters were higher than the peer ratings, so the reliability of the self-assessments was lower. The examination of concordance values showed that the outfit values of the self-assessment ratings were not within the acceptable limits, in other words, the rating given by the raters was outlier.

After examining the severity and leniency behaviors of self and peer ratings, severity and leniency behavior of each rater was examined. The output of the MFRM analysis for the rater facets was given in Table 3.

Table 3

MFRM Analysis Outcome (Measurement Report) Regarding Rater Facets

Rater No	Logit Value	Standard Error	Infit	Outfit	Observed Agreement	Expected Agreement	t-score
057	4.69	0.34	0.91	0.75	55.10	51.20	4.412
056	4.46	0.32	0.91	0.93	50.20	51.30	3.969
051	4.03	0.30	1.43	1.34	47.80	51.80	2.800
038	4.03	0.31	0.86	0.67	60.20	53.50	2.710
013	3.90	0.30	0.86	1.10	53.50	52.50	2.367
015	3.90	0.30	0.55	0.59	59.20	52.50	2.367
021	3.81	0.30	0.85	0.67	55.50	52.50	2.067
062	2.61	0.26	0.80	0.77	52.60	49.10	-2.231
019	2.60	0.26	1.34	1.22	41.40	48.90	-2.269
055	2.60	0.26	1.20	1.26	43.90	49.20	-2.269
054	2.62	0.25	0.76	0.76	48.50	46.90	-2.280
045	2.43	0.25	0.91	0.95	46.50	47.50	-3.040
058	2.29	0.25	0.92	0.90	47.70	46.60	-3.600
050	1.37	0.24	0.66	0.67	27.50	33.40	-7.583
Mean	3.19	0.27	0.99	1.07			
S(Population)	0.53	0.02	0.22	0.45			
S(Sample)	0.54	0.02	0.22	0.46			
Model, Population: RMSE = 0.27 Adj (True) S.D. = 0.46 Separation = 1.67 Strata = 2.56 Reliability = 0.74							
Model, Sample: RMSE = 0.27 Adj (True) S.D. = 0.46 Separation = 1.69 Strata = 2.58 Reliability = 0.74							
Model, Fixed (all same) chi-square : 215.80 df = 57 significance (probability) = 0.00							
Model, Random (Normal) chi-square: 45.50 df = 43 significance (probability) = 0.84							
Expected interrater agreement percentage = %50.90 Absolute agreement percentage =%51.70							

P.S.: Only raters whose t-scores are significant were included.

Table 3 presents the high calculated separation rate, strata and reliability for the sample. This means that the severity and leniency behaviors of the raters were

different in the performance evaluation process. Among 58 students/raters who evaluated the group work, 14 raters (7 severe, 7 lenient) showed severity and leniency behaviors (see t-scores in Table 3). The performance evaluation process showed that the fixed chi-square test applied for the statistical significance of the raters' severity and leniency behaviors was meaningful ($\chi 2(sd) = 215.80(57)$, significance = 0.00<0.01).

Central Tendency Behavior

Central tendency behavior is frequently encountered in the performance evaluation process. For the third question of the study, raters' central tendency behaviors were examined. First, the group level statistics and then individual level statistics were examined. One of the group-level statistics was category statistics. Table 4 presents the rating category (rating scale) statistics in this study.

Table 4
Category Statistics Regarding the Measurement Tool Used in the Evaluation of Group Work

Rating Categories	Frequency	%	Cumulative %	Average logit measure	Expected logit measure	Outfit
0	15	%1	%1	0.13	-0.04	1.0
1	258	%9	%10	0.79	0.83	1.0
2	1243	%45	%54	2.01	2.00	1.2
3	1268	%46	%100	3.33	3.33	1.0

Analyzing the rating category statistics in Table 4, it was seen that the raters preferred categories of 3 and 4 more, and barely used categories of 0 and 1. Two possible reasons for this may be the result of centralized behavior or individual performance (of the group work) being at the medium-level. The category statistic, which was one of the group-level statistical indicators for determining the real cause of this situation, was not sufficient by itself. Therefore, other statistical indicators at the group level such as the group-level statistics in the measurement reports of the group and criteria surfaces should also be examined. First, the measurement report regarding the surface of the criterion is given in Table 5.

Table 5

MFRM Analysis Output Regarding Criteria Surface (Measurement Report)

Criteria	Observed Average	Fair-M Average	Logit Value	Standard Error	Infit	Outfit
Criteria 1	2.44	2.69	0.32	0.07	1.00	1.14
Criteria 2	2.43	2.68	0.27	0.07	1.03	1.18
Criteria 3	2.35	2.61	0.00	0.07	1.03	1.05
Criteria 4	2.18	2.44	-0.58	0.07	0.91	0.92
Mean	2.35	2.61	0.00	0.07	0.99	1.07
S (Population)	0.10	0.10	0.36	0.00	0.05	0.10
S (Sample)	0.12	0.11	0.41	0.00	0.06	0.11

Table 5 Continue

Criteria	Observed Average	Fair-M Average	Logit Value	Standard Error	Infit	Outfit
Model, Population: RMSE =0.07Adj (True) S.D.=0.35 Separation =4.88 Strata = 6.84 Reliability = 0.96						
Model, Sample: RMSE = 0.07 Adj (True) S.D. = 0.41 Separation = 5.66 Strata = 7.88 Reliability = 0.97						
Model, Fixed (all same) chi-square: 10.90 d.f = 3 significance (probability) = 0.00						
Model, Random (normal) chi-square : 2.90 d.f = 2 significance (probability) = 0.23						

P.S. S.D: standard deviation, d.f.: degree of freedom, RMSE: root mean square error

Table 5 shows that the compliance values for the criteria were within the acceptable range and the standard error values were low. This indicates that all criteria did not impair the model - data compliance. In addition, high values of the separation rate, strata and reliability indicate that the criteria can successfully distinguish the performance of group work. In the performance evaluation process, the fixed chi-square test was meaningful in that the criteria statistically distinguish the group work from each other ($\chi 2(df) = 104.90(3)$, significance = 0.00<0.01). That is, the raters did not show central tendency behavior in the performance evaluation process concerning group work. In addition, when the category possibilities related to criteria were examined, it was observed that the categories of the criteria successfully distinguished group performances from each other. The possibilities for the categories of the criteria are given in Figure 1.

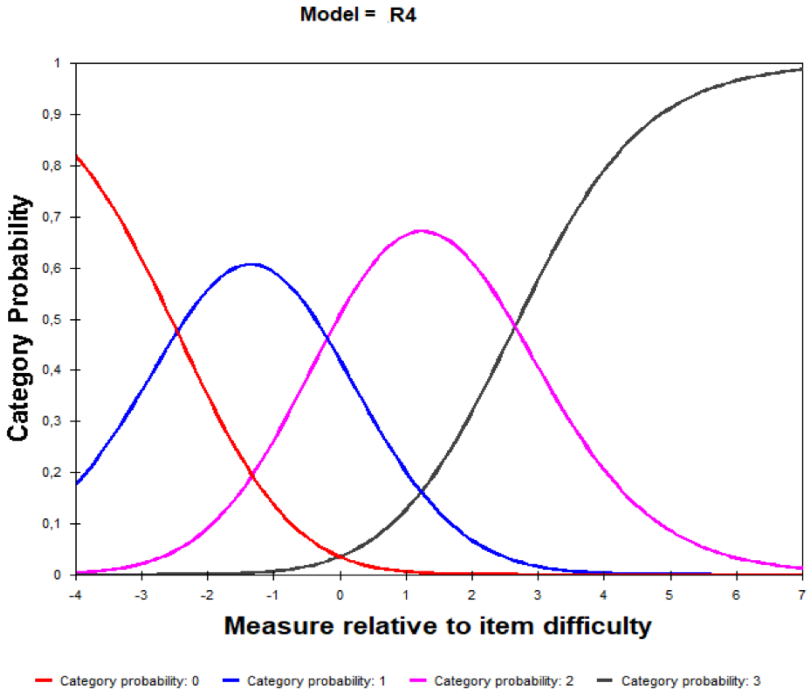

Figure 1. *Category Possibilities*

After examining the criterion surface, it was determined that there was no central tendency behavior at the group level, group surface, which gives information about the group work. MFRM analysis output regarding group surface is presented in Table 6.

Table 6

MFRM Analysis Output (Measurement Report) Regarding Group Surface

Criteria	Observed Average	Fair-M Average	Logit Value	Standard Error	Infit	Outfit
Group2	2.80	2.91	1.80	0.17	1.00	1.86
Group1	2.71	2.86	1.27	0.15	1.02	1.13
Group5	2.65	2.82	1.00	0.14	0.82	0.76
Group3	2.60	2.78	0.78	0.13	0.78	0.76
Group4	2.60	2.78	0.76	0.13	0.96	1.03
Group7	2.49	2.70	0.35	0.12	0.99	1.12
Group6	2.39	2.62	0.03	0.12	1.31	1.28
Group8	2.22	2.47	-0.50	0.12	1.11	1.09
Group9	2.18	2.43	-0.64	0.11	0.84	0.84
Group10	2.05	2.29	-1.06	0.11	0.83	0.85
Group12	1.82	2.06	-1.75	0.11	1.01	1.00
Group11	1.71	1.97	-2.03	0.11	1.13	1.14
Mean	2.35	2.56	0.00	0.13	0.98	1.07
S (Population)	0.34	0.30	1.16	0.02	0.15	0.29
S (Sample)	0.36	0.32	1.21	0.02	0.15	0.30

Model, Population: RMSE = 0.13 Adj (True) S.D. = 1.15 Separation = 9.00 Strata = 12.34 Reliability = 0.99
Model, Sample: RMSE = 0.13 Adj (True) S.D. = 1.21 Separation = 9.41 Strata = 12.88 Reliability = 0.99
Model, Fixed (all same) chi-square: 1015.20 d.f = 11 significance (probability) = 0.00
Model, Random (normal) chi-square: 10.90 d.f = 10 significance (probability) = 0.37

P.S. S.D.: standard deviation, d.f.: degree of freedom, RMSE: root mean square error

Table 6 displays that the separation rate, strata and reliability regarding the group surface were high. In other words, the group performances were distinguished successfully as for that their ability levels. The fixed chi-square test applied for successful distinguishing of group work according to their performances was significant ($\chi 2(df) = 1015.20(11)$, significance = 0.00<0.01). The results indicated that the students/raters did not show group level central tendency behavior in the process of evaluating the group work. The lack of the central tendency behavior at the group level does not guarantee that it will not occur at the individual level. The examination of infit and outfit values of each of the first statistical raters at the individual level pointed out that all the raters had the compliance values within the acceptable range. Secondly, the calculated category statistics for each rater were examined. It was found out that 18 out of 58 raters showed the central tendency behaviors at the individual level, and 12 of those raters performed this behavior on category 2 and 6 of them on category 1. In other words, it was determined that the majority of the raters who showed central tendency behavior preferred a score above the average.

Rater Bias Behavior (Differentiating Rater Severity and Rater Leniency)

The fourth research question determined whether or not the raters showed rating bias behavior. Rater bias emerge in two different ways; differentiating severity and leniency. It is defined as a behavior that occurs frequently in the performance evaluation process and decreases validity directly. It is important to determine rater bias in the performance evaluation studies. One of the major advantages of the MFRM analysis in practice is that it provides evidence for rater bias by using the interaction effects between the surfaces included in the model. Since there were five surfaces in this study, a total of 10 interactions occurred on these surfaces. However, only rater behaviors were taken into consideration, so rater x group work interactions were included. When bias analysis was applied in the MFRM analysis, the t-value, the degree of freedom, the bias size, and the significance values were calculated for the related interactions. Firstly, group-level statistics were analyzed. The analyses demonstrated that the chi-square test performed to determine whether the rater bias occurred at the group level was significant ($\chi 2(df)$ =1048.50(696), significance = 0.00<0.01). According to this result, rater behaviors appeared at the group level during the performance evaluation process.

After it was determined that rater bias occurred at group level, individual level statistics were examined. A t-value was calculated for each element of the rater x group interactions. As a general rule, it is accepted that the interaction element which has outside ± 2 range t-value shows the rater bias (Linacre, 2017, s.218). Since 58 raters made status identification of 12 group work, a total of 696 (58x12) interactions occurred in the current study. As a result, 69 out of 696 possible interactions (%9.91) were statistically significant. Of the 69 individual significant interactions which emerged during the evaluation of group work, rater severity, and leniency behaviors which differentiate based on the sign of t-values were determined. 14 of the 69 significant interactions in the present study were differentiating rater severity while 55 of them were differentiating rater leniency.

Discussion, Conclusion and Recommendations

Rating results of individuals indicate that severity and leniency behaviors show a significant difference according to self and peer ratings. According to self and peer ratings performed in the process of determining the performances, 14 out of 58 students showed severity or leniency behaviors (7 severe, 7 lenient). It can be stated that approximately 25% of the students exhibited this behavior. Compared to a similar study by Farrokhi et al. (2012), the results of this study showed relatively less severity and leniency behaviors. The results of this study are similar to the findings of Engelhard (1994), Farrokhi and Esfandiari (2011), and Karakaya (2015) regarding the severity and leniency behaviors obtained by self and peer rating types. Based on the value obtained from this study, one needs to consider some points from Myford and Wolfe (2003) that proposed to decrease the severity and leniency behaviors of teacher candidates. The fact that there is no significant difference on severity and leniency behaviors regarding the gender in the rating process shows that students exhibit similar levels of behavior.

Central tendency behavior can be described as different raters' usage of rating categories divergently. In other words, some of the raters overuse extreme categories while some of them overuse medium categories (Engelhard, 1994). Regarding the third sub-problem of this study, the rating categories of the raters' central tendency behaviors were examined according to the criteria and groups. According to the findings, some raters showed the central tendency behaviors on individual basis whereas the same phenomenon was not observed in the group. Hence, it shows that group performances were distinguished successfully according to their skills level.

It was also observed that 18 out of 58 raters showed central tendency behaviors on individual level. 12 of those raters performed this behavior on rating category 2 and 6 of them on rating category 1. It indicated that individuals preferred a score that is above average. This can be interpreted as these individuals' using the rating categories in a different way. In other words, these raters used extreme categories more excessively than the other raters. Other raters may tend to overuse the medium categories (Engelhard, 1994).

In the rating process, rater bias can provide important information about the validity. Whether or not the raters made a valid rating were examined by observing the rater bias. Rater bias was first examined by taking a look at individual x group interaction. It was found that there was a different rating, which means biased rating, in the group level. This leads us to the conclusion that individuals made biased rating when evaluating group performance as for groups. For the ratings at the individual level, rating bias occurs in only 69 out of 696 (9.91 %) possible interactions. This makes it necessary for individuals to use scoring rubrics more carefully and be a part of rating education for upcoming ratings. The rater training is important in terms of eliminating the extreme differences in the rater severity and increasing the internal consistency of the rater by reducing the individual prejudices of the raters. (Weigle, 1994).

The use of peer and self-assessments in higher education enables effective learning to take place by making students participate actively in the course and to take responsibility of their learning. In addition, educators can have the opportunity to make multiple evaluation of the students, because as the number of evaluators increases, it will be possible to get more images about the student and recognize them in a multi-faceted way. In other words, students will have a multidimensional feedback on the quality of their work more than to the extent that they can be evaluated by one instructor with classical methods. Despite these benefits, peer and self-assessment have some limitations. Early in the list of these limitations, there is reliability of the ratings. Taking this effect from the raters on individual performance into consideration contributes to the validity and reliability of the measurements and evaluations. In this regard, the present study aimed to contribute to the validity and reliability of the evaluations of the students' performance by examining the effects of the rating in the process of evaluating the assignments, which are the products of the group work of the students in the higher education.

We acknowledged some limitations in this study. First of all, research showed more than 30 rater behaviors in the process of performance evaluation; however, the

present study took into account the most common rater behaviors. The second limitation is that the raters in this study were people who have not had a prior scoring experience. Lastly, since this research was carried out focusing on 'the skills of preparation of a research report', the results would not be generalized to the universe. The study revealed that there was no significant difference of raters' severity and leniency behaviors in the ratings based on gender. The fact that 14 of the individuals exhibited severity and leniency behaviors showed that these raters were composed of both men and women. For this reason, it may be suggested that both genders are to be included in the rating training process regarding severity and leniency. Studies that investigate the effect of gender on performance evaluation report that gender has no significant effect (Porter & Shen, 1991; Winke, Gass & Myford, 2012). Van-Trieste's (1990) study reported that male scorers graded female performance higher while female scorers graded male performance higher. One of the reasons that we observed no statistically significant difference between male and female raters in the study was that the measured performance belonged to the groups rather than individuals, and the groups were composed of men and women.

In addition, in the rating process, the raters had differentiated severity and leniency behaviors based on the self and peer rater types. This shows that individuals behave differently when evaluating their performance or their peer's performance. This is the reason that the studies for self and peer assessment should receive more attention for raters to act more objectively. Especially, studies can be carried out within a program for self-scoring.

In the research, central tendency behavior at individual level was observed, though there was none at group level. This can translate as the individuals' preference of extreme and medium rating categories more. Therefore, it can be suggested that the studies towards the raters' more careful usage of scoring rubric should be dwelled on. In the context of the last sub-problem in the study, it was concluded that some of the raters had a differentiating rating behavior based on the groups. In this respect, it was observed that teacher candidates made systematic mistakes in the performance evaluation process and showed behaviors that had a negative effect on the validity of the rating. In other words, the rating bias of the raters decreases the validity of the rating. For this reason, it is important for the raters to conduct studies to reduce the scoring bias of the raters. Training on performance evaluation can contribute to the decrease of the rater bias of pre-service teachers and improve the validity and reliability of the assessment. In addition, we believe that it is important to provide in-service teachers with training and seminars to decrease rater bias with their scoring behavior.

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Üniversite Öğrencilerinin Öz ve Akran Puanlama Sürecinde Puanlama Davranışlarının Many Facet Rasch Modeli ile İncelenmesi

Atıf:

Aslanoglu-Erman, A., Karakaya, I., & Sata, M. (2020). Evaluation of university students' rating behaviors in self and peer rating process via many facet Rasch model. *Eurasian Journal of Educational Research 89, 25-46,* DOI: 10.14689/ejer.2020.89.2

Özet

Problem Durumu: Yükseköğretimin temel amacının, öğrencileri, kendi mesleki uygulamaları üzerinde eleştirel düşünen, problem çözen, yansıtıcı uygulayıcılar haline getirmelerine destek vermeye yöneldiği açıktır (Falchikov & Goldfinch, 2000; Kwan & Leung, 1996). Bireylerin bu becerileri kazanması ve geliştirmesi öğretim programlarının da odak noktası haline gelmiştir. Dolayısıyla öğretim programlarının belirtilen bu becerileri izlemesi ve değerlendirmesi söz konusudur. Bu amaç için uygulanan klasik ölçme araçları sözü edilen özelliklerin ölçülmesinde yetersiz kalmaktadır. Bu yeni anlayış öğrenme sürecinin de değerlendirilmeye öğrencilerin katılmasını önemli görmektedir. Bu durum ise yeni değerlendirme yaklaşımlarının kullanılmasını ön plana çıkarmıştır (Bushell, 2006; Dochy, 2001; Falchikov ve Goldfinch, 2000). Öğrencilerin öğrenmelerinde, sorumluluklarını almaları için öz değerlendirme ve akran değerlendirme önemli değerlendirme yaklaşımları olarak görülmekte ve bu değerlendirmelerin kullanılarak öğrencilerin öğretime aktif olarak katılmalarının teşvik edilmesi önerilmektedir. Öğretimde öz ve akran değerlendirmelerinin kullanılması önemi yadsınamayacak bir yarar sağlamaktadır. Çünkü değerlendiricilerin sayısı arttıkça, öğrenciye ilişkin daha fazla resim elde ederek onu çok yönlü tanımak mümkün olabilecektir. Başka bir deyişle öğrenciler, tek bir öğretim elemanının klasik değerlendirme yöntemlerinden daha fazla değerlendirebileceği ölçüde, yaptıkları çalışmaların kalitesi hakkında çok yönlü bir geribildirime sahip olurlar (Millar, 2003). Öğretim sürecinde öz ve akran değerlendirme yöntemleri kullanıldığında en önemli sorun, bu kaynaklardan elde edilen puanların güvenirliği ve bu puanlara dayalı yapılan çıkarımların geçerliği olarak görülmektedir (Donnon, Mcllwrick ve Wololoschuk, 2013). Öğrencinin performansını etkileyen puanlayıcı kaynaklı faktörler puanlayıcı davranışları olarak adlandırılmaktadır (Farrokhi, Esfandiari ve Vaez Dalili, 2011). Bu bağlamda mevcut çalışmanın problem durumu, öz ve akran değerlendirmede hangi puanlayıcı davranışlarının ortaya çıktığı şeklinde belirlenmiştir.

Araştırmanın Amacı: Bu çalışmanın amacı, üniversite öğrencilerinin öz ve akran puanlama sürecinde hangi puanlayıcı davranışlarını sergilediklerini çok yüzeyli Rasch ölçme modeli aracılığıyla belirlemektir.

Araştırmanın Yöntemi: Araştırma öğretmen adaylarının hazırlamış oldukları araştırma önerilerinin puanlanması sürecinde göstermiş oldukları puanlayıcı davranışlarının

ortaya çıkarılmasını hedeflediği için var olan bir durumun betimlenmesinden dolayı betimsel türden bir nicel araştırma özelliği göstermektedir. Araştırmanın katılımcıları 2017-2018 eğitim ve öğretim yılında Ankara ilindeki bir vakıf üniversitenin eğitim fakültesi Rehberlik ve psikolojik danışmanlık programında yer alan bilimsel araştırma yöntemleri dersini alan öğrenciler arasından, çalışma kapsamında gönüllü olarak katılan 58 kişiden oluşmaktadır. Araştırma kapsamındaki veriler, araştırmacılar tarafından geliştirilen analitik dereceli puanlama anahtarı (ADPA) ile toplanmıştır. ADPA, herhangi bir bilimsel araştırma önerisini değerlendirmek amacıyla geliştirilmiştir. Öncelikle taslak olarak geliştirilen ölçme aracına yönelik olarak uzman görüşleri alınmıştır. Görüş ve öneriler doğrultusunda ölçme aracının son şekli verilmiştir. Buna göre, ölçme aracının ölçütleri; problem durumunun belirlenmesi, yöntem, bulgular ve sonuç/yorum olarak belirlenmiştir. ADPA'nın her bir ölçütü dörtlü bir derecelendirme (oldukça yetersiz "0", oldukça yeterli "3") kullanılarak puanlanmıştır. ADPA'dan elde edilen ölçümlerin geçerliği için AFA'i güvenirliği için ise McDonald ω katsayısı kullanılmıştır. Araştırmadaki verilerin analizinde; çok yüzeyli Rasch ölçme modeli kullanılmıştır. Analizler FACETS palet programı kullanılarak yapılmıştır. Analizinin bazı varsayımları bulunmaktadır. Bu varsayımların karşılanması analiz sonuçlarına dayalı yapılan çıkarımların geçerliğine hizmet etmektedir. İlk varsayım olarak tek boyutluluk incelenmiş olup veri toplama araçları kısmında ölçme aracının tek boyutluluğa sahip olduğu görülmüştür. Tek boyutluluğun sağlanması yerel bağımsızlığın da karşılandığının bir göstergesi olarak ele alınmış olup yerel bağımsızlık için herhangi bir işlem yapılmamıştır. Son olarak model veri uyumu incelenmiştir. Model veri uyumu için ±2 aralığının dışında kalan standartlaştırılmış artık değerlerin sayısı toplam gözlem sayısının %5'inden fazla olmaması ve ±3 aralığının dışında kalan standartlaştırılmış artık değerlerin de toplam veri sayısının %1'inden fazla olmaması gerektiği belirtilmiştir (Linacre, 2017). Bu çalışmada toplam gözlem sayısı 2784 (58 x 12 x 4) olup, ±2 aralığının dışında kalan standartlaştırılmış artık değerlerin sayısı 116 (%4.17) ve ±3 aralığının dışında kalan standartlaştırılmış artık değerlerin sayısı ise 28 (%1.ff01) olduğundan mevcut çalışma için model veri uyumunun sağlandığı görülmektedir.

Araştırmanın Bulguları: Araştırma kapsamında elde edilen bulgular incelendiğinde, kadın ve erkek puanlayıcıların benzer katılık ve cömertlik düzeylerine sahip oldukları bulunmuştur. Diğer yandan puanlayıcıların öz puanlamalarda daha cömert davranış sergiledikleri gözlemlenirken, akranlarını değerlendirme sürecinde ise daha katı davranış sergiledikleri gözlemlenmiştir. Ayrıca puanlayıcıların öz değerlendirmelerinin standart hatalarının akran puanlamalarına göre daha yüksek çıktığı bundan dolayı öz değerlendirmelerin güvenirliğinin daha düşük olduğu bulunmuştur. Puanlayıcıların grup düzeyinde merkeze yönelim davranışı sergilemedikleri fakat bireysel düzeyde 18 puanlayıcının merkeze yönelim davranışı sergilediği tespit edilmiştir. Diğer bir puanlayıcı davranışı olan farklılaşan katılık ve cömertlik durumları incelendiğinde, 696 olası etkileşiminin 69 tanesinin (%9.91) istatistiksel olarak anlamlı olduğu tespit edilmiştir. Grup çalışmalarının değerlendirilmesinde ortaya çıkan 69 bireysel anlamlı etkileşimin t-değerlerinin işaretine göre farklılaşan puanlayıcı katılığı ve cömertliği davranışı belirlenmektedir. Bu bağlamda mevcut çalışmada 69 anlamlı etkileşimden 14 tanesinin farklılaşan

puanlayıcı katılığı olduğu 55 tanesinin ise farklılaşan puanlayıcı cömertliği olduğu belirlenmiştir.

Araştırmanın Sonuç ve Önerileri: Araştırmada; puanlayıcıların cinsiyetlerine göre puanlamada katılık veya cömertlik davranışları anlamlı farklılık sergilememektedir. Bireysel olarak puanlayıcılardan 14'ü katılık ve cömertlik davranışı sergilemesi bu puanlayıcıların hem kadın hem de erkeklerden oluştuğunu göstermektedir. Bu nedenle katılık ve cömertliğe ilişkin puanlayıcı eğitim sürecinde her iki cinsiyet grubuna yönelik puanlama eğitimine alınması önerilebilir. Ayrıca puanlama sürecinde öz ve akran puanlayıcı türüne göre katılık ve cömertlikte farklılaşan davranışı gösterdikleri görülmüştür. Bu ise bireylerin kendi performanslarını veya akranların performanslarını değerlendirirken farklı davrandıklarını göstermektedir. Bu durum, puanlayıcıların daha objektif davranabilmesi için öz ve akran değerlendirme eğitimine yönelik çalışmalara daha fazla önem verilmesi gerektiğini göstermektedir. Özellikle öz puanlamalara yönelik, bir program dâhilinde çalışmalar yürütülebilir. Araştırmada grup bazında olmasa da bireysel bazda merkeze yönelme davranışı görülmüştür. Bu ise bireylerin puanlama kategorilerinin uç noktaları ile orta noktayı daha fazla tercih ettiği şeklinde açıklanabilir. Buradan da puanlayıcıların özellikle dereceli puanlama anahtarını daha dikkatli kullanımına yönelik çalışmalar üzerinde durulması önerilebilir.

Anahtar Kelimeler: Akran değerlendirme, Öz değerlendirme, Puanlayıcı yanlılığı, Yeni Yaklaşımlar, Çok Yüzeyli Rasch Modeli.

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Self-Regulated Learning Skills of Undergraduate Students and the Role of Higher Education in Promoting Self-Regulation*

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ABSTRACT

Purpose: This research aims to examine self-regulated learning (SRL) skills of undergraduate students (USs) and reveal the role of higher education programs in promoting SRL skills.

Research Methods: In this mixed-method research, the participants consisted of 1411 freshmen and senior students and 17 senior-year interviewees. Data collection tools included Personal Information Form, Self-Regulatory Learning Scale and semi-structured interview form.

Findings: The findings obtained in this study showed that SRL skills of USs were moderate. SRL skills of USs significantly differed in accordance with gender, grade level, foreign language preparatory education, the high school type students graduated from and the motive for choosing the program. The qualitative findings of the study revealed that a wide range of elements regarding curriculum, instruction, instructors and other components of higher education programs were substantially significant in enhancing SRL.

Implications for Research and Practice: As a result of this research, it can be suggested that higher education programs in the sample do not adequately promote SRL skills of undergraduate students. The inclusion of SRL-promoting-elements in the curriculum and instructional processes are bound to the instructors who design their own courses. Considering most of the faculty members have not received a comprehensive pedagogical and andragogical education, SRL might have a long way to get in to the agenda of tertiary instructors. Therefore, the tertiary instructors are highly suggested participating in a continuous and comprehensive pedagogical training focusing on the good teaching practices that can foster SRL and desirable learning outcomes.

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Introduction

A significant predictor of academic achievement and an indicator of lifelong learning disposition, the development of self-regulated learning skills should be one of the main pillars of any school curriculum from elementary to tertiary education. As Bembenutty (2011) stated, postsecondary education is -in nature- much more challenging and demanding than the elementary and secondary education and requires a higher level of SRL skills. However, many students starting their tertiary education lack basic self-regulatory skills, such as setting academic goals, the ability to delay gratification or choose the appropriate learning strategy, which eventually undermines academic success (Bembenutty, 2011). The most prominent rationale behind this study is to find out whether the undergraduate students possess a sufficient level of SRL skills and to identify the elements of higher education curricula and instruction that promote the SRL skills of the USs. Moreover, it is still unknown whether the undergraduate programs enhance the SRL skills of the USs and how higher education programs support SRL skills. Therefore, this study aims to examine the SRL skills of the USs and reveal the role of higher education programs in enhancing SRL skills of the USs. Based on the aims, this research seeks to answer these questions: (1) How self-regulated are the USs? (2) Do the SRL skills of the USs differ concerning their gender, grade level, foreign language preparatory education, high school type they graduated from and the motive for choosing the undergraduate program? (3) Based on the views of undergraduate students, which elements of the undergraduate programs promote SRL skills? (4) Based on the views of undergraduate students, do undergraduate programs promote SRL skills sufficiently?

Literature Review

Self-regulated learning (SRL) is defined by Zimmerman (1989, p. 329) as a learning process in which the learners "are metacognitively, motivationally and behaviorally active participants". Self-regulated learners (SRLs) set learning goals, make plans, and actively organize the environment in a way to maximize their learning by monitoring and regulating their cognition, motivation and behaviors during learning; and they also reflect on the process (Pintrich, 2004; Pintrich & Zusho, 2002; Zimmerman, 1990). SRLs utilize cognitive strategies for remembering and comprehension, metacognitive strategies for planning, monitoring, evaluating and regulating their cognitive processes, and take actions to control and manage their performance in academic tasks (Gundogan-Cogenli & Guven, 2015; Pintrich, 2000; Pintrich & DeGroot, 1990; Zimmerman & Martinez-Pons, 1986). SRLs also have a relatively high level of self-efficacy and motivation, which function as catalysts for goal setting and strategy use (Bandura, 2015). SRLs are strategic, autonomous and proactive learners who can control their learning and try to overcome the difficulties in the learning process (Goulão & Menedez, 2015; Pintrich et al., 1991; Winne, 2015), which eventually increases the possibility of a high level of academic achievement.

For the last 30 years, many studies examining the relationship between SRL and achievement have been conducted, which revealed that SRL is a significant predictor of academic success (Bempechat, Li & Ronfard, 2018; Caughy et al., 2018; Pei-Ching & Min-Nin, 2012; Skibbe et al., 2018; Zimmerman & Schunk, 2011). Moreover, SRLs were

high achievers not only in school but also in life (Lau, 2013). Zimmerman (2002) suggested that SRLs are likely to succeed more in academic studies and view their futures optimistically because of their superior motivation and adaptive learning methods. In fact, the use of the adaptive strategies of SRLs might have a positive effect on their professional career. Cox's research in 2000 revealed that employees who have a higher level of SRL skills were trusted and evaluated more positively than those who have poorer SRL skills. Along with the studies focusing on achievement in and beyond school, there have been many studies which regard SRL skills as lifelong learning skills (Betsy, 2016; De La Harpe & Radloff, 2006; Garcia-Martin, 2012; Luftenegger et al., 2016; Luftenegger et al., 2012; Schmidt & Schmitz, 2008). As SRL skills increase the possibility of being a lifelong learner along with higher academic achievement and success in the business world, it can be said that SRL skills are indispensable for each individual.

Although the SRL concept draws attention to the individual, SRL skills can systematically be acquired through educational processes (Kitsansas, Winsler & Huie, 2008; Luftenegger et al., 2016). To enhance student self-regulation, curriculum and instructional processes should be organized in a way to allow students to use self-regulatory skills (Paris & Winograd, 2003; Randi & Corno, 2000; Zimmerman, 1990). A curriculum-embedded approach proposed by Randi and Corno (2000) suggests that curricular content and other elements of the curriculum, such as the teaching-learning process and instructional aims should be designed to provide students with self-regulation possibilities. However, most research on the enhancement of SRL usually focuses on the instructional processes and sometimes on teacher-related variables, while curricular elements are often disregarded (Alvi & Gillies, 2015; Butler, 2002; Clark & Zimmerman, 1990; Lau, 2013; Uredi & Uredi, 2007; Whitebread et al. 2012). A review on the literature related to the enhancement of SRL skills has resulted in many elements regarding the planning and conducting the instruction, classroom management and learning atmosphere and testing-evaluation (Alvi & Gillies, 2015; Butler, 2002; Clark & Zimmerman, 1990; Eshel & Kohavi, 2003; Lau, 2013; Ley & Young, 2001; Paris & Winograd, 2003; Pino-Pasternak et al., 2014; Pintrich, 2004; Uredi & Uredi, 2007). These elements are listed in Table 1:

Table 1.

Instructional Principles and Practices that Promote SRL Skills of Students

Elements regarding the planning and conducting the instruction	To inform students about the instructional objectives
	To relate real life and the needs/interests of the students to learning tasks
	To present students multi-dimensional, authentic and complicated learning content and tasks that allow flexibility
	To present knowledge in diverse ways
	Strategy instruction
	To be a model for students in strategy use
	To conduct problem-based learning activities
	To teach problem solving skills
	To conduct collaborative learning activities
	To allocate time for peer instruction

Table 1 Continue

Elements regarding classroom management and learning atmosphere	Having positive, supportive and respectful attitudes toward students
	To increase student control in instructional processes
	To enhance social interaction
	To encourage students to help and seek help
Elements regarding testing and evaluation	To use formative assessment tools
	To provide students with opportunities for self and peer evaluation
	To accept students' mistakes as a part of the learning process
	To value and reward students' success and progress
	To provide effective feedback regarding students' performance

As seen in Table 1, many instructional principles and practices that can support the development of SRL skills were identified by previous studies. However, these elements are only related to the planning, implementation and evaluation of instruction and neglect the role of the curriculum and other components of the educational contexts, such as extracurricular activities or the characteristics of the instructors. Moreover, the studies focusing on how to promote SRL are often conducted in elementary and secondary classrooms and students (Abar & Loken, 2010; Alvi & Gillies, 2015; Brown et al., 1996; Cleary & Chen, 2009; Dignath, Buettner & Langfeldt, 2008; Florez, 2011; Leidinger & Perels, 2012); thus, they do not provide sufficient theoretical background for tertiary instructors about how to promote SRL skills of their students.

Method

Research Design

In this research, a mixed method research design was utilized. Johnson, Onwuegbuzie and Turner (2007) stated that mixed method research is a research design in which the quantitative and qualitative research methods are used together to obtain a comprehensive and deep understanding and verification. The nature of the research question was the primary rationale for researchers to adopt a mixed method approach towards collecting the data. Therefore, the convergent parallel design was utilized. A diagram that shows the research design and process can be seen in Figure 1 below:

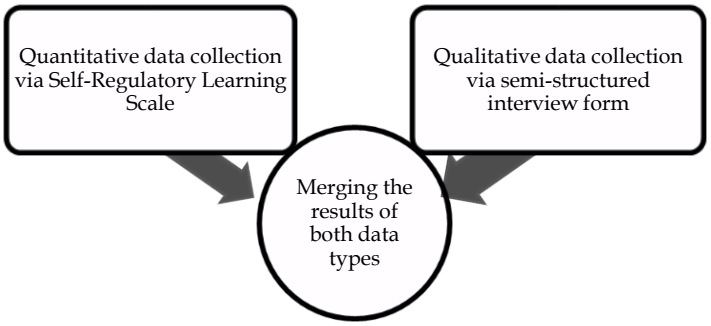


Figure 1. *Research Design.*

To examine the SRL skills of USs, the survey method was employed. Examining the curricula of higher education programs was initially thought to be appropriate to reveal the curricular elements that can foster SRL. However, the tertiary curricula in Turkey are mostly comprised of a list of the course content that may change from one instructor to another. Therefore, a document analysis method might have resulted in fallacious findings or been inconclusive. For this reason, researchers decided that it was more sensible to gather information about the actual teaching-learning process and curricula from the actual participants of the process, namely the undergraduate students. With this rationale in mind, 17 senior-year-students were interviewed. The reason why senior students were interviewed was that they had quite many experiences regarding tertiary education during their 4-year-study, which freshmen students might lack.

Research Sample

The participants were chosen by stratified sampling method based on their faculties and class level from a-10779-student-population studying in a public university located in the central part of Turkey. The participants in the quantitative part included 1411 undergraduate students enrolled in 14 different faculties within the same university. Information about the population and sample can be seen in Table 2:

Table 2.

Population and Sample of the Study in the Quantitative Part

Faculties	**Freshman Population**	**Freshman Sample**	**Senior Population**	**Senior Sample**	**Population in Total**	**Sample in Total**
Faculty of Pharmacy	146	61	152	56	298	117
Faculty of Humanities	408	51	761	65	1169	116
Faculty of Education	871	95	1110	114	1981	209
Faculty of Science	174	34	353	39	527	73
Faculty of Fine Arts	96	11	348	31	444	42
F. of Aeronautics & Astronautics	145	38	127	41	272	79
Faculty of Law	458	60	264	62	722	122
F. of Econ. & Administrative Sci.	812	80	1220	118	2032	198
Faculty of Communication Sci.	187	32	324	39	511	71
F. of Architecture and Design	246	27	536	52	782	79
Faculty of Engineering	466	47	504	50	970	97

Table 2 Continue

Faculties	Freshman Population	Freshman Sample	Senior Population	Senior Sample	Population in Total	Sample in Total
Faculty of Health Sciences	87	23	72	25	159	48
Faculty of Sport Sciences	162	32	323	66	485	98
Faculty of Tourism	115	23	312	39	427	62
Total	**4373**	**614**	**6406**	**797**	**10779**	**1411**

Seven hundred ninety of the participants were female and 621 of them were males. Besides, 614 participants were freshmen, while 797 of them were senior students. The participants in the qualitative part included 17 senior students chosen by purposeful sampling method. The primary criterion to be chosen for the interview was to be an undergraduate student for at least seven semesters in the university where the study was carried out. Voluntary participation was also a major concern in the selection of the interviewees. Finally, the participants in the qualitative part consisted of nine male and eight female senior students. The interviews were held with 17 students lasted approximately 40 to 65 minutes.

Research Instruments and Procedures

To be able to answer the research questions, researchers collected data using Personal Information Form, Self-Regulatory Learning Scale developed by Turan (2009) and a semi-structured interview form.

Personal information form: The form was designed by the researchers to gather information about the participants, such as their faculty, their reasons to choose their department, the high school type that they graduated from.

Self-regulatory learning scale: The Likert-type scale consisted of 41 items under four factors (motivation and taking action for learning, planning and goal setting, strategy use and evaluation, autonomy in learning) and response options ranged from 1 (I strongly disagree) to 5 (I strongly agree). Proven to be valid based on the exploratory and confirmatory factor analyses, Cronbach's α was calculated as 0.82 for motivation and taking action for the learning subscale, 0.82 for the planning and goal setting subscale, 0.90 for strategy use and evaluation subscale, 0.73 for autonomy in learning subscale and 0.92 for all the items in the scale. The least score that can be obtained from the scale is 41, while the highest score is 205. Higher scores can be interpreted as higher levels of self-regulated learning.

Semi-structured interview form: In an attempt to answer the third and fourth research questions, researchers developed a semi-structured interview form that included 14 questions before the data collection process. The interview form was examined by two

experts who hold a PhD in Curriculum and Instruction and have conducted many qualitative studies. The form was revised in the light of expert opinions, and two pilot interviews were held. Sample questions from the final form were as the following: *"How does your program motivate you? If not, how can it motivate you?", "Has your university education provided you with new learning strategies? If yes, how?"*

Data Analysis

Firstly, the researchers analyzed the distribution of quantitative data by conducting Kolmogorov-Smirnov test analysis and examining the histograms as well as skewness-kurtosis values. After it was found out that the data showed normal distribution according to each independent variable and homogeneity of variances was proven through Levene's test, the researchers utilized the means of the scores taken from the scale and subscales, t-test for independent samples and one-way ANOVA at a confidence interval at .05. The qualitative data were analyzed inductively. The transcription of the data was firstly coded by the researchers in the light of the literature, and the codes obtained were placed under the relevant themes decided by the researchers. To ensure the reliability, two other field experts (who hold a PhD and have experience with qualitative data analysis) coded 30% of the data and revised the themes. When the reliability formula of Miles and Huberman (1994) was applied, the intercoder reliability was calculated as 87%.

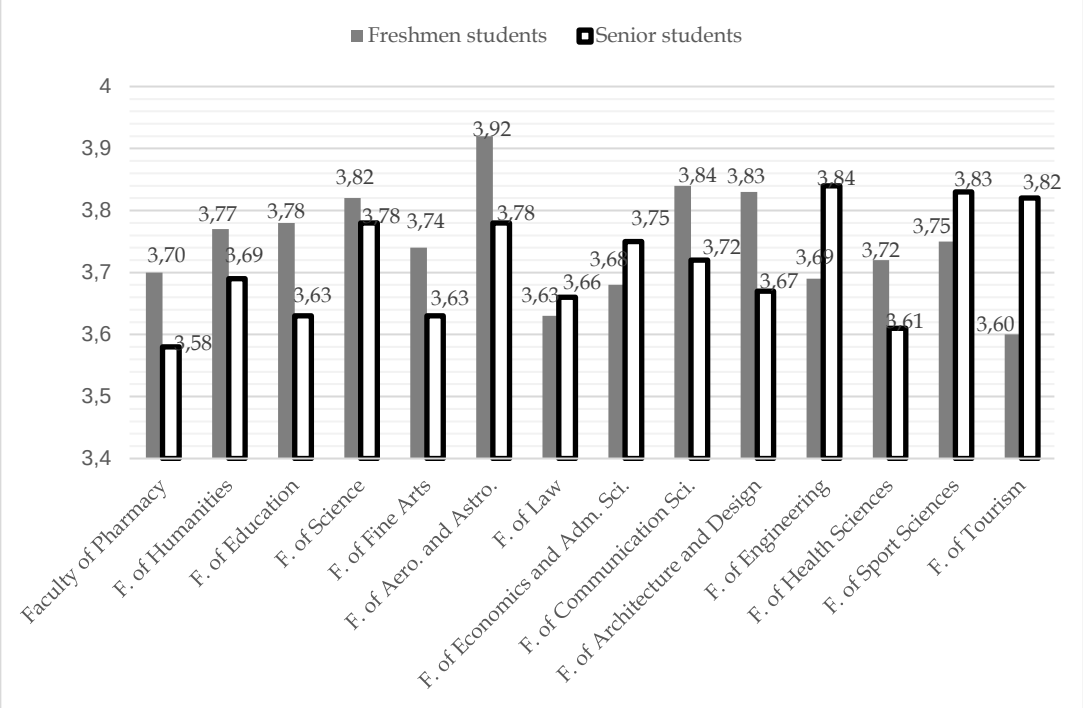
Results

Self-Regulated Learning Skills of Undergraduate Students

The preliminary analysis of the data showed that the SRL skills of undergraduate students (USs) were moderate ($\bar{x}$=3.72; SD=.44). The USs got the highest mean from the *motivation and taking action for learning* subscale ($\bar{x}$=3.97; SD=.57) and got the lowest mean from the *autonomy in learning* subscale ($\bar{x}$=3.29; SD=.68). The means taken from the scale by the USs based on their faculties and grade levels are shown in Graphic 1.

Graphic 1 shows that the highest mean obtained from the scale by the freshmen belonged to the USs who study in the Faculty of Aeronautics and Astronautics ($\bar{x}$=3.92; SD=.34) while the students from the Tourism Faculty got the lowest mean ($\bar{x}$=3.60; SD=.52). The highest mean obtained from the scale by the senior students belonged to the engineering students ($\bar{x}$=3.84; SD=.48), while senior pharmacy students got the lowest mean ($\bar{x}$=3.58; SD=.47) from the scale.

Graphic 1. *Scores Taken From Self-Regulatory Learning Scale by Freshmen and Senior Students*



Based on Graphic 1, it can be inferred that freshmen from nine faculties got higher means than senior students enrolled in the same faculty. In the remaining five faculties, senior students got higher means than the freshmen. However, independent samples t-tests showed that there were statistically significant differences between the means of freshmen and senior students in just five faculties out of 14 faculties. According to the results of the t-test, freshmen in the Faculty of Education ($\bar{x}$=3.94; SD=.68) outperformed the senior students of the same faculty ($\bar{x}$=3.76; SD=.54) in the *motivation and taking action for learning* subscale, ($t_{(207)}$=2.238; p<.02; η^2=.022). Freshmen teacher candidates ($\bar{x}$=3.85; SD=.44) also outperformed senior teacher candidates ($\bar{x}$=3.67; SD=.55) in the *strategy use and evaluation* subscale ($t_{(207)}$=2.533; p<.01; η^2=.030). Freshmen teacher candidates ($\bar{x}$=3.78; SD=.37) got a higher mean from the scale than the senior teacher candidates ($\bar{x}$=3.63; SD=.50), ($t_{(207)}$=2.440; p<.01; η^2=.026). Another statistically significant difference regarding the grade level was found between the freshmen and senior students of the Faculty of Fine Arts. The freshmen in the Faculty of Fine Arts ($\bar{x}$=4.06; SD=.35) got a higher mean from the *planning and goal setting* subscale than the senior students ($\bar{x}$=3.62; SD=.36), ($t_{(40)}$=3.503; p<.001; η^2=.23). Similar to those in Faculty of Education, freshman-year-students in the Faculty of Aeronautics and Astronautics ($\bar{x}$=4.23; SD=.36) got a higher mean from the *motivation and taking action for learning* subscale than the senior students of the same faculty ($\bar{x}$=3.95; SD=.61), ($t_{(77)}$=2.454; p<.01; η^2=.07). According to the independent samples t-test results, senior students outperformed freshmen in two faculties. The senior engineering students

($\bar{x}$=3.44; SD=.66) got a higher mean from *autonomy in learning* subscale than the freshmen ($\bar{x}$=3.13; SD=.59), ($t_{(95)}$=2.402; p<.01; η^2=.05). Also, senior students of the Faculty of Tourism ($\bar{x}$=3.89, SD=.50) got a higher mean from *the strategy use and evaluation* subscale than the freshmen of the same faculty ($\bar{x}$=3.60; SD=.59), ($t_{(60)}$=2.034; p<.04; η^2=.06).

The motive of choosing the undergraduate program was another variable that was examined in relation to the SRL skills of the USs. One-way ANOVA results showed that the motive of the USs while choosing the undergraduate program was a significant predictor of their SRL skills ($F_{(7,1403)}$=5.308; p<.00; η^2=.026). Regarding the mean scores taken from the scale, multiple comparisons with the Tukey test indicated that there were significant differences with those who chose the program because of their own interests ($\bar{x}$=3.77; SD=.43), families' guidance ($\bar{x}$=3.68; SD=.43) or the advantages of the program ($\bar{x}$=3.69; SD=.47) and those who chose the program because he/she was not accepted to any other program ($\bar{x}$=3.43; SD=.44). As the same pattern was repeated in all the subscales, the results regarding the subscales were not mentioned.

Another variable that interfered with the SRL skills of the USs is the secondary school type that the USs graduated from. Tested with one-way ANOVA, the secondary school type USs graduated from resulted in statistically significant differences between the means taken from all the subscales and the scale in general ($F_{(6,1404)}$=4.694; p<.00; η^2=.020). Tukey HSD test results revealed that the mean of the scores taken from the scale by the USs who graduated from general high schools ($\bar{x}$=3.76; SD=.44), vocational/technical high schools ($\bar{x}$=3.79; SD=.41) and Anatolian high schools ($\bar{x}$=3.74; SD=.44) were higher than those who graduated from Anatolian Teacher Trainer high schools ($\bar{x}$=3.59; SD=.43) and science high schools ($\bar{x}$=3.55; SD=.44). As to the subscales, graduates of general high schools ($\bar{x}$=4.04; SD=.55) and vocational/technical high schools ($\bar{x}$=4.11; SD=.51) were statistically more motivated than the graduates of Anatolian Teacher Trainer high schools ($\bar{x}$=3.76; SD=.56) and science high schools ($\bar{x}$=3.79; SD=.68). In the *planning and goal setting* subscale, graduates of general high schools ($\bar{x}$=3.87; SD=.61), vocational/technical high schools ($\bar{x}$=3.85; SD=.58) and Anatolian high schools ($\bar{x}$=3.80; SD=.64) outperformed the graduates of Anatolian Teacher Trainer high schools ($\bar{x}$=3.66; SD=.65) and science high schools ($\bar{x}$=3.47; SD=.60). Post-hoc test also revealed that graduates of general high schools ($\bar{x}$=3.80; SD=.51), vocational/technical high schools ($\bar{x}$=3.87; SD=.52) and Anatolian high schools ($\bar{x}$=3.77; SD=.50) were using more strategies than the graduates of Anatolian Teacher Trainer high schools ($\bar{x}$=3.62; SD=.47). Although the graduates of science high schools got the same mean ($\bar{x}$=3.62; SD=.49) with the graduates of Anatolian Teacher Trainer high schools from the strategy use and evaluation subscale, the Tukey HSD test did not find a statistically significant difference between the graduates of science high schools and others. Another difference was found in the autonomy in learning subscale. Graduates of Anatolian high schools ($\bar{x}$=3.34; SD=.67) got a higher mean from the *autonomy in learning* subscale than the graduates of vocational/technical high schools ($\bar{x}$=3.18; SD=.66) and sports high schools ($\bar{x}$=2.95; SD=.59).

In the university where the data obtained, English preparatory school is compulsory for some students and optional for the others. Independents samples t-test results

showed that the USs who had attended English preparatory school ($\bar{x}$=4.03; SD=.50) had a higher mean than those who had not ($\bar{x}$=3.94; SD=.60) in the *motivation and taking action for learning* subscale ($t_{(1409)}$=3.079; p<.00; η^2=.077). Although the USs attended the English preparatory school had higher means than those who did not in all the other subscales, the differences were not statistically significant; therefore, not mentioned.

Based on the results of the t-test for independent samples, gender was another variable that interfered with the SRL skills of the USs. Female USs ($\bar{x}$=3.76; SD=.41) got a higher mean from all the items in the scale than male students ($\bar{x}$=3.68; SD=47), ($t_{(1409)}$=3.420; p<.00; η^2=.092). Females ($\bar{x}$=3.87; SD=59) outperformed males ($\bar{x}$=3.69; SD=66) in the *planning and goal setting* subscale ($t_{(1409)}$=5.115; p<.00; η^2=.137). Females ($\bar{x}$=3.34; SD=.67) also got a higher mean than males ($\bar{x}$=3.22; SD=.69) in autonomy in learning subscale ($t_{(1409)}$=3.362; p<.00; η^2=.089). In conclusion, it can be claimed that female USs in the sample are more self-regulated than male USs.

The Elements of the Undergraduate Programs that Foster SRL Skills of the USs

The quantitative data showed that there were differences between faculties regarding their students' SRL skills. However, it was not clear whether undergraduate programs fostered SRL or not. Moreover, it was not known which elements in these programs promoted SRL skills of the USs. By analyzing the qualitative data obtained from the interviews, the elements of the undergraduate programs that enhanced SRL skills of the USs were identified through content analysis of the interviews held with 17 USs. These elements and their frequencies are listed in Table 3 below:

Table 3.

The Elements of Undergraduate Programs that Promote SRL Skills

Themes	Subthemes
Elements regarding curriculum	Educational aims and content that comply with the USs' needs and interests (*f*=10)
	Alternative testing and evaluation methods (*f*=8)
Elements regarding instruction	Using practice to support theoretical knowledge (9)
	Utilizing collaborative learning activities (*f*=9)
	Providing ample social interaction during classes (*f*=7)
	Building a bond between the teaching-learning process and real-life (*f*=6)
	Strategy instruction (*f*=6)
	Providing effective feedback (*f*=4)
	Effective material use (*f*=3)
	Providing students with a flexible learning environment (*f*=2)
	Assigning students with challenging learning tasks (*f*=2)
Elements regarding faculty members	A high level of teaching skills (*f*=10)
	Providing students with guidance in learning (*f*=10)
	Personality characteristics (*f*=4)
	Field knowledge (*f*=3)
	Sector experience (*f*=3)
	Positive attitudes towards students (*f*=2)
	Being a good role model for the students (*f*=2)
	Rewarding students' success (*f*=2)
	Encouraging the students (*f*=2)

Table 3 Continue

Themes	Subthemes
Other elements	Facilities and physical environment that supports and/or eases learning (*f*=11)
	Field trips (*f*=3)
	Contests (*f*=3)
	Activities, such as symposiums and conferences(*f*=3)
	Career days (*f*=1)
	Student clubs (*f*=1)
	The prestige of the university in the related sector (*f*=1)

As we can see from Table 3, all dimensions of an undergraduate curriculum, namely aims, content, learning-teaching processes and evaluation, played a significant role in enhancing the SRL skills of the students. Moreover, the findings showed that the instructors and contextual or extracurricular elements had a crucial role in promoting SRL. Based on the views of the participants, when the aims and content of a course related to the needs and interests of the students, student capacity for self-regulation increased mainly because of an increase in student motivation and engagement. For instance, Participant 1 (Male, Faculty of Health Sciences) stated, "*as I am studying in the field of health, anatomy, physiology or rehabilitation attracts my attention more. It has been like this, I mean, for years. These courses draw my attention and motivate me because I need to learn them and I like them.*" This statement suggests that when students were engaged in a course that was relevant to their needs and interests, they tend to motivate more, which eventually increased the capacity to self-regulate. In addition to aims and content, evaluation methods are also significant in enhancing SRL. Participants stated that when alternative testing methods, such as portfolios or peer evaluation, were used, students were able to obtain a detailed evaluation of their performance and they were given a chance to use metacognitive strategies that are of the key components of SRL. In addition, alternative testing methods build up self-efficacy perception and encourage students to aim higher. For example, Participant 2 (Female, Faculty of Architecture and Design) stated that:

> "*In our department, we have a lot of peer and self-evaluation. For instance, my best friend […] Getting her opinion about my project both expands my horizon and gives me the opportunity to improve my work. Makes it better. Makes me feel to do more, I can do more. And I say then I will do more.*"

Teaching-learning process, in other words, instruction also plays a significant, maybe the most significant role in promoting SRL skills of undergraduate students. Using practice to support theoretical knowledge was identified as a primary instructional principle to be followed to enhance SRL based on the students' views. The findings suggest that when theory was supported with practice, students were more motivated, learn more and had the opportunity to utilize cognitive and metacognitive learning strategies. For example, Participant 3 (Male, Faculty of Law) stated that "*I am motivated more when instructors make us practice […] and we need practice to learn*", while Participant 4 (Male, Faculty of Science) emphasized the importance of practical work in using self-regulatory strategies by saying "*in our lab courses, we conduct experiments and we see what happens when we do this or that. We see what could*

happen if we make a mistake. Gives me the chance to monitor myself." This statement suggests that engagement in practical work lets him use cognitive and metacognitive learning strategies by planning and monitoring his actions during an experiment. Another key component of instruction that promoted SRL was the inclusion of collaborative learning activities that motivated students and ease the learning process by allowing students to learn via peer instruction. An exemplary view by Participant 5 (Female, Faculty of Health Sciences) is presented below:

> "*Information is filtered by students and coded course. When you learn from a peer, you directly get the coded knowledge. It's like the instructor gives us the Bingo chips and we try to complete our scorecards. […] and when we study with a friend, it's like s/he gives us the missing chip, which completes our scorecard. It's more efficient that way*."

The findings suggest that along with collaborative learning activities, providing a strong social interaction during classes also supported SRL skills by increasing student motivation, engagement and persistence. Participant 6 (Male, Faculty of Tourism) stated that "*I am motivated and engaged [….] when instructors draw our attention to the lesson. In the least expected moment or when you are distracted, there comes a question from the instructor. It's impossible not to participate.*" Participant 7 (Male, Faculty of Aeronautics and Astronautics) emphasized the significance of social interaction, especially concerning motivation and persistence by saying, "*If a lesson in which the instructor just gives a lecture, I don't wake up even if the class starts at 11.00 a.m. But if an interactive course starts as early as 9.00 a.m., I always attend it. That's the difference."* Building a bond between the learning-teaching process and real-life contributes to the motivation and strategy to use components of SRL based on the data. Participant 8 (Female, Faculty of Communication Sciences) stated that "*Sometimes we work on the real briefs sent from real advertising agencies. When that happens, you feel like you have to do a good job because you are going to work with them in a couple of years. It's challenging, but you study enthusiastically*." Participants reported that strategy instruction also enhances SRL skills. Participants mainly suggested that when the instructors model the strategies they use or explicitly instruct how to use a strategy to learn, it helps the students to use strategies that are more effective. Participant 9 (male, Faculty of Communication Sciences) stated that "*We have an instructor in the Photography class who especially helps us adopt new strategies. He always shows and explains how he shoots a photo, then lets us use this strategy in our own ways, which gives better results for learning*." Providing effective feedback and learning materials was crucial in promoting SRL as effective feedback allows students to monitor their learning and effective materials optimize learning and increase perceived student self-efficacy. Based on the views of the participants, flexible learning environments were also helpful concerning enhancing the SRL skills of the students. Participant 10 (Male, Faculty of Sport Sciences) stated that:

> "*In our Squash course, which is mostly based on practice, the instructor provides you free space and time. You can practice with your friends in that period or try new stuff about the course. It at least motivates you towards the course.*"

It is understood that flexible learning environments not also motivate students but also provide them with opportunities to pursue new ways to learn. Assigning students with challenging learning tasks was determined to be functional in promoting SRL by motivating and helping students to improve their planning skills and cognitive

strategies. For example, Participant 11 (Female, Faculty of Economics and Administrative Sciences) stated that:

> "*Once I had an assignment about stock markets. I developed planning skills during the preparation of that assignment. I consulted with my instructor and searched for resources […] When you ask the right questions and get sufficient answers, it (assignment) also motivates you.*"

Another key component of higher education programs that promote SRL was the instructors. Based on the views of the participants, instructors who had a high level of teaching skills, field knowledge, sector experience, positive attitudes, and who reward and encourage students were highly motivating. Participant 12 (Female, Faculty of Humanities) stated that she was motivated more when the instructor

> "*[…] is energetic and funny. When an instructor who really loves his/her job gives the lecture, you can't forget a single word s/he says. If the instructor generates excitement, we focus more and have fun while learning.*"

Participants also stated that instructors who provided guidance helped them to develop functional planning skills and set higher goals for themselves. Participant 12 (Female, Faculty of Humanities) stated that "*When you set a goal, you have to make a plan and find sources. That's when the instructors step in. They guide us about the resources, teach us how to find these resources*."

The participants also stated that the facilities of the university and physical environment also had an impact on their SRL, mostly by increasing their motivation and providing them an environment that makes self-regulation possible. For example, Participant 13 (Male, Faculty of Aeronautics and Astronautics) stated that

> "*We have a plane to conduct procedures on it. We have simulation labs for both pilot candidates and air traffic controllers. These things get us ahead of all the other faculties (in other universities) and motivate us to do more.*"

Based on the views of the participants, field trips, contests, symposiums, conferences, career days and student clubs had positive impacts on SRL skills, especially in motivation, goal setting and planning components of self-regulation. The prestige of the university in the related sector was motivating for students. Participant 14 (Male, Faculty of Engineering) stated that "*I attend to the symposiums, conferences and seminars held by or university. These educational events helped me to find new topics or projects to work on*." This statement suggests that extracurricular activities in higher education can promote students' SRL skills by introducing them new topics that can stimulate students' intrinsic motivation.

As we can see above, higher education can enhance students' SRL skills with its curricula, instruction, instructors, the physical environment and extracurricular activities. However, all participants stated that the elements that supported SRL did not take place enough in higher education except for the physical environment and facilities. Therefore, participants suggested that higher education programs should be revised to include SRL-promoting elements more. These suggestions are listed below:

- Using alternative testing and evaluation methods more frequently
- Revising the aims and content of the courses to make them more related to the needs and interests of the students
- Allocating more time for practical studies
- Allocating more time for collaborative learning activities
- Proving effective feedback and learning materials in a sufficient manner
- Enhancing social interaction and flexible learning environments in learning-teaching processes
- Obtaining feedback from the students
- More guidance from the instructors
- Developing teaching skills of the instructors
- Increasing extracurricular activities
- Delivering more strategy instruction

As we can see from the suggestions listed above, higher education programs can be improved in a way to include the SRL-promoting elements more frequently and effectively to educate the lifelong learners of the future.

The Story that the Quantitative and Qualitative Results Tell

The quantitative results show that the SRL skills of USs differ according to gender, the secondary school type, the motive behind the program choice, which is all independent from tertiary education itself. In 9 faculties, freshmen students were more self-regulated than senior students. The only prominent variable related to tertiary education that interfered with SRL was to be English preparatory education. Although this study is not conducted longitudinally, these findings may imply that tertiary education fails to promote SRL; in fact, it may have an undermining effect. Moreover, the views of the interviewees support this argument as they frequently told that SRL-promoting elements–although they were many- had rarely taken place throughout four years of university education. All participants put forward many suggestions for SRL to be enhanced by the institution and tertiary instructors, especially about how to motivate the students. All in all, both types of data concluded the same result that although tertiary education can and should improve SRL skills of the USs, it usually fails to do so in the tertiary education institution where the study was conducted.

Discussion, Conclusion and Recommendations

Based on the quantitative and qualitative findings obtained in this study, the findings showed that the SRL skills of the undergraduate students were relatively moderate and that there was a wide range of educational practices that could support SRL at the tertiary level. However, these practices are not sufficiently implemented in higher education programs. Therefore, SRL skills of tertiary students remain –more or less- the same or become poorer from freshmen year to the senior year.

In this study, the findings showed that the undergraduate students obtained the lowest scores from the *autonomy in learning* subscale. Severiens et al. (2001) found that students at higher education level were more dependent on others than themselves. According to this, it can be said that undergraduate students need to gain a higher level of independence and autonomy in learning, which could increase their success in and beyond school (Cox, 2000; Lau, 2013).

Within the scope of the research findings, the findings showed that the average score of female students in *planning and goal setting* and *autonomy in learning* subscales and their scores from the overall scale were significantly higher than that of male students. The relationship between SRL learning and gender is handled by many researchers and contradictory research findings are available in the related literature. Caprara et al. (2008) found that female students had higher self-efficacy perceptions, while Zimmerman and Martinez Pons's (1990) study showed that female students used more SRL strategies than males. Turan (2009) stated that there was a meaningful difference in favor of females in the planning and goal setting subscale, while Celik (2012) found a significant difference in favor of men in this subscale. Wolters and Pintrich (1998) found that gender did not lead to a difference in SRL. Pintrich and de Groot (1990) found that male students had higher self-efficacy perceptions than females, whereas Zhao, Chen and Panda (2014) found that male students were more self-regulated than females. In this context, the findings of this study are consistent with the findings of Turan (2009), Caprara et al. (2008) and Zimmerman and Martinez Pons (1990). Pintrich and de Groot (1990) reported that female students are prone to perceive themselves as less capable. In this context, the difference between males and females might have stemmed from that females set more and higher goals for themselves to overcome their insufficient self-efficacy perception.

As a result of this study, it was found that the class variable led to a significant difference in SRL skills. The freshmen from nine faculties in the sample had higher averages, while the senior students from five faculties got higher scores than the freshmen. Accordingly, it can be said that the curriculum, the instructional processes and the learning environments that the students are exposed to might have a fostering or undermining effects on the SRL skills. This result may also suggest that higher education programs fail to support SRL skills sufficiently. Qualitative findings also support the same inference. All participants frequently emphasized that the SRL-promoting elements are not salient in tertiary programs and put forward numerous suggestions.

The findings showed that the undergraduate students who had taken foreign language preparatory education had significantly higher scores on *motivation and taking action for learning* subscale than the students who had not. Foreign language proficiency is especially important for the students who study in faculties whose medium of instruction is English. Therefore, foreign language preparatory education may have positively altered the undergraduate students' motivation by nurturing their self-efficacy perception regarding learning.

It was also determined that the type of secondary education institution graduated from caused a significant difference in all subscales of the Self-Regulatory Learning Scale. As can be seen from the study of Celik (2012), it was found out that the prospective teachers who graduated from general high schools were more self-regulated than the ones graduated from Anatolian Teacher Trainer High Schools, which was also a result of this study. In line with our findings, Zhao, Chen and Panda (2014) determined that graduates of vocational secondary education institutions were more self-regulated than other high school graduates. The reasons behind these differences among secondary education institutions are beyond the scope of this research; therefore, further studies regarding this issue can be conducted.

Another finding was that USs differed in their SRL skills according to the reasons for choosing the program they attend. Since the interests and needs are the basis of motivation (Wlodkowski, 1985) and thus SRL, it is quite natural and expected that the students who make their choice based on their interests would perform more self-regulation than the ones who have to study in the current program because they were not admitted to another program that they preferred in the first place. This result reveals the necessity of directing students to higher education programs that are appropriate to their interests.

The findings from the qualitative data concluded that the elements related to the curriculum, the elements related to teaching, the elements related to the instructors and context are important in promoting SRL in higher education. This study is of significance concerning demonstrating that SRL can be supported not only by teaching but also by curriculum, teaching staff and contextual elements in higher education.

As Paris and Winograd (2003) stated, there are diverse ways for SRL to be taught. Among the elements related to the curriculum that support SRL, the objectives and contents of the courses complying with the interests and needs of the students were significant. Pino-Pasternak et al. (2014) stated that SRL could be supported by relating learning tasks to students' interests, needs and real-life. In addition, Uredi and Uredi (2007) and Ley and Young (2001) stated that it is necessary to employ various alternative testing and evaluation methods, such as self-assessment and peer assessment, to support SRL, which was also a result of this study. Planning and conducting an effective learning process is one of the basic principles to be followed in promoting SRL (Ley & Young, 2001). Collaborative learning practices have been reported to be effective in promoting SRL (Pino-Pasternak et al., 2014), and these practices help students improve their social interaction by creating opportunities for peer teaching and peer modeling of strategy. Interaction in the learning-teaching process promotes SRL by increasing the students' social interaction with each other and with instructors (Alvi & Gillies, 2015) and teaching learning strategies is key to supporting SRL (Clark & Zimmerman, 1990; Zumbrunn et al., 2011). In this study, it was determined that strategy instruction also encouraged SRL. Effective feedback is of considerable importance in supporting SRL as it allows students to control how much they have achieved and to reorganize their goals or efforts (Ley & Young, 2001; Zumbrunn et al. 2011). This study also suggests that effective feedback encourages SRL based on the view of participants.

Flexible learning environments can allow students to choose their own learning paths and plan and implement these plans on their own. According to Eshel and Kohavi (2003) and Pintrich (2004), increasing student control contributes to the promotion of SRL. In this context, it can be said that providing flexible learning environments is significant in increasing student control. Besides, giving students complex, multi-dimensional and authentic learning tasks encourage students to use cognitive strategies at different levels (Cohen, 1994; Pino-Pasternak et al., 2014; Uredi & Uredi, 2007). Therefore, the provision of complex and multi-dimensional learning tasks, such as projects, is one of the instructional elements that can be considered when encouraging SRL.

In support of SRL, the instructors' teaching skills, guidance, personality traits, field knowledge, sector experience and positive attitudes were crucial. When the literature

is examined, it is seen that little emphasis has been given to the teacher behaviors and traits that encourage SRL (Alvi & Gillies, 2015; Uredi & Uredi, 2007). According to Alvi and Gillies (2015), a teacher who encourages SRL provides constructive social interaction in classroom activities promotes socialization rather than individuality, encourages reflection and evaluation on learning. Uredi and Uredi (2007) stated that teachers who want to support SRL should create a learning environment that is connected with real life and should be a model for SRL.

When the subthemes in the qualitative part are examined, it can be seen that almost all of these subthemes are the indicators or requirements of good teaching practice and effective educational process. Although the questions in the interview form were organized around motivation, planning, strategy use and autonomy, interviewees mostly reported the elements that motivated them. Even when they were answering the questions about planning or strategy use, they tended to report more on the motivational, educational elements that helped them plan better. This phenomenon might occur because motivation is the key to and the first step of student self-regulation as it is in Zimmerman's (2000) and Pintrich's (2004) SRL models. Thus, the curricular and instructional elements that motivated the students might help them improve their planning and strategies by increasing their resilience and efforts.

As a result of this research, it can be suggested that higher education programs in the sample do not adequately promote SRL skills of undergraduate students. In his work in 2002, Zimmerman stated that:

> *"[…] few teachers effectively prepare students to learn on their own. Students are seldom given choices regarding academic tasks to pursue, methods for carrying out complex assignments [...] Few teachers encourage students to establish specific goals [...] or teach explicit study strategies. Also, students are rarely asked to self-evaluate [...]"* (Zimmerman, 2002, p. 69)

The findings of this study, especially the views of the students, confirmed the statement above. Although the significance of SRL has been profoundly emphasized, tertiary programs and instructors in the sample have not been quite successful concerning organizing and conducting SRL-promoting instructional processes. All of the participants in this study emphasized that SRL-promoting elements were not common in undergraduate programs. Considering most of the faculty members have not received a comprehensive pedagogical and andragogical education, SRL may have a long way to get to the agenda of tertiary instructors. Therefore, the tertiary instructors are highly suggested participating in a continuous and comprehensive professional development programs focusing on the good teaching practices that can foster SRL and desirable learning outcomes.

The main limitations of this study were the study group and the study design. Given that this is a cross-sectional study carried out in a single university, further research can be conducted longitudinally or future researchers may prefer to collect data from various tertiary settings to portray a more detailed picture of SRL in higher education. Another suggestion to further studies is to focus on a single department and make in-class observations to find out which SRL-promoting elements actually take place in a specific context using case study design.

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Lisans Öğrencilerinin Öz Düzenlemeli Öğrenme Becerileri ve Öz Düzenlemeyi Desteklemede Yükseköğretimin Rolü

Atıf:

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Özet

Problem Durumu: Öz düzenlemeli öğrenme becerisi öğretim yoluyla geliştirilebilen ve akademik başarıyı yordayan önemli bir faktördür. Öte yandan, öz düzenlemeli öğrenme becerisinin yaşamboyu öğrenme becerisini de desteklemesi bu beceriyi oldukça önemli kılan bir diğer unsurdur. Bu nedenle bireylerin yaşamboyu öğrenmelerini sağlayabilmesi için önem arz eden öz düzenlemeli öğrenme becerisinin geliştirilmesine okulöncesi basamağından yükseköğretim basamağına dek ağırlık verilerek bireylerin öz düzenlemeli ve yaşamboyu öğrenenler olması amaçlanmalıdır. İlköğretim ve ortaöğretime kıyasla yükseköğretim basamağı öğrencilerin daha etkin ve öz disiplinli olmalarını gerektiren bir yapıya sahip olmasına rağmen, birçok öğrenci yükseköğretim basamağına amaç belirleme veya uygun öğrenme stratejisini seçme gibi temel öz düzenleme becerilerinden yoksun olarak gelmekte ve bu nedenle yükseköğretimde dezavantajlı duruma düşmektedirler. Öz düzenlemeli öğrenme becerisinin öğretim ve eğitsel yaşantılar yoluyla geliştirilebilen ve dolayısıyla 'öğretilebilir' bir beceri olduğu da göz önünde bulundurulduğunda yükseköğretim programlarının öz düzenlemeli öğrenme becerisini geliştirmede önemli bir rolü olduğu söylenebilir. Ancak yapılan alanyazın taraması sonucunda, lisans öğrencilerinin öz düzenlemeli öğrenme becerilerinin ne düzeyde olduğuna ilişkin kapsamlı bir çalışma yapılmadığı, sınıf düzeyi ve cinsiyet değişkenine ilişkin çelişkili bulguların olduğu, fakülte türü, yabancı dil hazırlık eğitimi ve devam ettiği programı tercih nedeni değişkenlerinin öz düzenlemeli öğrenme ile ilişkisinin ele alınmadığı, yükseköğretim programlarının hangi unsurlarının bu beceriyi desteklediğinin ise araştırmacılar tarafından yeterince ele alınmadığı görülmektedir.

Araştırmanın Amacı: Bu araştırmanın amacı lisans öğrencilerinin öz düzenlemeli öğrenme becerisi düzeyini belirlemek ve yükseköğretim programlarının lisans öğrencilerinin öz düzenlemeli öğrenme becerisini geliştirmedeki rolünü ortaya çıkarmaktır. Bu bağlamda, lisans öğrencilerinin öz düzenlemeli öğrenme becerisinin cinsiyet, sınıf düzeyi, yabancı dil hazırlık eğitimi alıp almama durumu, mezun olunan ortaöğretim kurumu ve devam ettikleri programı tercih etme nedenine göre anlamlı bir farklılık gösterip göstermediği incelenmiştir. Bununla birlikte, lisans öğrencilerinin görüşlerine göre yükseköğretim programlarının öz düzenlemeli öğrenme becerisini geliştiren unsurları ve öz düzenlemeli öğrenmenin yükseköğretim programlarında teşvik edilmesine ilişkin önerileri belirlenmiş ve öğrencilerden yükseköğretimin öz düzenlemeli öğrenmeyi ne denli teşvik ettiğine yönelik görüşleri alınmıştır.

Araştırmanın Yöntemi: Karma araştırma yönteminin benimsendiği bu araştırmanın deseni yakınsayan paralel desendir. Araştırmada veri toplama aracı olarak Kişisel Bilgi Formu, Öz Düzenleyici Öğrenme Ölçeği (Turan, 2009) ve araştırmacılar tarafından oluşturulan Yarı Yapılandırılmış Görüşme Formu kullanılmıştır. Araştırmanın nicel boyuttaki örneklemi seçkisiz ve tabakalı örnekleme yoluyla belirlenen 1411 lisans öğrencisinden oluşmakta olup nitel boyutta ise 9'u erkek 8'i kadın toplam 17 lisans dördüncü sınıf öğrencisiyle görüşmeler yapılmıştır. Nicel verilerin analizinde betimsel istatistikler, bağımsız örneklemler t-testi ve tek yönlü ANOVA kullanılırken nitel verilerin analizinde içerik analizi yöntemi kullanılmıştır.

Araştırmanın Bulguları: Araştırmanın bulgularına göre lisans öğrencilerinin öz düzenlemeli öğrenme becerisinin orta düzeyde olduğu görülmüştür. Lisans öğrencileri Öz Düzenleyici Öğrenme Ölçeği'nden en yüksek puanı güdülenme ve öğrenme için harekete geçme boyutundan elde ederken, en düşük puanı ise öğrenmede bağımsızlık boyutundan elde etmişlerdir. Ayrıca, öz düzenlemeli öğrenme becerisinin lisans öğrencilerinin cinsiyetlerine, sınıf düzeyine, yabancı dil hazırlık eğitimi alıp almama durumlarına, mezun olunan ortaöğretim kurum türüne ve devam ettikleri programı tercih etme nedenlerine göre anlamlı bir farklılık gösterdiği belirlenmiştir. Nicel bulguların sonucunda lisans öğrencilerinin öz düzenlemeli öğrenme becerilerinin genel olarak birinci sınıfta dördüncü sınıfa oranla daha yüksek olduğu belirlenmiştir. Öz düzenlemeli öğrenme becerisinin üzerinde, sınıf düzeyinden çok öğrencilerin geçmişinden getirdiği mezun olunan ortaöğretim kurum türü, tercih nedeni gibi bağımsız değişkenlerin daha önemli rol oynadığı görülmüştür. Bu durum ise yükseköğretimin bu becerinin gelişiminde yeterince işlevini yerine getiremediğini düşündürmektedir. Öte yandan araştırmanın nitel bulgularına göre, yükseköğretim programlarında öz düzenlemeli öğrenmenin teşvik edilmesinde eğitim programlarına ilişkin unsurlar, öğretime ilişkin unsurlar, öğretim elemanlarına ilişkin unsurlar ve diğer unsurlar önem taşımaktadır. Bu unsurlar arasında derslerin amaç ve içeriklerinin öğrencilerin ilgi ve gereksinimleri ile örtüşmesi, alternatif ölçme-değerlendirme yöntemlerinin işe koşulması, öğretimde kuramsal bilgiden çok uygulamaya yer verilmesi, işbirlikli öğrenme ortamlarının sağlanması, öğrenme-öğretme sürecinde etkileşim sağlanması, derslerle gerçek hayat arasında bağ kurulması, öğretim elemanlarının öğreticilik becerileri, amaç belirleme, planlama ve kaynaklara ulaşmada rehberlik etmeleri önemli bir yer tutmuştur. Yükseköğretim programlarında öz düzenlemeli öğrenme becerisinin daha fazla desteklenebilmesine ilişkin lisans öğrencileri ağırlıklı olarak alternatif ölçme-değerlendirme yöntemlerinin

işe koşulması, program değerlendirme ve geliştirme çalışmalarının yürütülmesi, öğrenme-öğretme sürecinde uygulamaya daha fazla yer verilmesi, verilen dönütlerin ve ders materyallerinin niteliğinin ve niceliğinin artırılması, strateji öğretimine yer verilmesi, işbirlikli öğrenme ortamlarının artırılması ve öğretim elemanlarının öğreticilik becerilerinin geliştirilerek öğrencilere daha fazla rehberlik etmeleri önerilerini sunmuşlardır. Nitel boyuttaki katılımcılar, öz düzenlemeyi geliştirebilecek unsurların yükseköğretimde yeterince yer bulmadığını sıklıkla vurgulamış ve özellikle güdülenmeyi artırabilecek unsurların artırılmasını önermişlerdir.

Araştırmanın Sonuçları ve Öneriler: Araştırmanın sonucunda, nitel ve nicel bulgulara dayalı olarak, öz düzenlemeli öğrenme becerisinin yükseköğretim programlarında yeterince teşvik edilemediği sonucuna ulaşılmıştır. Yükseköğretim programlarının öğretim programı bağlamında neredeyse sadece ders içerik listelerinden oluşuyor olması, öğretim elemanlarının derslerin amaç ve içeriklerinin oluşturulmasında önemli bir rol oynaması ancak pedagoji ya da program geliştirme eğitimi almamış olması bu durumun ortaya çıkmasında etkili olmuş olabilir. Bu araştırmanın bulgularına dayalı olarak, öğretim elemanlarının pedagoji ve program geliştirme konularına yönelik mesleki gelişim etkinliklerine katılmaları önerilebilir. Böylelikle öğrencilerin öz düzenlemeli öğrenme becerisini destekleyebilecek öğretimsel unsurlara derslerinde daha fazla yer vermeleri ve daha etkili bir eğitim süreci yürütmeleri mümkün olabilir. Araştırmanın kesitsel olarak tasarlanmış ve tek bir üniversiteye odaklanmış olması bir sınırlılık olarak değerlendirilebilir. İlerideki araştırmaların boylamsal olarak tasarlanması ve birçok farklı üniversiteye odaklanması yoluyla öz düzenlemeli becerisinin yükseköğretim bağlamındaki yeri ve durumuna ilişkin daha detaylı bir tablo ortaya çıkarılabilir. Ayrıca, durum çalışmaları ve gözlemler yoluyla yükseköğretimde belirli bir eğitsel ortamda öz düzenlemeli öğrenmeyi teşvik edebilecek unsurlara nasıl yer verildiği ortaya konabilir.

Anahtar Sözcükler: Öz düzenleme, öz düzenlemeli öğrenme, yükseköğretim, üniversite öğrencileri.

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An Evaluation on Determining the Relation between Listening Skill and Social Emotional Learning Skill

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ABSTRACT

Purpose: This study, based on the hypothesis which supports the idea that students having high level of listening skill have a good social learning skill, aimed to determine the relationship between listening skill and social emotional learning skill and to specify the relation level if a relation was detected.

Method: The research was a relational study in scanning model. Quantitative data collection methods were used in the study. It was examined how listening skills of secondary school students predict their social emotional learning skills. The research group consisted of 581 6th grade students from different socioeconomic and demographic classes studying at nine different secondary schools in central districts of Antalya city. To analyze the data, Pearson correlation analysis, multiple regression analysis, and frequency distributions were utilized and descriptive data such as arithmetic mean and standard deviation were used. Multiple regression analysis was carried out to find answers for the research questions.

Findings: It was found out that there is a significant relationship among listening skills and communication skills, problem solving skills, stress coping skills and other skills enhancing self-worth which are the sub-dimensions of social and emotional learning skills.

Implications for Research and Practice: Research findings indicated that listening skill does not relate only to the field of Turkish Teaching. Therefore, activities to improve the social and emotional learning skill could be used together with listening activities and plans and regular studies could be carried out to turn these two skills into basic life skills. In this study, the relationship between social and emotional learning skills and listening skill as one of Turkish language skills was examined. The relationship between social and emotional learning skills and speaking, writing and reading skills, which are other Turkish language skills, could also be analyzed.

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Introduction

Listening is one of the most important skills that we start to use in the mother's womb and that is essential for life. We begin to listen even before coming into the world and try to interpret life by listening our immediate vicinity at first. According to Emiroglu (2013), an individual does not see the light of day but hears it. A prerequisite to gain many of the skills is to listen. The listening skill that does not serve as a bridge only for language related skills but also for many other skills constructing relation between the individual and society provides a basis especially for developing the social skills. Social skills form a significant part of learning processes. The idea that as being a social creature a human develops his behaviors through social relations has also been supported by hypothetical studies and has been a subject for many studies. According to Social Learning Theory by Bandura, a child learns by taking behavior as a model, observing, listening, and imitating it (Bandura, 1969). These skills include sub-skills such as empathy, sympathy, self-management, self-control, conviction and problem solving (Turnuklu, 2004). A healthy listening is compulsory for the Social Learning processes like hearing, imitation, and observation. Those who listen the stimulus in the vicinity well perceive and interpret the incidents in complete and in the right way. Individuals having a high level of listening skill are more successful in understating others, communicating and solving problems, and are positive and generous, peaceful, and solution oriented.

A Human being identifies and evaluates the universe and creatures by using senses besides intelligence. Especially emotional and social skills gained at childhood are important during youth and adulthood, too. Socially minded individuals know and understand themselves, have high self-confidence, succeed at interpersonal relations, are tolerant of differences, have advanced problem solving skills and empathy skills, are emotionally powerful, and attract attention in society with their favorable features. These features are vital skills that dominate every step of life such as school, work, marriage etc. by shaping many fields directly and indirectly. Many risky and dangerous behaviors that may injure physical and emotional health, acts of violence that are faced at schools, streets, and media bear upon directly whether to have social and emotional skills or not. The studies carried out reveals that abuse of cigarette, alcohol and drug is three times more at the secondary schools than primary schools. Especially high rates of noxious substance abuse reveal the necessity of taking preventive precautions through social and emotional learning (SEL) at schools. SEL will be a pioneer to prevent risky sexual behaviours and bullying, tendency to violence (Ogel et al., 2004). Social and emotional skills affect children and youths' school success, and these skills play a determining role in professional life success and satisfaction during adulthood. SEL is a tool that enables to develop skills, attitudes and values in the name of gaining social-emotional competence in every span of life. SEL decreases risky behaviours and at the same time it protects us. It pioneers the youths to develop a positive sense of self and provides them to establish a healthy communication. By means of this, an adolescent meets his own personal, social and academic needs and thereby will be a responsible and responsive family member during adulthood. Not only emotional health but also physical health of individuals

who perceive themselves and their environments positively is affected in a favourable way. The risk of getting sick is decreased. The higher SEL capacity individuals have the higher learning capacity they gain and thereby they will be beneficial citizens who contribute to the development of society. They have high levels of life satisfaction and performance (Elias, Zins, Graczky & Weissberg, 2003). SEL skill does not only consist of one skill but a versatile thinking and behaviour pattern that covers many skills. This pattern is analysed under some basic titles. When studies about SEL are examined, it is seen that there are four basic skills constructing SEL skills. These are: problem solving skill, communication skill, skills enhancing self-worth, and stress coping skills (Kabakcı & Korkut Owen, 2010). Mainstream schools are the places where all individuals gain basic and common information and skills required. Especially at the primary school, individuals struggle to gain basic skills such as problem-solving skill and observance of community rules, being creative, being a beneficial human and citizen, being aware of citizenship rights and obligations, and having a wide world view. One of the most significant skills that has to be gained at the primary school is social skills. To make the individuals gain, practice and strengthen SEL skills, and to turn these into life experience are among the most significant duties of primary education (Cubukcu & Gultekin, 2006). Being compatible with society and having sense of responsibility in childhood is possible by gaining social skills required for communal living.

Studies emphasize that one of the most important development processes of individual is socializing. It identifies socializing such that it is a process during which individuals – especially children – become functional members of a specific group and gain faith, value and behaviour by interacting with other members of the group. This process, beginning with birth, draws attention especially at the first childhood period. These skills established during childhood are seeds spreading for the future (Gander & Gardiner, 1993). Socialization is an attitude and behaviour developed as a result of social development. Socialization is a behavioural pattern consisting of behaviours such as being aware of one's own emotions, being able to define, reflect and accept senses, to express and identify one's own inner world in accordance with the outer world. This pattern continues till the end of life. A prerequisite to unite with the society and to take part in society is to learn the social behaviours and exhibit socially necessary behaviours. A child learns these social behaviours by modelling his parents, peers, relatives, etc. Socialization is a result of these observations. When we analyze socially developed individuals, we observe that they blend their own wish and expectations with social expectations evenly, and comply with the social norms without ignoring their own needs. This side of socialization is related to the relations between the society and humans (Gultekin & Cubukcu, 2006). According to Elias, Zins, Graczyk and Weissberg (2003), in order to develop SEL skills family, student, teacher, manager and part of education system should work together in coordination and in accordance with a systematic plan. Researchers state that many schools abroad establish SEL units that plan activities to develop SEL and follow them. It is observed that discipline problems and violence at schools gradually increase in the world. Herein, it is obvious that it is primarily necessary to carry out studies at schools to develop SEL skills and to establish units that work for the development of these skills.

Goleman (2003) states that at the heart of emotional intelligence, courses on emotions that we have learnt at home and school during childhood form the structures of senses, and qualify or unqualify us for basic life skills. When it is taken into consideration that we learn so many things by listening during childhood, developing listening skills from the first years improves individuals emotionally and defends them from any damages arising due to the lack of emotional and social skills. These damages could be some negative attitudes such as depression, violence tendency, eating disorders or could be life-critical attitudes extending to drug abuse. In accordance with competence and requirements of humans which have changed with developing technologies in our country and world, it will become crucial to carry out studies in order to develop skills such as self-consciousness, self-audit, dispute resolution, cooperation and emphatic listening.

Within this respect, the aim of study was to determine the relationship between listening skill and social emotional learning skill, and to define the relation level if it was detected. It is observed that many of the problems faced at school and society arise from lack of communication. It is believed that developing listening and social emotional learning skills will help to prevent discipline problems and violence faced at schools and to decrease the social conflicts students may experience in the future. According to the studies executed in the last years, current generation has more difficulty emotionally, is more lonely, depressive, aggressive, rebellious, impulsive and offensive when compared with the former generation. Thereby, it is crucial to educate them emotionally and socially. It is apparent that schools need an education policy that handles the mind and emotions together. The studies, conducted on Turkish Language Education and Teaching, are generally about Turkish language teaching and listening education, evaluation of Turkish language teaching programs in terms of listening gains, evaluation of listening gains and activities in terms of teacher ideas, speaking, writing, relations of reading and listening studies in their own merits, listening strategies, factors affecting listening, examination of various methods and technics improving listening skill, relationship between listening and prosody or its relation to children's literature and listening (Cifci, 2001; Dogan, 2008; Durmus, 2013; Gocer & Tabak, 2014; Karaduz, 2010; Maden & Durukan, 2011; Sahin 2011; Yildirim & Er, 2013; Zengin, 2010.) Since it is a unique and inter-disciplinary study analyzing the relationship between social learning – one of the learning theories – and listening skill – one of the basic language skills of Turkish – this study will make contributions to the field.

Basic problem of this study was that: Do listening skills predict social emotional learning skills significantly? The sub-problems stated below were also sought to solve this main problem:

1. Do listening skills of secondary school students predict communication skills significantly?
2. Do listening skills of secondary school students predict problem solving skills significantly?

3. Do listening skills of secondary school students predict stress coping skills significantly?
4. Do listening skills of secondary school students predict the skills enhancing self-worth significantly?

Method

Research Model

This research was a relational study in descriptive survey model. In the study, quantitative data collection methods were used. Thereby it was aimed to describe the relations between variables through quantitative data.

Sample

The study group of research consisted of 581 6th grade students from different socioeconomic and demographic classes studying at nine secondary schools in central districts of Antalya city. Within the scope of research, central districts of Antalya city were classified into three groups according to socioeconomic level. According to the development index values specified by West Mediterranean Development Agency, the most developed central district is Muratpaşa district (3.18); medium developed central district is Kepez district (1.92), and the district with the lowest index is Döşemealtı (0.78). The schools had different demographic and socioeconomic features and the students of study group were selected in consideration of these data.

Research Instruments and Procedure

In the study "Listening Skill Awareness Scale" and "Social Emotional Learning Skill Scale" were used as data collection tools. "Social Emotional Learning Skill Scale" developed by Kabakci and Korkut Owen (2010) is a scale used to measure secondary school students' education and academic learning skills. Since the scale is developed by native specialists in Turkish it can be used as it is because it has the language validity. Reliability coefficient of social learning scale was calculated as .92 within the scope of this study. "Listening Skill Awareness Scale" developed by Sahin and Aydin (2009) was also used in the study. Within the framework of listening skill gains in Turkish course curriculum 2005, the scale consists of five main parts which are evaluation of students' listening skills according to etiquette, comprehension-analysis ability, evaluation ability, vocabulary development ability, and effectiveness of listening habits. The scale consisting of 46 statements was prepared in four-point Likert type. Scoring was made as "Always (4), Usually (3), Sometimes (3), Never (1)". Low scores indicate negative perceptions of the students and high scores indicate positive perceptions of the students. For this purpose, the scale statements with negative meaning were reversely graded. According to Sahin and Aydin (2009), scale statements have the features of the same goal-directed functionality and time invariance. The comprehension of first application of size totals obtained from both Cronbach Alpha coefficient specifying consistency (internal consistency) of all statements (0.91) and also from test-retest method with the second application in terms

of correlation values revealed that the scale was reliable enough. Reliability coefficient of listening scale was calculated as 0.93 within the scope of this study.

Data Analysis

Based on the research questions, Pearson correlation analysis, multilinear regression analysis, and frequency distributions were utilized for data analysis, and descriptive data such as arithmetic mean and standard deviation were used. In regression analysis, the scores obtained from sub-dimensions of secondary school students' social emotional learning skills were handled as the dependent variable, the scores obtained from sub-dimensions of listening skill awareness features scale were handled as the predictor variable. In the study, data were examined before analysis and then were made suitable for analysis. For this, missing data were examined at first and it was detected that there were not any missing data. Then, normal distribution, multilinear correlation and extreme values of data were examined which is a requirement of regression. It was specified that kurtosis and skewness shall be in between -2 and +2 for normal distribution and it was seen that this condition was met in the current study (Akbulut, 2010; George & Mallery, 2016; Tabachnick & Fidell, 2013). In the current study, it was compulsory for Tolerance values to be smaller than .10 and for VIF values to be bigger than 1 in order to examine multicollinearity regarding variables, and it was detected that data fulfilled the conditions (Field, 2013). Another rule which requires the relation between variables to be smaller than .80 were also analyzed and it was seen that this requirement was fulfilled, too (Garson, 2006). To examine the extreme values, mahalanobis distance was checked (values were between 0.22 and 21.66) and it was seen that there were not any extreme values in data group. The requirement of Durbin-Watson value being between 1-3 in order to solve autocorrelation problem (Akbulut, 2010; Kalayci, 2008) was used as a base. Study data were analyzed by using R program, version 3.5.1 (2018-07-02) and significance level was detected as .05.

Results

Descriptive Statistics Regarding Variables and Pearson Correlation Coefficients between Variables

Descriptive statistics regarding sub-dimensions of secondary school students' social emotional learning skills, listening skill awareness features and its sub-dimensions were given in Table 1.

Table 1

Descriptive Statistics Regarding Variables (N: 581)

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Valid participant number	581	581	581	581	581	581	581	581	581	581
Average	120.6	28.18	35.30	27.08	33.48	23.46	28.22	9.589	9.864	15.29

Table 1 Continue

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Standard deviation	18.48	4.752	6.088	5.929	6.128	6.577	7.943	3.223	3.346	4.473
Variance	341.5	22.59	37.07	35.16	37.55	43.26	63.09	10.39	11.19	20.00
Skewness	-0.375	-0.381	-0.614	0.0351	-1.197	0.464	0.366	0.540	0.526	0.386
Kurtosis	-0.086	-0.342	-0.025	-0.335	1.042	-0.195	-0.348	-0.357	-0.324	-0.377
The lowest value	58	14	14	11	11	13	15	5	5	8
The highest value	156	36	44	40	40	45	55	20	20	29

1 Social emotional learning skills 2 Communication skills 3 Problem solving skills 4 Stress coping skills 5 Skills enhancing self-worth 6 Listening skill according to etiquette 7 Listening skill according to comprehension-analysis ability 8 Listening skill according to evaluation ability 9 Listening skill according to vocabulary development ability 10 Listening skill according to effectiveness of listening habits

In Table 1, distributions regarding variables were given. Before multiple regression analysis, skewness-kurtosis values were examined to determine whether data complied with normal distribution condition or not. As seen in Table 1, it was detected that skewness-kurtosis scores of all variables were between +2 and -2. Since it is specified that skewness-kurtosis values shall be between +2 and -2 for normal distribution (Tabachnick & Fidell, 2013), it can be stated that data in the study ensured normal distribution.

For the purpose of revealing relations between the variables, pearson correlation coefficients between the variables were calculated and findings were given in Table 2.

Table 2

Pearson Correlation Coefficients among Variables

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1- Social emotional learning skills	—									
2- Communication skills	0.83***	—								
3-Problem solving skills	0.82***	0.68***	—							
4- Stress coping skills	0.79***	0.55***	0.59***	—						
5- Skills enhancing self-worth	0.79***	0.57***	0.62***	0.44***	—					

Table 2 Continue

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
6- Listening skill according to etiquette	0.55 ***	0.44 ***	0.56 ***	0.42 ***	0.38 ***	—				
7- Listening skill according to comprehension-analysis ability	0.52 ***	0.44 ***	0.54 ***	0.41 ***	0.33 ***	0.70 ***	—			
8- Listening skill according to evaluation ability	0.39 ***	0.34 ***	0.39 ***	0.32 ***	0.24 ***	0.50 ***	0.70 ***	—		
9- Listening skill according to vocabulary development ability	0.46 ***	0.37 ***	0.46 ***	0.34 ***	0.35 ***	0.55 ***	0.69 ***	0.58 ***	—	
10- Listening skill according to effectiveness of listening habits	0.48 ***	0.40 ***	0.47 ***	0.36 ***	0.37 ***	0.62 ***	0.65 ***	0.57 ***	0.65 ***	—

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

As seen in Table 2, correlation coefficients between the variables changed between .24 and .83. A positive relation was detected between social emotional learning skills, which are dependent variables of the research, and listening skill according to etiquette (r = .55, p < .001), listening skill according to comprehension-analysis ability (r = .52, p < .001), listening skill according to evaluation ability (r = .39, p < .001), listening skill according to vocabulary development ability (r = .46, p < .001), and listening skill according to effectiveness of listening habits (r = .48, p < .001). A positive relation was also detected between communication skills and listening skill according to etiquette (r = .44, p < .001), listening skill according to comprehension-analysis ability (r = .44, p < .001), listening skill according to evaluation ability (r = .34, p < .001), listening skill according to vocabulary development ability (r = .37, p < .001), and listening skill according to effectiveness of listening habits (r = .40, p < .001). A similar positive relation was also detected between problem solving skills – other dependent variables of the research – and listening skill according to etiquette (r = .56, p < .001), listening skill according to comprehension-analysis ability (r = .54, p < .001), listening skill according to evaluation ability (r = .39, p < .001), listening skill according to vocabulary development ability (r = .46, p < .001), and listening skill according to effectiveness of listening habits (r = .47, p < .001). A positive relation was also found between stress coping skills and listening skill according to etiquette (r = .42, p < .001), listening skill according to comprehension-analysis ability (r = .41, p < .001), listening skill according to evaluation ability (r = .32, p < .001), listening skill according to

vocabulary development ability (r = .34, p < .001), listening skill according to effectiveness of listening habits (r = .36, p < .001). A positive relation was also detected between skills enhancing self-worth – last dependent variable – and listening skill according to etiquette (r = .38, p < .001), listening skill according to comprehension-analysis ability (r = .33, p < .001), listening skill according to evaluation ability (r = .24, p < .001), listening skill according to vocabulary development ability (r = .35, p < .001), and listening skill according to effectiveness of listening habits (r = .37, p < .001).

Regression Analysis Findings Regarding Secondary School Students' Social Emotional Learning Skills and Listening Skills Awareness Features

In this section, multiple regression analysis was reported which revealed the relationship between communication skills, problem solving skills, stress coping skills, skills enhancing self-worth which are sub-dimensions of social emotional learning skills and their predictors which are listening skill according to etiquette, listening skill according to comprehension-analysis ability, listening skill according to evaluation ability, listening skill according to vocabulary development ability, and listening skill according to effectiveness of listening habits.

Communication Skills Multiple Regression Analysis Results

In order to specify the components of listening skill according to etiquette, listening skill according to comprehension-analysis ability, listening skill according to evaluation ability, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits which predict the communication skills, multiple regression analysis was carried out. Multiple regression results are given in Table 3.

Table 3

Students' Communication Skills Regression Analysis Results

Model	*Predictor variables*	*B*	*Std. Error*	*Beta (β)*	*t*	*p*	*R*	R^2	*ΔR2*	*F*
	Fixed	12.410	1.186		10.462	.001	0.49	0.24	0.24	36.9***
	Listening skills according to etiquette	0.16	0.03	0.22	4.149	.001				
	Listening skill according to comprehension-analysis ability	0.10	0.04	0.15	2.358	0.019				
	Listening skill according to evaluation ability	0.04	0.07	0.03	0.610	0.542				
	Listening skill according to vocabulary development ability	0.08	0.07	0.05	1.083	0.279				

Table 3 Continue

Model	*Predictor variables*	*B*	*Std. Error*	*Beta (β)*	*t*	*p*	*R*	R^2	*ΔR2*	*F*
	Listening skill according to effectiveness of listening habits	0.10	0.05	0.10	1.895	0.059				

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

According to the multiple regression analysis results, it was seen that general model was meaningful and it was detected that the students predicted communication skills, listening skill according to etiquette and listening skill according to comprehension-analysis ability sub-dimensions significantly (F=(575, 5)= 36.9, p < .001, R2=.24). When we examine the contributions of variables to the model one by one, it can be said that listening skill according to etiquette predicted communication skills of students in a positive way (β= .22, t (575) =.4.15 p= .001). Likewise, listening skill according to comprehension-analysis ability predicted communication skills of students in a positive way, too (β= .15, t (575) =2.36 p= .019). It is seen that other independent variables did not provide any contribution to the model. It was detected that listening skill according to etiquette and listening skill according to comprehension-analysis ability given in the model were able to explain 24% of listening skills.

Multiple Regression Analysis Results of Problem-Solving Skills

In order to specify the components of listening skill according to etiquette, listening skill according to comprehension-analysis ability, listening skill according to evaluation ability, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits which predict students' problem solving skills, multiple regression analysis was carried out. Multiple regression results are given in Table 4.

Table 4

Regression Analysis Results of Students' Problem-Solving Skills

Model	*Predictor variables*	B	Std. Error	Beta (β)	t	p	*R*	R^2	*ΔR2*	*F*
	Fixed	10.486	1.383		7.581	.001	0.611	0.373	0.368	68.4***
	Listening skills according to etiquette	0.29	0.045	0.31	6.525	.001				
	Listening skill according to comprehension-analysis ability	0.17	0.050	0.21	3.495	.001				

Table 4 Continue

Model	*Predictor variables*	B	Std. Error	Beta (β)	t	p	*R*	R^2	$\Delta R2$	*F*
	Listening skill according to evaluation ability	0.04	0.08	0.02	0.457	0.648				
	Listening skill according to vocabulary development ability	0.17	0.09	0.09	1.932	0.054				
	Listening skill according to effectiveness of listening habits	0.11	0.067	0.08	1.774	0.077				

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

According to the multiple regression analysis results, it was seen that general model was meaningful, and it was detected that the students predicted problem solving skills, listening skill according to etiquette and listening skill according to comprehension-analysis ability sub-dimensions significantly (F=(5,575)= 68.4, p < .001, R2=.37). When we examine the contributions of variables to the model one by one, it can be said that listening skill according to etiquette predicted problem solving skills of students in a positive way (β=.31, t (575) =.6.52 p= .001). Likewise, listening skill according to comprehension-analysis ability predicted problem solving skills of students in a positive way, too (β= .21, t (575) =.3.50 p= .001). It was seen that other independent variables did not provide any contribution to the model. It was detected that listening skill according to etiquette and listening skill according to comprehension-analysis ability given in the model were able to explain 37% of problem-solving skills.

Multiple Regression Analysis of Stress Coping Skills

In order to specify the components of listening skill according to etiquette, listening skill according to comprehension-analysis ability, listening skill according to evaluation ability, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits which predict students' stress coping skills, multiple regression analysis was carried out. Multiple regression results are given in Table 5.

Table 5

Regression Analysis Results of Students' Stress Coping Skills

Model	*Predictor variables*	*B*	*Std. Error*	*Beta (β)*	*t*	*p*	*R*	R^2	*ΔR2*	*F*
	Fixed	8.460	1.507		5.615	.001	0.465	0.216	0.209	31.6***
	Listening skills according to etiquette	0.21	0.04	0.24	4.402	.001				
	Listening skill according to comprehension-analysis ability	0.11	0.05	0.14	2.194	0.029				
	Listening skill according to evaluation ability	0.08	0.09	0.04	0.850	0.396				
	Listening skill according to vocabulary development ability	0.05	0.09	0.02	0.521	0.602				
	Listening skill according to effectiveness of listening habits	0.09	0.07	0.07	1.307	0.192				

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

According to the multiple regression analysis results, it was seen that the general model was meaningful and it was detected that the students predicted stress coping skills, listening skill according to etiquette and listening skill according to comprehension-analysis ability sub-dimensions significantly (F=(575, 5)= 31.6, p < .001, R2=.22). When we examine the contributions of variables to the model one by one, it can be said that listening skill according to etiquette predicted stress coping skills of students in a positive way (β= .24 , t (575) =.4.40 p= .001). Likewise, listening skill according to comprehension-analysis ability predicted stress coping skills of students in a positive way, too (β= .14, t (575) =.2.19 p= .029). It was seen that other independent variables did not provide any contribution to the model. It was detected that listening skill according to etiquette and listening skill according to comprehension-analysis ability given in the model were able to explain 21% of stress coping skills.

Multiple Regression Analysis of Skills Enhancing Self-Worth

In order to specify the components of listening skill according to etiquette, listening skill according to comprehension-analysis ability, listening skill according to evaluation ability, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits which predict students' skills enhancing self-worth, multiple regression analysis was carried out. Multiple regression results are given in Table 6.

Table 6

Regression Analysis Results of Students' Skills Enhancing Self-Worth

Model	*Predictor variables*	*B*	*Std. Error*	*Beta (β)*	*T*	*p*	*R*	R^2	*ΔR2*	*F*
	Fixed	16.470	1.583		10.407	.001	0.436	0.190	0.183	26.98***
	Listening skill according to etiquette	0.19	0.05	0.21	3.778	.001				
	Listening skill according to comprehension-analysis ability	0.01	0.05	0.02	0.338	0.736				
	Listening skill according to evaluation ability	-0.10	0.10	-0.05	-1.062	0.289				
	Listening skill according to vocabulary development ability	0.28	0.10	0.15	2.719	0.007				
	Listening skill according to effectiveness of listening habits	0.22	0.07	0.16	2.860	0.004				

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

According to the results of multiple regression analysis, it was seen that general model was meaningful and it was detected that students predicted skills enhancing self-worth, listening skill according to etiquette, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits significantly (F=(575, 5)= 26.98, p < .001, R2=.19). When we analyzed the contributions of variables to the model one by one, it can be said that listening skill according to etiquette predicted the skills enhancing self-worth in a positive way (β= .21, t (575) =3.77 p= .001). Likewise, listening skill according to vocabulary development ability predicted the skills enhancing self-worth in a positive way, too (β= .15, t (575) = 2.72 p= .007). Lastly, listening skill according to effectiveness of listening habits also predicted the skills enhancing self-worth in a positive way (β= .16, t (575) =.2.86 p= .004). It was seen that other independent variables did not make any contributions to the model. It was revealed that in the model, listening skill according to etiquette, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits were able to explain 18% of the students' skills enhancing self-worth

Discussion, Conclusion and Recommendations

When communication skills – one of the sub-dimensions of social and emotional learning – were examined, it was seen that general model was meaningful. It was detected that the model predicted students' communication skills, listening skill according to etiquette and listening skill according to comprehension-analysis ability sub-divisions significantly. It was detected that listening skill according to etiquette and listening skill according to comprehension-analysis ability given in the model were able to explain 24% of listening skills. When problem solving skill – one of the sub-dimensions of social and emotional learning – was examined, it was seen that listening skill according to etiquette and listening skill according to comprehension-analysis ability given in the model were able to explain 37% of problem-solving skills. According to the research results, general situation of the model was meaningful and it was detected that it predicted the students' problem-solving skill, listening skill according to etiquette and listening skill according to comprehension-analysis ability sub-divisions significantly.

When stress coping skill – one of the sub-dimensions of social and emotional learning – was examined, it was seen that listening skill according to etiquette and listening skill according to comprehension-analysis ability given in the model were able to explain 21% of students' stress coping skills. According to the research results, it was seen that general model was meaningful and it was detected that it predicted the students' stress coping skills, listening skill according to etiquette and listening skill according to comprehension-analysis ability sub-divisions significantly. When the skills enhancing self-worth were examined, the research results were as follows: it was seen that listening skill according to etiquette, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits given in the model were able to explain 18% of students' skills enhancing self-worth. According to the research results, it was seen that general model was meaningful. It was detected that it predicted the students' skills enhancing self-worth, listening skill according to etiquette, listening skill according to vocabulary development ability and listening skill according to effectiveness of listening habits sub-divisions significantly. When listening skill was evaluated with its all sub-divisions as a whole, it affected social and emotional learning skills through problem solving skills (37%) at most and then through communication skills (24%) in a positive way. It was followed by stress coping skills (21%) and skills enhancing self-worth (18%) respectively. These findings affirmed the hypothesis that individuals with high listening skill have high level of social emotional learning skill.

Listening is closely associated with problem solving skill. Bilen (2004) states that the problems that people cannot express increase day by day and in connection with this case, the number of anxious and unhappy people increases. An individual who does not find a good listener faces with people that stay on alert by thinking what to say. This situation destroys the effects of listening such as problem solving and trouble remedy and the problems get worse. Listening ensures the messages to be understood in complete and right ways, increases empathy, and ensures ideas and thoughts to be

followed systematically. This helps the listener think on; and thus, the speaker expresses his own feelings better when he feels to be listened and comprehended. Mutual healthy communication ensures a healthy discussion. In society, there is a significant problem about not being able to discuss. It is seen that at home, school, workplace, bazaar, market, parliament, and even at congresses and symposiums that is the hearth of education, discussions turn into a case after a while where people speak up and get nervous. Such a stressful environment cannot achieve its goal and does not make any contributions to the solution of troubles. High level of relation between listening skill and social and emotional learning in the research supports the literature. Umagan (2007) handles listening mainly in conjunction with communication concept and puts this feature of listening forward. He states that listening is among the basic skills of social life from this aspect. Active listening has also similar effects. In active listening, message sender is left on his own to evaluate his senses. This leads the individual to solve the problem. Many studies have been conducted on organizational leadership and listening habits in national and international literature. According to the research results, it was revealed that individuals having high level of listening skills have efficient and desirable leadership features. There are strong relationships between effective listening and leadership features. As the managers realize that organizations gain strength thanks to effective communication, studies accelerate. These studies that involve one of the important indicators of false notions in which listening is just related to Turkish course make contributions to listening field (Gordon, 2002; Hughes, 2002; Yavuz, 2010). Eskaros (2004) emphasizes that listening is one of the most effective methods for leaders to be successful. He indicates that especially active and emphatic listening is the key feature of good managers. He specifies that emphatic listening leads the listener to see the reality in mind and hearth of the speaker, and deep psychic communication ensures the listener to reach right and true information about the speaker. When the relation between listening skill and stress coping skill is analyzed, a calming effect of listening stands out. Listening to an individual gives a message that "I care your emotions and try to understand you" rather than evaluating his emotions as right or wrong. This acceptance has a calming effect on people. It is the simplest example that one of our friends says, "I feel relieved when I talk to you". The person feels relieved not only because of expressing himself but also being listened to and to be cared (Gordon, 2002). It is seen that listening to people by looking at their faces and comprehending eliminate the barriers in front of communication.

Individuals whose emotional needs have been met and who have been listened since childhood become good listeners. Cuceloglu (2014) states that family has a determining role in construction of individuals' positive sense of self. A child whose emotional and physical requirements are met adequately by his family will be more successful in "being him/herself" or in determining a personality for him/herself. Studies enounce that the foetus has primitive but respectable sensations and is affected by mother's emotions. It may have impressions in its unconscious such that it is an unwanted individual when a mother takes a dangerous thing into her body. The seeds of sense of self that are spread during foetus period evolve into a positive or negative way according to the attitudes of parents.

Listening skill and social learning skill are interrelated life skills. Rather than evaluating these two skills separately to improve them, it will be better to handle these skills together and ensure the individuals gain experience with this point of view will make contributions to the development of them. Listening is the first requirement of learning. It requires not limiting it only to teaching activities. It is compulsory to listen in order to comprehend and learn people and nature and thereby life. Information about environment that we should know in the world we live in such as trying to understand weather conditions by listening to wind, knowing and learning animals through their voices, forecasting a storm from wave sounds can be also gained after learning how to listen. Another listening method which is more important than the environment is to listen to oneself. We can understand pulse velocity by listening to our hearth beating or interpret our emotions according to strength and speed of our breath. We can notice our negative emotions and take them in hand. Listening to others is also important while trying to understand their emotions. For this, firstly we have to know how to listen. Individuals are informed about what listening is and what listening is not with the help of a planned and qualified listening education. Listening is also a virtue. It requires patience, respect, and effort. To comprehend and acknowledge the idea that what we all know may not be true and reality ensures us to improve ourselves. In this respect listening education is a behaviour education. Listening skill cannot be improved adequately without listening education. Thus, the relation between listening and social emotional skills arises. Difference between "I" and the others will come into existence as listening to the environment. As we listen to others, we could acknowledge diversity of humans and show empathy towards them. We communicate, question and comprehend as we listen. As we comprehend, we socialize and construct healthy relations with the environment. As we listen, we notice the contribution of calm communication to our life. As humans listen, understand and acknowledge each other, problems will decrease. The more people there are in the society who listen to others' needs and expectations, the more people we see in the society from a family – the smallest unit of society – to school and everywhere who are open for communication, calm, peaceful with tehmeselves and happy.

The findings of this research revealed that there is a significant relation between listening skill and social emotional learning skill. Within this scope, it can be thought that especially listening skill – one of the language skills – is not solely related to the field of Turkish Language Teaching. Therefore, activities to improve the social and emotional learning skills could be used together with listening activities, and regular studies could be carried out to turn these two skills into basic life skills. In the research, it was seen that there was a significant relation between listening skill and stress coping skill, skills enhancing self-worth and communication skills which were the sub-dimensions of social emotional learning skill. More studies can be carried out on this subject by taking into account program development studies where communication and discipline problems faced at schools can be decreased with the help of effective listening training and social skill education. Findings of the research revealed that there is a significant relation between listening skill and problem-solving division of social and emotional learning. Therefore, listening-watching skills can be improved by providing real life experiences-problem status for social life. For instance, environment

education can be given in nature together with listening activities. In this study, the relation between social and emotional learning skills and listening skill that is one of Turkish language skills was analyzed. The relations between social and emotional learning skill and speaking, writing and reading skills which are other Turkish language skills could also be examined.

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Dinleme ve Sosyal Duygusal Öğrenme Becerileri Arasındaki İlişkinin Belirlenmesi Üzerine Bir İnceleme

Atıf:

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Özet

Problem Durumu: Bireyin toplumla ilişkilerini düzenleyen birçok becerinin ön koşulu dinlemedir. Dinleme özellikle sosyal becerilerin gelişimine temel oluşturur. Sosyal beceriler de öğrenme süreçlerinin önemli bir kısmını oluşturur. Bandura'nın Sosyal Öğrenme Teorisi'ne göre bir çocuk başkasının davranışını model alma, gözlem yapma ve duyarak taklit etme gibi yollarla öğrenir (Bandura, 1969). Bu beceriler başkalarının duygularını anlayabilme, duygudaşlık, özyönetim, özdenetim, ikna, problem çözme gibi alt becerileri kapsamaktadır (Türnüklü, 2004). Sosyal Öğrenmenin duyma, taklit etme, gözlem yapma gibi süreçlerinde sağlıklı bir dinleme şarttır.

İnsan, evreni ve canlıları aklının yanında duygularıyla da tanır ve değerlendirir. Özellikle çocukluk çağında kazanılan duygusal ve sosyal beceriler gençlik ve yetişkinlikte de önemlidir. Sosyal yönü güçlü bireyler öncelikle kendini tanıyan ve anlayan, öz güveni yüksek, kişilerarası ilişkilerde başarılı, farklılıklara toleranslı, problem çözme becerisi gelişmiş, duygusal anlamda güçlü, empati yeteneği gelişmiş, toplum hayatında olumlu özellikleriyle dikkat çeken bireylerdir. Bu özellikler birçok alanı doğrudan birçoğunu da dolaylı olarak etkileyerek yaşamın tamamına -okul, iş, evlilik gibi- yön veren yaşamsal becerilerdir. Kişilerin fiziksel ve ruhsal sağlığını bozacak birçok riskli ve zararlı davranışın, okullarda, medyada, sokakta görülen şiddet olaylarının sosyal ve duygusal yeterliliğe sahip olup olmayla doğrudan bağı vardır. Yapılan araştırmalar ülkemizde sigara, alkol ve uyuşturucu maddelerin kullanımının ortaöğretimde ilköğretimden üç kat fazla olduğunu göstermektedir. Özellikle ortaöğretim öğrencilerinde zararlı madde kullanımı oranlarının yüksekliği sosyal ve duygusal öğrenme yoluyla okullarda önleyici çalışmalar yapmanın gerekliliğini ortaya koymaktadır. Gençlerde riskli cinsel davranışların ve zorbalık,

şiddet eğilimlerinin önlenmesinde de SDÖ öncü olacaktır (Ögel vd., 2004). SDÖ riskli davranışları azaltmanın yanında koruyucu bir özellik taşımaktadır. SDÖ ile ilgili çalışmalar incelendiğinde SDÖ becerilerini oluşturan dört temel beceriden söz edildiği görülmektedir. Bunlar: Problem çözme becerisi, iletişim becerileri, kendilik değerini arttıran beceriler ve stresle başa çıkma becerileridir (Kabakçı ve Korkut Owen, 2010). Çocukluk çağında öğrendiklerimizin birçoğunu dinleyerek gerçekleştirdiğimiz düşünüldüğünde dinleme becerisinin erken yaşlardan itibaren geliştirilmesi bireyleri duygusal yönden yetiştirecek ve gelecekte duygusal ve sosyal beceri eksikliklerinden kaynaklanan tehlikelerden koruyacaktır. Bunlar depresyon, şiddet eğilimi, yeme bozuklukları gibi olumsuz davranışlar olabileceği gibi uyuşturucu bağımlılığına kadar uzanan hayati tehlikeler de olabilmektedir. Dinleme ve sosyal duygusal öğrenme becerilerinin geliştirilmesinin okullarda yaşanan disiplin sorunlarının, şiddet olaylarının önlenmesine ve öğrencilerin gelecekte yaşayabileceği toplumsal çatışmaların azaltılmasına katkı sunacağı düşünülmektedir. Son yıllarda yapılan araştırmalar şimdiki kuşağın bir önceki kuşağa göre duygusal anlamda daha çok zorluk yaşadığı, daha yalnız, depresif, kızgın, asi, fevri ve saldırgan olduğu yönündedir. Bunun için duygusal ve sosyal yönden eğitilmeleri önemlidir. Okulların akıl ve duyguları birlikte ele alan eğitim politikalarına ihtiyaç duyduğu göze çarpmaktadır. Türkçe Eğitimi ve Öğretimi alanında yapılan araştırmalar genellikle Türkçe öğretimi ve dinleme eğitimi, Türkçe öğretim programlarının dinleme kazanımları açısından incelenmesi, dinleme kazanım ve etkinliklerinin öğretmen görüşleri açısından incelenmesi, konuşma yazma, okuma ve dinleme çalışmalarının kendi içindeki ilişkileri ile ilgili, dinleme stratejileri, dinlemeyi etkileyen etmenler, dinleme becerisini geliştiren çeşitli yöntem tekniklerin sınanması, dinleme ve prozodi ilişkisi ya da çocuk edebiyatı dinleme ilişkisine yöneliktir (Zengin, 2010; Durmuş, 2013; Şahin 2011; Maden ve Durukan, 2011; Yıldırım ve Er, 2013; Karadüz, 2010; Çifçi, 2001; Göçer ve Tabak, 2014; Doğan, 2008 vd.) Bu çalışma ise öğrenme kuramlarından sosyal öğrenme ve Türkçenin temel dil becerilerinden dinleme becerisi arasındaki ilişkiyi incelemektedir.

Araştırmanın Amacı: Araştırmanın amacı dinleme becerisi ile sosyal duygusal öğrenme becerisi arasındaki ilişkiyi belirlemek ve aralarında ilişki varsa bu ilişkinin düzeyini belirlemektir. Bu bakış açısıyla yürütülen çalışmanın temel problemi şudur: Dinleme becerileri, sosyal duygusal öğrenme becerilerini anlamlı olarak yordamakta mıdır? Bu ana problemin çözümlenmesinde aşağıdaki alt problemlere de yanıt aranmıştır:

1. Ortaokul öğrencilerinin dinleme becerileri, iletişim becerilerini anlamlı olarak yordamakta mıdır?
2. Ortaokul öğrencilerinin dinleme becerileri, problem çözme becerilerini anlamlı olarak yordamakta mıdır?
3. Ortaokul öğrencilerinin dinleme becerileri, stresle başa çıkma becerilerini anlamlı olarak yordamakta mıdır?
4. Ortaokul öğrencilerinin dinleme becerileri, kendilik değerini arttıran becerilerini anlamlı olarak yordamakta mıdır?

Araştırmanın Yöntemi: Bu araştırma tarama modelinde ilişkisel bir çalışmadır. Çalışmada nicel veri toplama yöntemleri kullanılmıştır. Böylece nicel veriler aracılığıyla ile değişkenler arası ilişkilerin betimlenmesi hedeflenmiştir.

Araştırmanın Bulguları: Öğrencilerin iletişim becerilerini görgü kurallarına göre dinleme becerisi ve anlama-çözümleme durumlarına göre dinleme becerisi alt boyutlarının anlamlı bir şekilde yordadığı tespit edilmiştir. Modelde yer alan görgü kurallarına göre dinleme becerisi ve anlama-çözümleme durumlarına göre dinleme becerisinin iletişim becerilerinin %24'ünü açıklama gücüne sahip olduğu görülmektedir. Görgü kurallarına göre dinleme becerisi ve anlama-çözümleme durumlarına göre dinleme becerisinin problem çözme becerilerinin %37'sini açıklama gücüne sahip olduğu görülmektedir. Görgü kurallarına göre dinleme becerisi ve anlama-çözümleme durumlarına göre dinleme becerisinin öğrencilerin stresle başa çıkma becerilerini %21'ini açıklama gücüne sahip olduğu görülmektedir. Modelde yer alan görgü kurallarına göre dinleme becerisi, söz varlığını geliştirme durumlarına göre dinleme becerisi ve dinleme alışkanlıklarının etkililiğine göre dinleme becerisinin öğrencilerin kendilik değerini arttıran becerilerinin %18'ini açıklama gücüne sahip olduğu görülmektedir. Bu bulgular, dinleme becerisi yüksek olan bireylerin sosyal duygusal öğrenme becerilerinin de yüksek olduğu hipotezini doğrulamaktadır.

Araştırmanın Sonuçları ve Öneriler: Dinleme becerisi ile sosyal ve duygusal öğrenme becerileri birbirinden bağımsız iki beceri değildir. Dinleme becerileri geliştikçe sosyal ve duygusal beceriler de gelişmektedir. Bu sonuç dinleme becerilerini geliştirmeye yönelik etkinliklerin önemini ortaya koymakta ve dinleme becerisinin tüm öğrenme süreçlerinde öne çıkarılarak geliştirilmesinin gerekliliğini ortaya koymaktadır. Okullarda yaşanan iletişim ve disiplin sorunlarının etkin bir dinleme öğretimi ve sosyal beceri eğitimleriyle azaltılabileceği, program geliştirme çalışmalarında göz önünde bulundurularak bu alana yönelik çalışmalar yapılabilir. Sosyal yaşamın içinde gerçek yaşam deneyimleri-problem durumları sağlanarak dinleme-izleme becerileri geliştirilebilir. Örneğin çevre eğitimi dinleme etkinlikleriyle birlikte doğada yapılabilir. Sosyal ve duygusal öğrenme becerisi ile Türkçenin diğer beceri alanları olan konuşma, yazma ve okuma becerileri arasındaki ilişki incelenebilir ve bu becerilerin sosyal duygusal öğrenmeye katkıları karşılaştırmalı bir biçimde ele alınabilir.

Anahtar Sözcükler: Türkçe Eğitimi, Dinleme, Sosyal Duygusal Öğrenme

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Evaluation of the Factors Affecting Teacher Identity Development of Pre-Service Teachers: A Mixed Method Study*

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ABSTRACT

Purpose: The definition of teacher identity is based on the interpretation of the meanings in educational environment and daily life experiences. The literature highlights that teacher education experiences have a central role in teacher identity construction. It is evident that exploring teacher identity is crucial during the process of teacher education. Therefore, the aim of the study was to examine the factors affecting teacher identity development in the process of teacher education. **Research Methods:** Sequential explanatory mixed method design was employed in this study. The aim of sequential explanatory mixed-method design is to have the qualitative data explain the quantitative results of the first phase in more detail. **Findings:** The findings focused on personal characteristics and teaching practices. The results of the study revealed that personal characteristics and teaching practices during teacher education are the most important factors affecting the development of pre-service teacher identity whereas media effect and close social environment are the factors, which have low effect on developing teacher identity. **Implications for Research and Practice**: It is observed that teacher identity hasn't been widely researched in Turkish education context. Therefore, teacher identity studies should be carried out in different population and samples. So, effects of many macro factors such as; social, political, economic ones, and micro factors such as; socio-economic background, branch differences of pre-service teachers in developing teacher identity should be investigated.

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Introduction

The notion of identity is conceptualized throughout the answers of the questions like "Who am I now?" and "Who will I be in the future?" In the literature, the notion of identity is conceptualized as multifaceted composition constructed by personal stories (Beijaard, Meijer, & Verloop 2004; Rodgers & Scott 2008). On the other hand, the literature revealed that the function of identity can be interpreted when individuals interact with others since it is socially constructed (Goffman, 1959; Mead, 1934). So, identity is constructed with numerous meanings that individuals can link themselves with attributed meanings designated by others (Beijaard, 1995). The interpretation of teachers' professional identity occurs in both individually and collectively (Mockler, 2011). Identity also shows its features according to features of settings where it is defined and managed accordingly.

It can be inferred from the literature that the concept of teacher identity is an umbrella term that would be influenced by so many factors. According to Day and Kington (2008), it includes some components like; expectations, social ideals on idealized teacher, workload, role perceptions and development. It is also argued by Coldron and Smith (1999) that choices in learning and teaching process are among the strong determinants in building professional identities of teachers. Moore et al. (2002), on the other hand, highlights the importance of institutions and policy implementations in teacher identity development. Actions, thoughts and emotions are other patterns in building teacher identity that plays a pivotal role in teaching (Beauchamp & Thomas, 2009). There are some classifications about forming teacher identity. For example, Ohlen and Segesten (1998) argues three dimensions in forming teacher identity such as; personal, inter-personal and socio-historical dimensions. Personal dimension focuses on skills and abilities required for the profession. Inter-personal dimension highlights the importance of interactions between the individual and his/her colleagues and the others around him/her. Besides, socio-historical dimension reflects norms and thoughts that have been developed in the organization (Olesen, 2001). As also stated by Beijaard, Meijer and Verloop (2004) teacher identity is something related with norms and experiences in the profession and senses about their own importance in the professional climate. Varelas, House and Wenzel (2005) states that teacher identity is constructed in social, organizational and historical circumstances. According to Day and Kington (2008), teacher identity is developed through personal, professional and socially located identities. Personal dimension reflects the life outside of school and connected with social and family roles. Being father, mother, son, friends, partner etc. could be a source of feedbacks and tensions. Professional identity focuses on policies and social expectations of what an expected teacher is and educational ideals of teachers. Socially located or situated dimension is related to school, classroom or department. This dimension reflects the components located in a specific context or school and affected by local circumstances.

Therefore, it is argued that teacher identity which is developed in complex and rich set of practice and relations (Wenger, 1999), is regarded as a core of teaching profession since it maintains a framework for teachers to construct their own ideas of "how to be", "how to act" and "how to understand" their work and their place in

society.(Sachs, 2005, p.15). Nevertheless, studies assert that education process is vitally important in the formation of teacher identity (Sachs, 2005). During this critical stage pre-service teachers have an opportunity to internalize roles of a teacher, their self-efficacy and their ability to cope with the challenges that might be encountered in the future (Beijaard, Meijer & Verloop, 2004; Izadinia, 2015; Ottesen, 2007). Recognizing and interpreting teacher identity is constituted by emotions, classroom management experiences, beliefs and attitudes during the process of pre-service teacher education (Grudnoff, 2011; Merseth, Sommer & Dickstein, 2008). Teacher identity, which is affected by education policies, social status, social acceptance, self-efficacy, is started to be constructed before practicing the profession. Factors of teacher identity are shaped and reshaped within their commitment to their organizations (Kavrayici & Agaoglu, 2020), roles and professions which starts in the process of teacher education. Since it is a vital concern in meaning making, teacher education should be started by exploring the teaching self (Bullough, Knowles & Crow, 1992), and then carried out with rigorous, contemporary, intellectually demanding manner (Sachs, 2005). For this reason, notion of identity has been widely used and discussed in teacher identity literature in terms of teacher education period. However, to date, it is observed that there have been few studies conducted about pre-service teacher identity in Turkish context. Hence, it is believed that exploring teacher identity has a critical role in the process of teacher education. Besides, it is also believed that exploring teacher identity help pre-service teachers acquire affective competencies required for their profession and curriculum construction for teacher education. Within this context, the general aim of the study was to reveal the factors that affect development of pre-service teacher identity and enable deeper understanding about these factors. Therefore, the scope of this study was to answer the following questions:

1. What are the levels of factors affecting the perception of preservice teachers' teacher identity?
2. What are the thoughts and feelings of preservice teachers about factors affecting teacher identity?
3. In what extent the findings of the qualitative data can be used to administer deeper perspective to evaluate preservice teachers' identity?

Method

Research Design

Sequential explanatory mixed methods design was employed in this study. Sequential explanatory mixed methods design claims gathering and analyzing quantitative data first and then qualitative data in two sequential phases with one single research (Ivankova, Creswell & Stick, 2006, p.4). The aim of mixed-methods sequential explanatory design is to have the qualitative data help explain in more detail the quantitative results of the first phase. It is typically used like gathering quantitative survey data in the first phase, analyzing the data, and then consecutively implementing qualitative interviews to help explain the survey results in more detail

(Creswell, 2014, p.224). Since the concept of teacher identity is a complex one influenced by so many factors, it would be better to research it deeply by using both quantitative and qualitative research methods called sequential explanatory mixed methods design.

Research Sample

The population of the study were 2346 junior and senior pre-service teachers at Anadolu University, Faculty of Education. Stratified purposeful sampling technique was employed in the study. Since the measurement tool includes questions related to teaching experience and school experience, the target population and sample consisted of juniors and seniors who were enrolled in" teaching experience and school experience" classes, and the strata was decided according to grades of the pre-service teachers. For the quantitative phase of the study, the sample consisted of 364 junior and senior pre-service teachers at Anadolu University, Faculty of Education. The descriptive statistics about the sample of quantitative part of the study are shown in Table 1.

Table 1

Descriptive Statistics of the Participants in Quantitative Phase

Feature	Variable	f	%
Gender	Female	260	71.4
	Male	104	28,6
Department	ELT	66	18,1
	Primary School Education	46	12,6
	Pre-school Education	55	15,1
	Special Education	71	19,5
	Primary School Mathematics Teaching	56	15,4
	Social Science Education	21	5,8
	Guidance and Psychological Counseling	18	4,9
	Arts and Crafts Education	31	8,5
Age	17-18	12	3,3
	19-20	109	29,9
	21-22	184	50,5
	23-24	46	12,6
	25 and above	13	3,6
Grade	Junior	198	54,4
	Senior	166	45,6
Total		**364**	**100**

For the qualitative phase of the study, maximum variation sampling was employed. The aim of maximum variation sampling is to reflect variety of the individuals that would be a side of the problem and is to expose whether there are common phenomena among the variant cases. (Yildirim & Simsek, 2016, p.119). The information about the participants of qualitative part of the study are shown in Table 2.

Table 2

Participants of the Qualitative Phase

Participant	Gender	Department	Age	Grade	Interview Duration
P1	Female	Primary School Education	23	Senior	23.54
P2	Female	Arts and Crafts Education	22	Senior	21.13
P3	Female	Social Science Education	24	Senior	44.47
P4	Male	Special Education	23	Senior	46.43
P5	Female	Pre-school Education	22	Senior	24.27
P6	Male	Special Education	25	Senior	36.39
P7	Female	ELT	21	Junior	46.06
P8	Female	Primary School Education	22	Junior	51.35
P9	Male	Social Science Education	22	Junior	35.84
P10	Male	Primary School Mathematics Teaching	23	Senior	39.42
P11	Male	Primary School Education	25	Junior	72.30
P12	Male	Pre-school Education	24	Senior	31.36
P13	Female	Special Education	22	Senior	33.53
P14	Male	Arts and Crafts Education	21	Senior	19.03

Participants for qualitative follow-up phase were selected among the ones who attended the quantitative strand of the research and filled the survey. The participants were also volunteered to attend quantitative strand of the research. Since the aim of the follow-up qualitative phase in explanatory design is to explain the results of the first quantitative strand, selection of participants arising from the first strand helps the researcher to get stronger and more detailed explanations (Creswell & Plano Clark, 2018). Participant selection for qualitative follow-up phase lasted until the saturation assured. It can be stated that the saturation is completed when new analytical information is not emerged from the data (Moser & Korstjens, 2018). Since the saturation decides on the sample size (Moser & Korstjens, 2018) and since the saturation is reached with 14 participants, the study provides maximum outcome on the research problem.

Research Instruments and Procedures

The quantitative data of the study were collected via Factors Affecting Pre-service Teachers' Teacher Identity Scale developed by Aykac et al. (2017). It was selected as data collection tool, since it was the unique scale which was developed in Turkish context in order to determine the factors affecting pre-service teacher identity. The scale which has 6 sub-dimensions consists of 28 items explaining 63.5 % of total variance. The sub-dimensions are entitled as: "Close social environment", "Education life before higher education", "Teaching experience", "Personal characteristics", "Features of the profession" and "Media effect". Factors Affecting Pre-service Teachers' Teacher Identity Scale is a 5-point Likert scale the rating of which is ranging from 1= did not affect at all to 5= affected very much.

The qualitative data of the study were collected via semi-structured interviews. Semi-structured interviews generally organized as predetermined open-ended questions, with other questions emerging instantly from the dialogue between interviewer and interviewees. (DiCicco-Bloom & Crabtree, 2006, p. 315). The questions

of semi-structured interview were predetermined according to aims of the study and questions emerging from the instant dialogues during the interview was added in order to bring flexibility to interview. Within the scope of the study, 17 interview questions were prepared based on the professional identity literature and mainly according to the results of the survey implemented in the first strand of the study. Interview questions which were structured on the basis of the survey results of quantitative phase constructed as open-ended in order to enable participant-directed responses. The four field experts who had PhD degree in educational sciences examined the 17 interview questions, and four questions were excluded from the draft form since they were not aligned with the aim of the study. The pilot study was implemented with two pre-service teachers from different departments in order to decide whether the draft form including 13 questions are comprehensible. One question from the draft form excluded since it wasn't easy to comprehend. At the end, semi-structured interview form including 12 questions was generated.

Data Analysis

Surveys were delivered to 400 pre-service teachers. Because of carelessly and inconsistently filled forms 373 of the data were entered to SPSS 22.0 software. Then outliers of the data set were checked. When detecting the outliers, box and whisker plots were taken into consideration. The data of nine participants were regarded as outliers in the data set and 364 of them were analyzed. Before analyzing the data, normal distribution was checked. In order to check the normal distribution, the skewness and kurtosis values were examined, and it was observed that the data were normally distributed. The internal consistency coefficients for the subscales were also acceptable: for "close social environment" dimension, $\alpha = 0.83$; for "education life before higher education" dimension, $\alpha = 0.76$, for "teaching experience" dimension, $\alpha = 0.81$; for "personal characteristics" dimension, $\alpha = 0.84$; for "features of the profession" dimension $\alpha = 0.78$ and for "media effect" dimension $\alpha = 0.75$. The quantitative data gathered via Factors Affecting Pre-service Teachers' Teacher Identity Scale were analyzed and the results were reported as standard deviations and arithmetic means.

The data gathered from the interviews were used to extend and explain the findings from the quantitative strand. The interview consent forms, as an ethical requirement, were filled by the participants. The qualitative data, ranged from 19.03 to 72.30 minutes, were recorded via notebook computer and transcribed verbatim. After the transcription of the data, 217 pages word document were acquired. The data listened, read and coded by another researcher alternatively, were interpreted after implementation of template analysis. These interpretations were enriched and supported with direct quotations of pre-service teachers. A template analysis is a kind of technique that is used in analyzing qualitative data. Template analysis aims to help the scholars trying to combine quantitative and qualitative data analyses, which could be regarded as process of content analysis (Crabtree & Miller 1999; King, 2004, p.256). Template analysis, the goal of which is to describe main categories and themes decided by the researcher, allows researcher to evaluate a priori themes that were organized according to findings of quantitative strand (Hesse-Biber, 2018, p.291). King (2004, p. 257) claims that use of a priori codes in template analysis could be regarded as a main difference between the other approaches and template analysis. As also used in the

study of Hesse-Biber (2018), a priori themes deduced from quantitative strand, were used in this study. Coding procedure enabling coding segments corresponding to a priori themes, utilizes a ''top-down'' coding approach. This coding approach means that these segments of the transcribed data is concerned with a priori themes reflecting ultimate ones (Hesse-Biber, 2018, p.291).

Quantitative and qualitative data integration at reporting and interpretation level would occur in "integrating through narrative". Via "integrating through narrative" approach, quantitative and qualitative findings are described in a single of a series of reports. In weaving approach, both quantitative and qualitative findings are written together on a concept-by-concept or theme-by-theme basis. (Fetters, Curry & Creswell, 2013, p. 2142). In this study, the results are discussed in weaving approach in order to explain the research questions consecutively.

Some of the strategies to ensure trustworthiness and credibility were utilized in the study. First of all, the study was triangulated in order to validate and implement comprehensive understanding of the research problem. Using multiple data sources and methods, integrating qualitative and quantitative approaches were the strategies to enable the triangulation in the study. Another strategy used to assure trustworthiness of qualitative findings in this study was member checking. Member checking which can also be regarded as participant validation is a method of returning analyzed data or transcribed interview to a participant. (Birt, Scott, Cavers, Campbell & Walter, 2016, p. 1802). Transcribed data and findings were shared with participants and asked to check them and give feedback. Peer debriefing, referred to as an external perspective (Onwuegbuzie & Leech, 2007) is a kind of triangulation, the process of which includes inviting disinterested expert peer to help as a reviewer on transcribed data and emergent themes of the research. Lincoln and Guba (1985) as seminal scholars on so many critical parts of trustworthiness, define the notion of peer debriefing as a "process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind" (p. 308). The qualified expert peers that also included in the process of preparing semi-structured interview form were asked to review the transcripts, categories and emergent themes. The researcher and the expert peers discussed final categories, codes and themes derived from the data and decided on the final version. Expert view and inquiry audit can be used as strategy of dependability which can be regarded as a reliability in qualitative research (Lincoln & Guba, 1985). Hence, research process and findings of the qualitative phase was inquired by an inquirer who had used qualitative research method beforehand and who was studying in Educational Administration field. Finally, verbatim quotes were used in order to substantiate the categories and themes.

Results

An analysis was performed to determine the opinions of pre-service teachers on the Factors Affecting Pre-service Teachers' Teacher Identity. According to the answers of the participants, descriptive statistics related to the scale are shown in Table 3.

Table 3

Opinions of Pre-Service Teachers on Factors Affecting Teacher Identity

Measurement Tool	Variables	n	$\bar{X}$	sd
Factors Affecting Pre-service Teachers' Teacher Identity Scale	Close Social Environment	364	1,79	0,75
	Education Life Before Higher Education	364	2,68	1,01
	Teaching Experience	364	2,74	0,74
	Personal Characteristics	364	3,64	0,89
	Features of the Profession	364	2,63	0.91
	Media Effect	364	1,97	0,9

As shown in Table 3, the arithmetic mean of pre-service teachers on the "personal characteristics" dimension was $\bar{x}$ = 3.64 and it can be regarded as the highest mean among the dimensions of factors affecting pre-service teachers' teacher identity. The items in personal characteristics dimension of the survey were related to fondness and love for children, being tolerant and amiable, willingness for continuous learning and teaching pleasure. This finding of the study proved that personal characteristics of pre-service teachers is a factor that highly affects teacher identity. It can be stated that among the factors affecting teacher identity, personal characteristics including love for children, teaching passion, etc. are prominent ones in developing and affecting the identity in the profession. Qualitative findings of the study highlighted the importance of the "personal characteristics" that would affect the teacher identity. Personal characteristics such as; being patient and tolerant teaching pleasure, communication skills are the prominent ones. According to remarks of the participants, it can be interpreted that their personal life constructs and builds teacher identity. Therefore, it can be said that findings from the qualitative phase also revealed the importance of "personal characteristics" factor affecting pre-service teacher identity and supported findings in the quantitative strand. A priori themes on the basis of quantitative findings supported the qualitative findings and the narrative quotations in order to support the findings would be given as;

> *"I think teaching profession fits me. My friends told me "we would understand better if you teach us", when were in secondary school and high school. I enjoyed when I was teaching to them and I started to think whether I had talent on teaching profession" P7."*

> *"I love to communicate with people. This is one of the most important reason for me to become a teacher. I think I am good at expressing myself and I like teaching. Besides, I like children as well. I would like to spend my time with children. Their laughs and voices give me peace. That's why I wanted to be a teacher." P3*

> *"..My communication with my friends was strong and telling something to them gave me pleasure. I love children. Besides teaching, guiding and impressing children make me feel wonderful." P10*

The arithmetic mean of "close social environment" dimension ($\bar{x}$ = 1,79) was the lowest one among the factors affecting teacher identity. The items in "close social environment" dimension were related to the factors like parents, close friends and relatives that have effects on building and developing teacher identity. Findings from the qualitative findings also mirror the finding of this dimension revealing that "close social environment" of pre-service teachers are among the least important factors affecting pre-service teacher identity. It could be deduced from the narrations that family of the participants had low and middle socio-economical background. So, this might be reason that they wished their children would have a guaranteed profession, however; they didn't affect or urge them to choose teaching profession. Besides, participant believe that their close friends had some idea about their talent however; they didn't inspire them about the profession. It could also be inferred from the narrations that participants didn't have any common point with their relatives about the profession they would perform in the future. A priori theme based on quantitative findings derived from qualitative findings can be supported with narrative quotations as;

> *"My family and close social environment did not affect me at all. My mom and dad were workers so they wished me had a job under the guarantee of the state like being a civil servant. They wanted me look for a job which doesn't have an opportunity of being fired in the future. However, I decided for teaching profession long after. " P12*

> *"My friends in the past believed that I was good at telling something and convincing people. IIImm however, I don't think that they affected me in choosing teaching profession or what kind of teacher I would be. We even didn't have any conversation with my relatives about professional career. I decided myself about the teaching profession after the university exam. " P2*

"Media Effect" dimension ($\bar{x}$ = 1,97) was another dimension which had low arithmetic mean among the dimensions affecting teacher identity. The items in "media effect" dimension were related to the factors like teacher figures in books, movies and tv serials, news on social and mass media that have effects on building and developing teacher identity. The findings from the qualitative strand also supported the finding of this dimension. "Fiction" pattern was observed from almost all of the narrations related to "media effect" dimension that would affect teacher identity of teaching profession. Participants remarked that they believe most of the characters in movies, tv serials or books are far from the real life and practice which make them fantastic and incredible. There might be exceptions about the figures in movies that would affect teacher identity. It was also inferred that news about teachers on mass and social media damages the image of the profession since they include violence, abuse and harassments. Therefore, media effect among the factors affecting teacher identity, were regarded as insignificant according to participants of the study. This a priori theme of qualitative phase can be supported with narrative quotations as;

> *"Actually teacher figures in movies or tv serials don't have any effect on what kind of teacher I would be. Because I know that they belong to dream world and they are fictions." P6*

> *"Teachers on media are not represented properly unfortunately. Their good works are not supported but bad events like child abuse or harassment are reflected as if all the*

teachers were responsible for these disgusting cases. So I believe that the things on the media can not be generalized and I really don't care whatever they say. I will do my job without any outsider effect. "P13

"Teacher figures in books don't affect me about the profession since the real life cases make more sense to me. May be the movie "Like Stars on Earth" is an exception. The movie "Like Stars on Earth" influenced me because the teacher in the movie had successful communication with parents, he tried to win the hearts of the students" P1

The arithmetic mean of pre-service teachers on the "features of the profession" dimension was $\bar{x}$ = 2.63 and it can be regarded as the factor that moderately affects teacher identity. The items in "features of the profession" dimension were related to the factors like salaries of teachers, social status and flexible working hours of the profession that have effects on building and developing teacher identity. The findings from the qualitative phase also supported the finding of this dimension. It was deduced from the narrations that participants accepted the advantages of the profession. They believed that salary of teachers is acceptable. They also stated that flexible working conditions would feel them relaxed while spending time with their children and preparing for classes. It could be deduced from the narrations that these kind of features of the profession would affect teacher identity of the participants moderately. Narrative quotations related to a priori theme named "features of the profession", could be stated as follows:

"I think teachers income at moderate level in when we evaluate the conditions of Turkey. Flexible working conditions…. Yes flexible working condition is one of the endearing factors that enables you rest and allow time for your family and etc. However, this is not the thing that would totally affect my behaviors and manners related to profession. It affected a little when choosing the profession. " P5

"When I was choosing the profession, working hours affected me.. So teaching profession provides this time allocation for your private life. Time flexibility could be regarded as an advantage in pre-preparations for the courses. These can be thought as advantages but they are not totally decision points for my professional life. However, they are not the exact determinants of my professional journey." P7

The arithmetic mean of pre-service teachers on the "education life before higher education" dimension was $\bar{x}$ = 2.68 and it can be regarded as the factor that moderately affects teacher identity. The items in "education life before higher education" dimension were related to the factors like role model teachers in primary, secondary and high school and students' feeling of admiration to those teachers that have effects on building and developing teacher identity. The findings from the qualitative phase also supported the finding of this dimension. Participants of the study were experienced teachers who had effect on their teacher identity both negatively and positively. It could be deduced from the narrations that the participants experienced teachers who would be regarded as hero and disappointment. Therefore, the inference is that teacher identity of the participants was affected moderately by their past educational experiences before higher education. Narrative quotations related to a priori theme named "education life before higher education", could be stated as follows:

"I would like to be in teaching profession since I wanted to change some of the behaviors related to the teaching profession. In my opinion some of the teachers as I had in the past, did discriminations among the students, which damaged the feeling of equality. Nevertheless, I also had the teachers who were perfect role models and treated us as equal. So I can say that my life before higher education affected me moderately in this manner."P9

"Among the teachers before the higher education, there were the ones that affected me positively and negatively. Since we were poor, my primary school teacher tried so much to decrease the economical gap between me and the others for instance. However, my teachers in high school didn't affect me so much." P8

"Teaching Experience" dimension ($\bar{x}$ = 2,74) was the other dimension which had another moderate arithmetic mean among the dimensions affecting teacher identity. Most of the arithmetic means of the items in all dimensions of the factors affecting teacher identity were similar more or less. However, one of the outstanding finding in the study was related to the "teaching experience" dimension. Although the arithmetic mean of the dimension was ($\bar{x}$ = 2,74), there were great differences among the arithmetic means of the items in the dimension. While the arithmetic mean of the item entitled "Interactions between me and students in the school that I experienced my teaching internship" ($\bar{x}$ = 3,72) and the item entitled "Successful experiences in my teaching internship school" ($\bar{x}$ = 3,63) were much more higher than the arithmetic mean of the items entitled "Behaviors of the manager that I experienced my teaching internship" ($\bar{x}$ = 1,74) and "cooperation among teachers in the school that I experienced my internship" ($\bar{x}$ = 1,85). The findings from the qualitative strand also supported the finding of this dimension. Participants clearly distinguished teaching experience in terms of in-class practice and teacher/principal effects. While they were highlighting the importance of in-class teaching practice, they rejected principals' and teachers' effects on teacher identity during the teaching experience. The pattern "gap between theory and practice" was observed from the narrations. Participants believed that there are too many differences between the practice and classes in the faculty. They remarked that they mainly felt "as teachers" during the teaching practice. They also highlighted that they didn't notice any effect from principals and teachers as role models during the teaching practice about their teacher identity. Narrative quotations related to a priori theme named "teaching experience", could be stated as follows:

"I believe that internship namely teaching practice and teaching observation courses are insufficient for us. This term I understand that the knowledge we have, doesn't have any significance if they don't come in to practice. I wish I would have had the chance of more practice. As you have more opportunity to practice, you have the chance of testing classroom management styles and build your own methodology." P5

"Teaching practice course experience was wonderful for me. I experienced emotions that I had never had before. Students were so pure and innocent. Their love was unsparing. I experienced so many things related to the profession such as time management, behavior management. Unfortunately, there were cliques in teachers' room, all of them were gossiping about the others, and they didn't like the principal as well. Principal didn't care about us, we didn't see him properly. The principal didn't seem to lead the school effectively." P10

Discussion, Conclusion and Recommendations

The results of the study proved that personal characteristics of pre-service teachers is a factor that highly affects teacher identity. Personal characteristics such as; love for teaching, having good communication skills, being patient and tolerant would have an effect on developing and shaping teacher identity. The findings of the study were consistent with the literature. Bukor (2015) stated that personal expectations and experiences, assumptions and beliefs were important factors in shaping teacher identity. According to Nur'Aini (2018), personal qualifications and interests had a significant contribution to teacher identity development. Learning experiences, life stories, academic success and role models of individuals are among the robust personal factors forming teacher identity (Brown, 2006; Newman, 1997; Reio, 2005). The findings of the study revealed that personal characteristics intersect widely with teacher identity whereas close social environment and media effect have low influence on shaping teacher identity. It can also be stated that dimensions such as "education life before higher education", "teaching experience" and "features of the profession" are the factors that moderately affects teacher identity. It was also deduced from the findings that in-class teaching experiences gained via "teaching practice" and "school observation" classes have crucial role in building and developing teacher identity. Coward and her colleagues (2015) found that constructing professional identity of pre-service teachers was closely related with their interactions with their students and practicing experiences. Similarly, Ivanova and Skara-Mincane (2016) found that self-efficacy of pre-service teachers enhanced and professional development was observed during teaching practice. That's why pre-service teachers wished they had experienced "teaching practice" class longer. Professional features such as; weekend holidays, flexible working hours, social acceptance and average salary would have an effect on teaching profession of pre-service teachers and how to perform it in terms of making arrangements and preparations for lessons and spending qualified time with their family members which would make them feel psychologically well. It was understood that pre-service teachers didn't share common ideas with their parents and relatives about choosing profession and how to perform it. They also weren't influenced by teacher figures in books and movies except from some extraordinary and impressive heroes.

The findings of the study show similarities with the findings of the study of Bacakoglu (2018). According to findings of the study, "personal characteristics" were the most important one among the factors affecting teacher identity. She also highlighted importance of personal characteristics such as; being tolerant and patient, loving children, having powerful communication skills and etc. in shaping and developing teacher identity. On the other hand, "close social environment" dimension was the factor that affects teacher identity at least. Special emphasis was given on "teaching practice" process and it was remarked that teaching experience was one of the factors that triggered building teacher identity. Merseth, Sommer and Dickstein (2008) also argued importance of personal characteristics and teaching experiences in developing teacher identity.

Teacher identity, as a research interest, has been widely studied in educational literature. However, it is observed that there is not so many studies in Turkish context. Therefore, teacher identity studies should be carried out in different populations and

samples. One should consider that teacher identity is an umbrella term, which includes too many factors and would be influenced by many other factors apart from the ones focused in this study. So, effects of many macro factors such as; social, political, economical ones and micro factors such as; socio-economical background, branch differences of pre-service teachers in developing teacher identity should be investigated. Having detailed studies which take these recommendations into account, may make the results of this study more meaningful. The findings of the study also revealed that personal characteristics and teaching practice are critical in teacher identity development. Hence, enhancing teaching practice in pre-service education and determining personal characteristics of teacher candidates would be beneficial in developing teacher identity. Educational life before higher education was another remarkable factor in building teacher identity. Within this context, it would be better to direct students to the profession before higher education.

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Öğretmen Kimliğinin Gelişimini Etkileyen Faktörlerin İncelenmesi: Karma Desenli Bir Çalışma

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Özet

Problem Durumu: Kimlik kavramı Ben kimim? Gelecekte ne olacağım? gibi soruların yanıtları ekseninde şekillenmektedir. Alanyazında kimlik kavramının kişisel hikayelerle oluşan çok yönlü bir kavram olduğu ifade edilmektedir. Bununla birlikte alanyazın kimlik kavramının sosyal bir biçimde oluşturulduğu ve bireylerin diğerleri ile olan etkileşimleriyle yorumlanması gerektiğini öne sürmektedir. Kişinin mesleki kimliği bireyi tanımlayan ve belirginleştiren rolleridir. Bireyin mesleki kimliğinin, bireyin bir gruba, bir mesleğe ve bu mesleğin norm ve değerlerine olan aidiyeti ile de ilişkili olduğu söylenebilir. Öğretmenlerin mesleki kimliklerinin yorumlanmasının bireysel bir biçimde ve topluluk olarak gerçekleştiği ifade edilebilir. Kimlik kavramının özellikleri içinde bulunduğu bağlama göre değişmekte ve gelişmektedir. Day ve Kington (2008)' a göre kimlik, beklentiler, sosyal roller, iş yükü, iş algısı ve gelişimi gibi bileşenleri içermektedir. Coldron ve Smith (1999)'e göre ise öğretme öğrenme süreçlerindeki tercihlerin mesleki kimlik oluşumunda önemli etkileri bulunmaktadır. Kurumların ve uygulanan politikaların da mesleki kimliğin gelişiminde ve değişiminde önemli role sahip olduğu vurgulanmaktadır. Duygular, düşünceler ve eylemler de mesleki kimliğin gelişiminde etkide bulunan faktörlerdendir. Araştırmalar öğretmen eğitimi sürecinin öğretmen kimliğinin oluşmasında oldukça önemli bir yere sahip olduğunu göstermektedir. Bu önemli süreçte öğretmen adayları öğretmenlik rollerini içselleştirebilir, öz-yeterliklerinin ve gelecekte karşılaşabilecekleri olumsuzluklarla başa çıkma kapasitelerinin farkına varabilirler.

Araştırmanın Amacı: Öğretmen kimliğinin gelişiminin önemi nedeniyle, öğretmen eğitiminin öğretmen benliğinin araştırılmasıyla başlaması, titiz ve çağdaş bir biçimde ve entelektüel arka plana sahip bir biçimde sürdürülmesi gerektiği ifade edilmektedir.

Türkiye bağlamında öğretmen adaylarının mesleki kimliklerini etkileyen faktörlere ilişkin çok fazla araştırmaya rastlanamamıştır. Bu nedenle, öğretmen eğitimi sürecinde öğretmen kimliğine yönelik araştırmaların yapılmasının önemli olduğu düşünülmektedir. Bu bağlamda, araştırmanın amacı şu sorulara yanıt aramaktır.

1. Öğretmen adaylarının mesleki kimliği etkileyen etmenlere yönelik algılarının düzeyi nedir?

2. Öğretmen adaylarının mesleki kimliği etkileyen etmenlere yönelik düşünceleri nelerdir?

3. Araştırmanın nitel verilerinden elde edilen bulgular öğretmen kimliğini detaylı bir biçimde açıklamada ne kadar etkilidir?

Araştırmanın Yöntemi: Araştırmada açıklayıcı sıralı karma yöntem deseninin kullanıldığı bu araştırmada önce nicel veriler toplanmış daha sonra nitel veriler elde edilmiştir. Açıklayıcı sıralı karma yöntem deseninin kullanılmasındaki amaç birinci nicel aşamadaki verilerin derinlemesine açıklanmasının sağlanmasıdır. Araştırmanın evrenini Anadolu Üniversitesi üçüncü ve dördüncü sınıflarda öğrenim gören öğretmen adayları oluşturmaktadır. Araştırmada amaçlı örnekleme tekniklerinden tabakalı örnekleme tekniği kullanılmıştır. Araştırmanın birinci aşamasında kullanılan ölçme aracının öğretmenlik uygulamasına ilişkin sorulara yer vermesi ve uygulama boyutunun hizmet öncesinde öğretmen kimliğinin oluşumunda oldukça önemli olduğu düşüncesinden hareketle "öğretmenlik uygulaması" ve "okul deneyimi" derslerini almış olan üçüncü ve dördüncü sınıfta öğrenim gören öğretmen adayları araştırmanın örnekleminde tabaka olarak ele alınmıştır. 2018-2019 eğitim öğretim yılında bu tabakada yer alan 364 öğretmen adayı araştırmanın örneklemini oluşturmuştur. Araştırmanın nitel boyutunda ise maksimum çeşitlilik örneklemesi kullanılmıştır. Araştırmanın nicel aşamasına katılmış, farklı bölümlerde öğrenim gören 14 öğretmen adayı ile yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Görüşmeler 19.03 ila 72.30 dakika arasında sürmüştür.

Araştırmanın Bulguları: Araştırmanın bulguları öğretmen adaylarının mesleki kimliklerini etkileyen etmenlerden kişisel özellikler boyutunun en yüksek ortalamaya sahip olduğunu ortaya koymaktadır. Araştırmanın nitel bulgularından elde edilen görüşlerde bu bulguyu desteklemektedir. Çocukları sevme, sabırlı olma, hoşgörülü olma, öğrenme hazzı gibi kişisel özelliklerin öğretmen kimliğini etkileyen etmenlerden olduğu ifade edilmiştir. Öğretmenlik deneyiminin, öğretmenlik eğitimi süresince öğretmen kimliğini etkileyen önemli etmenlerden biri olduğu sonucuna ulaşılmıştır. Araştırmanın nitel boyutundan elde edilen bulgular da bu sonucu desteklemektedir. Öğretmen adayları fakültedeki derslerden daha çok öğretmenlik deneyimi sürecinde kendilerini öğretmen olarak hissettiklerini, öğretmenlik deneyiminin fakültede öğrenilenlerden farklı olduğunu, kuram ve uygulama arasındaki farklılıklara tanık olduklarını ifade etmektedir. Araştırmanın bulgularına göre "yakın sosyal çevre" ve "medya etkisi" boyutları öğretmen kimliğinin en az düzeyde etkileyen boyutlar olarak ortaya çıkmıştır. Araştırmanın nitel boyutundan elde edilen bulgularda öğretmen adaylarının birkaç istisna dışında filmlerdeki, kitaplardaki ve dizilerdeki karakterlerden etkilenmediklerini ortaya koymaktadır. Öğretmen adaylarının yakın sosyal çevrelerindeki anne, baba, abi/abla ve akrabalar gibi bireylerin de öğretmen kimliğini az düzeyde etkilediği ifade edilmektedir.

"Mesleğin özellikleri", "yükseköğretimden önceki yaşam" gibi boyutların ise öğretmen kimliğini orta düzeyde etkileyen etmenlerden olduğu ifade edilmektedir. Esnek çalışma saatleri ve bu çalışma saatleri dolayısıyla aileye ve özel yaşama zaman ayırabilme olasılığı, tatil olanakları, kazanılan ücret gibi özeliklerin öğretmen kimliğini etkileyen etmenlerden olduğu belirtilmektedir. Öğretmen adaylarının ilkokul, ortaokul ve lise yıllarında rol model olarak aldıkları ve rol model olarak algılanmayacak düzeyde olumsuz davranışlar sergileyen öğretmenlerinin de öğretmen kimliğini etkileyen etmenlerden olduğu vurgulanmaktadır.

Araştırmanın Sonuçları ve Öneriler: Eğitim araştırmaları alanyazında çokça çalışılan bir araştırma konusu olan öğretmen kimliği kavramına yönelik çalışmaların Türkiye'de sıklıkla gerçekleştirilmediği ifade edilebilir. Bu nedenle, öğretmen adaylarının öğretmen kimliğine ilişkin algılarına yönelik çalışmaların farklı örneklemlerde de gerçekleştirilmesinin öğretmen kimliğine yönelik alanyazına yapılacak katkıda önemli olduğu düşünülmektedir. Öğretmen kimliğinin şemsiye bir kavram olduğu ve bu çalışmanın odak noktası olmayan ancak öğretmen kimliğini etkileyen pek çok faktörün olduğu unutulmamalıdır. Bu bağlamda, sosyal politik ekonomik pek çok makro faktörün; öğretmen adaylarının sosyo-ekonomik arka planı, branş farklılıkları gibi pek çok mikro faktörün öğretmen kimliğindeki etkisinin araştırılmasının yararlı olabileceği düşünülmektedir. Bu önerileri dikkate alan daha detaylı çalışmaların yapılmasının bu çalışmanın bulgularını daha anlamlı kılacağı ifade edilebilir.

Anahtar Sözcükler: Öğretmenlik mesleği, mesleki kimlik, öğretmen adayları, öğretmen eğitimi

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Middle School Pre-Service Mathematics Teachers' Opinions related to Mathematics Education for Sustainability*

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ABSTRACT

Purpose: Subject teachers can contribute to education for sustainability by integrating sustainability concept into their courses. By relating mathematics topics with today's world problems, mathematics teachers can realize the significance of teaching sustainability. As a starting point, this study aimed to investigate the opinions of middle school pre-service mathematics teachers related to incorporating sustainability to their teaching.

Method: In this study, a basic qualitative research design was used. The data were collected using semi-structured interviews with 10 middle school pre-service mathematics teachers. A coding manual was developed considering the relevant literature.

Findings: The findings revealed that pre-service mathematics teachers, except one of them, were aware of the concept of sustainability. However, most of them could not describe multiple aspects of sustainability; particularly, they defined sustainability concerning its environmental dimension. They also defined the purpose of education for sustainability as increasing individuals' environmental awareness. Pre-service mathematics teachers stated that while teaching mathematics, sustainability can be both a goal and a context or sustainability can be used as a context.

Implications for Research and Practice: While teaching mathematics, sustainability topics can be used to design worthwhile problems using real-life examples. As a follow-up study, when these pre-service mathematics teachers start their profession, they can be asked to prepare sustainability integrated mathematics lessons and implement with their students. They can be observed and interviews can be conducted to understand their perceptions and experiences related to sustainability integrated mathematics teaching.

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Introduction

The concept of sustainability was first described in the Brutland report by World Commission Environment and Development Commission in 1987. In this report, sustainability concept was defined as "Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development [WCED], 1987, p. 43). In the report of United Nations (UN) Decade of Education for Sustainable Development, United Nations Educational, Scientific and Cultural Organization (UNESCO) described sustainability as an evolving concept that is related to improving everyone's quality of life through considering social, economic development and environmental protection (UNESCO, 2005). As described in the definition of UNESCO, the concept of sustainability includes three crucial dimensions as economy, society and environment. These dimensions are not separated from each other; they are all linked to each other. For creating a healthy society, we need a clean environment, clean air, clean water and clean soil (McKeown, 2002). Accordingly, the United Nations Development Program [UNDP] determined 17 sustainable development goals. These goals are related to combating the threats of climate change, no poverty, qualified education, sustainable cities, zero hunger, gender equity, clean air, clean water, renewable energy and responsible production and consumption. Protecting our planet and providing peace and justice for everyone are the main goals determined by UNDP (2017). Education is the key tool to achieve these goals. The seeds of education for sustainable development (ESD) were planted in the United Nations Conference on Environment and Development (UNCED) in Rio de Janerio (UNCED, 1992). ESD is a holistic and interdisciplinary approach to understand our personal responsibilities on the planet, realizing interdependencies among complex problems threatening our future, such as poverty, climate change and inequality and explore solutions to these problems (UNESCO, 2011). Unless the education system embraces sustainable development, it is challenging to transform our world for a sustainable lifestyle (UNESCO, 2017).

ESD develops individuals' knowledge, skills, attitudes and values to live and work in a sustainable way (UNESCO, 2018) and empowers people in all age groups to take responsible actions for sustainability (UNESCO, 2014). Therefore, ESD is not related to only one discipline. Instead, all disciplines can embrace ESD principles and make changes in their programs accordingly (UNESCO, 2018). Sustainability is an interdisciplinary concept; therefore, an interdisciplinary approach is necessary to integrate ESD into school education (Quinn, Littledyke & Taylor, 2015).

ESD can be integrated to all levels of education from early childhood to higher education and every discipline from art, history to science, and mathematics can contribute to ESD (McKeown & Hopkins, 2003). Therefore, interdisciplinary teaching is one of the essential elements of ESD. Teachers from different disciplines can contribute to ESD (Sund & Gericke, 2020). Teachers play a critical role in reorienting education towards sustainability (UNESCO, 2005). They hold great potential to shape students' worldviews, knowledge, attitude and skills towards sustainability (McKeown, 2012). Successful implementation of ESD depends on teachers' views and

understandings of sustainability and how they incorporate this concept into their pedagogy (Birdsall, 2015). All teachers should be equipped with ESD skills so that they could transfer these skills to future generations (UNESCO, 2005). However, it is still vague about how teachers can incorporate sustainability into their teaching to develop students' awareness of sustainability (Andersson, 2017). It is significant to ask how different subject teachers can implement ESD in their programs. In the literature, there are some research studies using sustainability issues as a cross-curricular teaching. For example, Sund and Gericke (2020) explored how teachers from different subject areas (science, social science and language) can contribute to ESD teaching. They discussed the potential of cross-curricular teaching in ESD. In science education context, a book namely "Educating Science Teachers for Sustainability," has been published by Stratton, Hagevik, Feldman and Bloom (2015) to indicate empirical examples from different countries related to integrating sustainability into science teaching. In some countries' policy documents and curricula, we see examples of integrating sustainability into the curriculum. For instance, the Swedish national curriculum incorporated sustainability concept into all subject areas and both primary and secondary school teachers were responsible for teaching and promoting sustainability (Sund & Gericke, 2020). In New Zealand, all teachers were suggested to include sustainability in their courses to have their students develop a sustainability vision (Quinn et al., 2015). In Turkey, the sustainability concept was included in Grades 3-8 science curriculum within the objective to grow responsible citizens for sustainability (Ministry of National Education [MoNEa], 2018). There are also several studies incorporating sustainability into science teacher education (e.g., Karaarslan-Semiz & Teksöz, 2019).

Concerning holistic and interdisciplinary nature of ESD, the sustainability concept can be linked to mathematics teaching as well. In the international literature, there is little research incorporating sustainability and mathematics teaching (Barwell, 2018). What role can sustainability play in teaching mathematics? Australian and New Zealand mathematics curricula included sustainability as a cross-curriculum priority. In these two curricula, it is emphasized that while exploring sustainability issues, mathematics teachers can develop students' skills to investigate data, evaluate and communicate findings and make predictions based on these findings (Serow, 2015). Hamilton and Pfaff (2014) noted that sustainability topics could provide entry points while teaching mathematics, such as learning statistics, through extreme weather events and income distributions. Mathematics education can make contributions to understanding and responding to environmental issues (Barwell, 2018). Then, the question that arises is what this all means for mathematics teachers. What do mathematics teachers think about integrating sustainability into teaching mathematics? As a first step, there is a need to investigate the opinions of pre-service mathematics teachers on integrating sustainability into mathematics teaching. Thus, based on their opinions, teacher education programs and teaching and learning resources associated with sustainability in mathematics education can be developed. All in all, this study focused on exploring opinions of middle school pre-service mathematics teachers related to incorporating sustainability into mathematics teaching.

Conceptual Framework and Literature Review

UNESCO reports played a key role to conceptualize ESD and determined dimensions of ESD. ESD was defined as an interdisciplinary, holistic and cross-curricular approach and included four dimensions (UNESCO, 2017). These dimensions are *learning content* (critical issues related to sustainability), *pedagogy and learning environments* (designing learner-centered and transformative pedagogical approaches), *learning outcomes* (promoting core competencies related to sustainability) and *societal transformation* (empowering learners to resolve global problems) (UNESCO, 2017). These dimensions characterize and conceptualize ESD implementation. To implement ESD in a successful way, it is crucial to strengthen the capacity of teachers related to teaching sustainability (UNESCO, 2017). In some disciplines like science, sustainability is part of the teaching tradition and core curriculum, while in other disciplines, the sustainability is not part of the teaching programs (Stables & Scott, 2002). This is also true for mathematics**.** Although many connections could be built between sustainability and mathematics, the sustainability concept attracted little attention to mathematics educators (Renert, 2011). Renert (2011) explained the reason for this as mathematics being perceived "as a pure body of knowledge, independent of its environment and value free" (p. 20). Sustainability is an interdisciplinary concept; thus, it could be connected to mathematics subjects. There is a need to rethink mathematics education to educate individuals who are environmentally conscious and aware of sustainability practices (Renert, 2011).

In the literature, there are some studies that connect sustainability and mathematics teaching (e.g., Barwell, 2018; Gutstein, 2007; Hamilton & Pfaff, 2014; Serow, 2015; Steffensen, Hansen, & Hauge, 2016). For instance, Gutstein (2007) brought a different perspective to mathematics education and he demonstrated how social justice could be integrated into mathematics classes. The author suggested that mathematics should be a vehicle for students to understand the socio-political context of their lives. Gutstein and Peterson (2005) stated that while solving mathematics problems, social justice subjects could be used as a catalyst. While investigating home-ownership, loans, mortgages and economic poverty in a math class, students can understand how capitalism works. Mathematics teaching for social justice provides students to act for social change and peacebuilding in the future (Gutstein, 2007). Students can learn to read and write the world with mathematics; however, first, teachers should learn it (Gutstein, 2018). Critical mathematics teaching has a relationship with the social aspect of sustainability as ESD promotes social justice and equity in our communities (UNESCO, 2017).

In addition to the social aspects of sustainability, there are examples indicating how to integrate environmental aspects of sustainability into mathematics teaching. Hamilton and Pfaff (2014) presented several examples. The authors described real-life examples related to sustainability that can be used in both calculus and statistics courses. They asked their students to examine yearly changes on glaciers in Antarctica or oil consumption rates around the world and how it changed over the years. Students used these data to create meaningful curves and analyzed these curves with calculus tools (Hamilton & Pfaff, 2014). Similarly, Serow (2015) suggested math

subjects, such as numbers, statistics, patterns, geometry and algebra, which could be linked to sustainability topics. Students can engage in active mathematical practices while developing their sustainability awareness. In another study, Steffensen et al. (2016) investigated how mathematics teachers connect climate change to mathematics modelling. The authors found that teachers had various aims to use climate change topic in mathematics courses, and they mostly used climate models to teach about mathematical modelling (Steffensen et al., 2016).

Hauge and Barwell (2017) offered a critical mathematics education approach as students could learn the role of mathematics in understanding social, economic, and environmental problems. For instance, the authors noted that in the context of climate change issues, students might use statistical concepts on emission levels, measuring temperatures at a place. Barwell (2018) also suggested critical mathematics education as a theoretical approach to frame research studies related to mathematics education and sustainability. The author argued that critical mathematics education could show students how mathematics can be part of their life and its connection to environmental topics. Barwell (2018) noted that mathematics education would not save the world, but it can help students to understand the current situation of the planet.

In a recent study, Nicol (2018) suggested to use place-based or community-based education for teaching mathematics and emphasized using local and social problems in mathematics education. In the study of Nicol (2018), logging and food production practices in the Haida Gwai region were used as a context for teaching mathematics subjects, which were data collection, data analysis, reading graph and communicating with the data. The author indicated how to integrate local and global sustainability problems into mathematics teaching.

There is a lack of research in Turkey that relates sustainability and mathematics teaching. Mehmetlioglu and Karaarslan (2015) investigated the opinions of Turkish pre-service early childhood teachers about incorporating sustainability into mathematics teaching. The participating pre-service teachers described mathematics topics, such as measurement, counting, classification and patterns, that could be related to sustainability issues, including recycling and reusing. In general, UNESCO's conceptualization of ESD and relevant literature guided this study to reveal middle school pre-service mathematics teachers' opinions related to the link between sustainability and mathematics teaching. Incorporating sustainability into mathematics teaching can enable students to integrate their mathematical knowledge and skills into different fields and, at the same time, promote the awareness of sustainability (Serow, 2015). Mathematics education can make valuable contributions to prepare students for critical citizenship and understanding the problems we face today. Mathematics teachers should realize the significance of sustainability topics in mathematics teaching and they should be able to make the connections between the world's problems and their subject area (Renert, 2011). First of all, mathematics teachers need to be aware of education for sustainability and learn how to use it in their mathematics classes. Therefore, there is a need to investigate the readiness of pre-service mathematics teachers concerning integrating the concept of sustainability into mathematics teaching. Accordingly, sustainability-related mathematics lessons can be

prepared by considering the pre-existing conceptions of pre-service mathematics teachers.

The Purpose of the Study

Each discipline can contribute to ESD by providing students the necessary knowledge, skills and values related to sustainability (McKeown & Hopkins, 2003). Mathematics education is one of these disciplines; however, relating sustainability with mathematics teaching is one of the research areas that have not been given the attention that it needs to get. Therefore, this study aimed to explore middle school pre-service mathematics teachers' opinions concerning incorporating sustainability into mathematics teaching. It is significant to integrate ESD into pre-service and in-service teacher education to strengthen teachers' capacity for teaching sustainability. This might be possible by integrating sustainability into different subject areas (UNESCO, 2014). This study can be a starting point by exploring pre-service teachers' opinions on making a connection between sustainability topics and mathematics teaching. The results of this study can provide implications for future studies about using sustainability topics in the mathematics classes to develop students' sustainability consciousness. Accordingly, the research questions of this study are;

1. What are the middle school pre-service mathematics teachers' opinions about relating sustainability and mathematics teaching?
    a. What are the middle school pre-service mathematics teachers' opinions related to sustainability?
    b. How do middle school pre-service mathematics teachers make connections between the concept of sustainability and mathematics teaching?
    c. What are the middle school pre-service mathematics teachers' opinions in terms of which mathematics topics and sustainability issues can be related?

Method

Research Design

To respond to the research questions, in this study, basic qualitative research was used. Basic qualitative research investigates how individuals make sense of a phenomenon based on their own life and experiences (Merriam, 2009). Basic qualitative research explores individuals' interpretations and meanings that they attributed to a phenomenon (Merriam, 2009). This study focused on pre-service mathematics teachers' meanings that they ascribed to the relationship between sustainability and mathematics education; therefore, researchers used basic qualitative research. Using the qualitative study, middle school pre-service mathematics teachers' opinions about the relationship between sustainability and mathematics education were examined.

Context

The participants of this study were fourth-year middle school pre-service teachers at a public university in Ankara. The teacher education program that they were enrolled in was a four-year-long program which aimed to bring up teachers that teach Grades 5-8. The program included mainly content courses (e.g., subject courses that they took from the Faculty of Arts and Sciences), educational sciences courses that they took from the Department of Educational Sciences and the courses that they took from their own program, Elementary Mathematics Education, such as Methods of Teaching Mathematics. The School Experience and Practice Teaching courses took place in the last two semesters. The teacher education program also required students to complete six elective courses. One of the elective courses that were offered to pre-service teachers was "Education and Awareness for Sustainability." This course aimed students to gain awareness of sustainability and help them develop a personal view about issues related to sustainability. In this study, three out 10 teachers stated that they were either taking this elective course at the time of the interview or have already taken in the previous semesters. This will be further elaborated in the findings section.

Participants

The participants of this study were ten fourth-year middle school pre-service mathematics teachers who were studying at a public university in Ankara. Nine out of the participants were female, while one of them was male. Participants' age ranged between 21 and 25. Using purposive sampling method, the participants were invited to this study by visiting two of the three sections of the School Experience course (a total of 24 students), ten pre-service teachers were included in this study within their interests. Purposive sampling method was used because fourth-year pre-service teachers were the target of the study as they had finished most of their teacher education courses and would be close to starting their profession.

Instrument and Data Collection

In this study, the data were collected during the 2017-2018 Fall semester after the Human Subjects Ethics Committee approval of the university was obtained. The data were collected using half hour long individual semi-structured interviews. The interviews were audio recorded to be transcribed later. The researchers had 14 open-ended questions to investigate participants' opinions about sustainability, and the relationship of mathematics education and sustainability (see the Appendix) based on the interview protocol developed by Mehmetlioglu and Karaarslan (2015). The authors in the previous study developed eight open ended questions about relating sustainability and mathematics teaching. In the current study, six more questions were added to the interview protocol to get deeper information about participants' insights, such as asking participants to share a sample activity about integrating sustainability into mathematics teaching.

First, the participants were asked whether they took a course related to sustainability or environment or if they attended a seminar. Then, they were asked whether they were interested in sustainability or environmental issues. Further

questions investigated how they defined sustainability and education for sustainability and how they related sustainability and mathematics teaching, which mathematics topics could be related to sustainability, whether they designed an activity about integrating sustainability into mathematics teaching, and if they did how they would do so.

Data Analysis

After the recorded interviews were transcribed, the data were coded. First, initial coding was used, which was defined as a "First Cycle", an open-ended approach to coding with some recommended general guidelines" (Saldaña, 2009, p. 81). At this stage, some external codes related to the definition of sustainability and definition of education for sustainability were utilized based on Birdsall (2014), Kawaga (2007), Kilinc and Aydin (2011), and McKeown (2002). As new codes emerged, these were added to the coding manual. For example, for the definition of sustainability category, the codes, environmental, economic and social were external codes that come from the literature. Based on participants' responses, "continuity" was added as an emerging code. The codes and categories in Table 1 were used in the data analysis.

Table 1

Categories and Codes Used in the Data Analysis

Categories	Codes
Definition of Sustainability	Environmental, Economic and Social Dimension, Continuity
Definition of Education for Sustainability	Gaining Environmental Awareness, Continuity of Education and Training
Purpose of the Mathematics Education	Relating Mathematics and Life, Gaining Mathematical Thinking Skills
The Relationship between Mathematics Education and Sustainability	Using Sustainability both as a Context and a Goal Using Sustainability as a Context
Mathematics Topics that can be related to Sustainability	Topic examples were provided across all learning domains except probability. (e.g., percent, algebra, modelling, geometry, measurement, data collection and interpretation)
Activities that relate Sustainability and Mathematics	Examples: Wastes—ratio and proportion, sustainable design—geometry, algebra and STEM

As seen in Table 1, each question in the interview protocol referred to a category and related codes were used to analyze responses provided to the question. After the initial coding, focused coding, a second cycle analytic process (Saldaña, 2009), was used to focus only on the codes that were of particular interest to the research questions. The researchers' experiences in science and mathematics education helped them decide codes and categories in the data analysis. The first researcher's academic background is in science education and was experienced in education for sustainability and the second researcher's academic background is in mathematics education. Different academic backgrounds provided a rich source for analyzing the data. To increase the reliability of the coding and the study, the second researcher coded the four randomly

selected interviews, the codes were compared, and the inter-rater agreement among the raters was 80%. The codes and categories of the two coders were discussed, and the changes were reflected in the analysis.

Findings

As mentioned in the methods section, three out of ten middle school pre-service mathematics teachers (PSTs 1, 5 and 9) stated that they were either taking or have taken the "Education and Awareness for Sustainability" course at the time of the interview, while seven of them stated that they did not take such a course in their teacher education program. The ones who took a course stated that their interest in the subject increased. Several other PSTs stated that they were sensitive about environmental issues and provided examples of what they did in daily life. In general, the PSTs who participated in this study were not completely irrelevant to the environment and sustainability issues.

Definition of Sustainability

When PSTs were asked what they understand about the concept of sustainability, half of the pre-service mathematics teachers described the environmental dimension of sustainability, four of them related sustainability with both environmental and economic aspects. One participant defined sustainability as continuity. Those who defined it with the environmental dimension have talked about recycling, reuse, environmental protection and consumption. The following excerpt exemplifies the results:

> PST-2: For example, I am very sensitive about throwing garbage on the ground; I do not.
>
> R: What else could it be?
>
> PST-2: Not to destroy nature or forest. Parks are important. And recycling.
>
> PST-5: Sustainability is something to do with environmentally friendly materials. That's all I know. Things that don't harm the environment.

The participants who defined sustainability with their environmental and economic dimensions mentioned more about local production, reuse, savings, preserving natural resources and leaving a good environment for future generations. The following excerpts exemplify the results:

> PST-1: To use what one has. To use whatever is grown up in the region. To reduce the dependency on the outside. To maintain its continuity. Energy, for instance, to increase [the use of] solar energy.
>
> PST-9: Which materials we use are mixed in the soil, which we do not, we should consider the following years. We should invest. Soil, water, our basic nutrients come to my mind.

One participant defined sustainability as continuity, as presented in the following excerpt:

> PST-8: To maintain and sustain something. You learn something, you teach it to others. If I've learned something, I can use it elsewhere.

Based on the above-mentioned results, it can be inferred that pre-service mathematics teachers had some knowledge related to sustainability, but they mostly defined it with environmental dimensions. They did not have a holistic perspective of sustainability as integrating three pillars of sustainability (social, environmental and economic).

Definition of Education for Sustainability

When asked what education for sustainability meant to them, eight out of ten participants defined it as gaining environmental awareness, two participants mentioned the continuity of education and training (e.g., PST-8).

> PST-3: Helping students gain environmental awareness. Energy resources, for example, if we continuously consume, they will be over. Students need to realize that.

> PST-10: Not disturbing the order of things, not polluting, environmental awareness […] These are the first things I can think of. A lot of garbage is thrown into the sea. The sea sounds infinite. People do it because they don't know that they shouldn't.

> PST-8: To be able to sustain, understand, apply, and to teach this in education

These results suggest that pre-service mathematics teachers did not have much knowledgeable about education for sustainability. They did not have enough understanding of the holistic and interdisciplinary aspect of education for sustainability.

The Purpose of Mathematics Education

Pre-service mathematics teachers were asked about the purpose of mathematics education before they were asked how they relate mathematics education and sustainability. Four out of ten pre-service mathematics teaches mentioned the relation of mathematics and life. Two participants stated helping students gain mathematical thinking skills (e.g., problem-solving skills), and four participants reported both when they were asked the purpose of mathematics education, such as PST-8 explained the relation of mathematics and life, as presented in the following excerpt:

> PST-8: A student is interested in swimming. Relationship between swimming and mathematics. Or the relationship between music and mathematics. For example, when you see the notes, you make 1/2, 1 full strokes according to this. How many angles do you keep your head at swimming? […] Mathematics is crucial to continue our life. Nature, life teaches mathematics in a way.

PST-7 especially noted the significance of mathematical thinking ability for life:

> PST-7: I think mathematics is a more reasonable thing than understanding that 2+2 makes 4. It helps us shape our thoughts in daily life, providing us

> with logical thinking and making decisions. Our choices in daily life, making analysis, problem solving, improving that side of our brain.

PST-4 mentioned the relation of mathematics and life and the purpose of mathematics education as gaining mathematics skills:

> PST-4: It can be associated with problem solving ability. Reasoning, problem solving. We need mathematics everywhere. I can't imagine life without mathematics. I think, as teachers, we need to explain where we can use it [mathematics] in all topics.

When asked the purpose of mathematics education, pre-service mathematics teachers generally described the relation of mathematics education and real life. They were aware that mathematics and mathematical thinking hold a crucial place in every part of life. Several teachers focused on the importance of thinking skills to be gained through mathematics education, including problem solving, analysis, reasoning, which are also emphasized in the goals of the Grades 1-8 Turkish mathematics curriculum (MoNEb, 2018)

The Relationship between Mathematics Education and Sustainability

When the pre-service teachers were asked whether they see a relationship between mathematics course and sustainability, two main codes emerged: 1. Using sustainability as both a goal and a context. 2. Using sustainability as a context. Six of the participants stated that they could include sustainability issues (e.g., energy, water and wastes) in mathematics. Thus, they can help develop sustainability awareness of students. These participants stated that in mathematics classes, students' awareness of sustainability could be increased. For instance, PST-4 stated:

> PST-4: Data analysis, for instance, about sustainability, graphs can be used to analyze how much waste there is over the years. If we give real graphs, we can see how serious the situation is. We can both interpret graphs and realize the seriousness of the situation.

Three pre-service teachers stated the use of sustainability as a context in mathematics education. In other words, they mentioned that mathematics could be taught through sustainability topics. These participants emphasized that sustainability awareness could be given implicitly but not directly. For example, PST-1 said:

> PST-1: When discussing a topic, for example, percentages, a percentage of something can be associated with sustainability issues. Using 2.5% of the world's water, for instance, is related to mathematics.

One participant, PST-8, on the other hand, mentioned the order of the mathematics topics and teaching them in a related way when asked about the relationship between mathematics education and sustainability. PST-8 said:

> PST-8: In mathematics, I learned numbers in the first-grade. In the second-grade addition and subtraction, then integers, rational numbers and I did addition and subtraction of rational numbers. Thus, they are all interrelated.

You learn something; you do not leave it there; they are related. The continuation of mathematics provides sustainability.

Based on the above-mentioned results, almost all pre-service mathematics teachers had some ideas about integrating sustainability into mathematics teaching. While several of them described that sustainability topics could be used as both a goal and a context, others stated that sustainability topics could be used as a context in teaching mathematics. This finding suggests, for them, increasing awareness of sustainability may not be the goal of the mathematics course, but students can gain some awareness of sustainability while learning mathematics. Table 2 summarizes the results mentioned so far.

Table 2

Frequency of the Codes and Categories of Pre-service Mathematics Teachers' Opinions

Categories	Codes	Frequency
Definition of Sustainability	a. Environmental Dimension	5
	b. Environmental and Economical Dimensions	4
	c. Continuity	1
Definition of Education for Sustainability	a. Gaining Environmental Awareness	8
	b. Continuity of Education and Training	2
Purpose of the Mathematics Education	a. Relating Mathematics and Life	4
	b. Gaining Mathematical Thinking Skills	2
	c. Both of them	4
The Relationship Between Mathematics Education and Sustainability	a. Using Sustainability both as a Context and a Goal	6
	b. Using Sustainability as a Context	3
	c. Interrelationship between Mathematics Topics	1

The Learning Areas that were related to Sustainability

When pre-service mathematics teachers were asked which mathematics subjects could be related to sustainability, they gave examples from all learning domains except probability. PSTs' most common examples for the sub-learning domains were percentages, ratio and proportion, measurement of perimeter and area, geometry and data analysis. Some PSTs emphasized more than one learning domain. Table 3 shows the learning and sub-learning domains and their frequencies, which PSTs related to sustainability.

Table 3

Mathematics Learning Domains that PSTs related to Sustainability

Learning Domains	Frequency	Examples for Sub-learning Domains
Numbers and Operations	5	Percentages, ratio and proportion, integers
Geometry and Measurement	3	Measurement of perimeter and area, geometric solids and shapes, angles, transformational geometry
Data Processing	3	Data collection and analysis
Algebra	1*	-
Probability	-	-

*A sub-learning domain for algebra is not mentioned specifically.

Activity Examples that Relate Sustainability with Mathematics Education

During the interview, pre-service mathematics teachers were asked to give sample activities about the mathematics topics that they had mentioned to relate with sustainability in the previous question. Table 4 shows the sustainability issues and mathematics topics in their activity examples.

Table 4

Sustainability and Mathematics in PSTs' Activity Examples

Pre-service teachers	Sustainability and Mathematics Topics
PST-1	a) The use of water resources – percentages b) Renewable energy resources – measuring area and modeling
PST-2	The impact of the waste on the environment – ratio and proportion
PST-3	Recycling, reusing – geometry
PST-4	Sustainable design (biomimicry) – geometry, algebra, STEM, designing a research question – data processing
PST-5	Water consumption – data processing
PST-6	a) Science activity (living creatures and life) – measurement b) Sustainable design – STEM
PST-7	Energy consumption – ratio and proportion
PST-8	Relationships between mathematics topics (e.g., integers and rational numbers)
PST-9	Waste (making compost) – percentages, measurement, geometry
PST-10	Sustainable use of natural resources – the concept of infinity

For instance, PST-5 stated that water consumption and data processing could be related, and she presented the following example:

> PST-5: Data processing, for example. We graph the amount of water by years. First, we give the data, we ask the students to graph it. We tell students about sustainability [...] I think this is in the 7th-grade level. Let's ask them to make predictions according to the data [...] In a year, for example, how much will have changed [...] We compare how much water we consume in a year. I ask them to have them aware of sustainability.

PST-2 gave an example of the impacts of the waste on the environment and its relation with ratio and proportion as presented in the below excerpt:

> PST-2: Seas, for example. I'd do some research. How are living creatures affected by the amount of garbage thrown into the sea? Then, some information could be provided, and ratio and proportion can be set up. If a person is throwing that much garbage in a day and living creatures are being affected that much, how much are the sea creatures in the area affected if there are that many people living there?

PST-4 related sustainable design (biomimicry), geometry and STEM. The participant also mentioned designing a research question. Her response is presented in the below excerpt:

> PST-4: They find a solution from nature and make the design using the solution. It could be geometry. In transportation, in clothing, we come up with problems from daily life, what kind of problems there are in nature, and what kinds of solutions there are, they make designs. Geometry, algebra concepts come to my mind. We can give a theme like transportation. We can ask them to find problems. I'm always thinking about mathematics at the design stage. I think the STEM class. For example, we used it [mathematics] while designing a ship, making a parachute. We did it by finding the surface area.

Participants stated that they had never thought that mathematics teaching could be related to the sustainability concept, and they stated that they could make connections between sustainability issues and many mathematical topics. All of them stated that they need to further develop themselves about how to integrate sustainability topics into mathematics teaching, and they were willing to participate in a workshop that relate to sustainability and mathematics teaching.

Discussion and Conclusion

In this study, middle school pre-service mathematics teachers' opinions about integrating sustainability to mathematics teaching were investigated. According to results, pre-service mathematics teachers, except one of them, were aware of the concept of sustainability. Only three of them stated that they were taking or already have taken an elective course related to sustainability; however, others stated that they had a personal awareness of environmental and sustainability issues. Sustainability is not a new concept in our education system. Turkey started to integrate sustainability into education programs from 2012 with the preparation of The Sustainable Development Report (Teksoz, 2014). Recently, the sustainability concept has been included in both school and higher education programs. Thus, it is not unusual that pre-service mathematics teachers have some awareness about sustainability.

When pre-service mathematics teachers were asked about the definition of sustainability, most of them could not describe multiple aspects of sustainability. Particularly they defined sustainability concerning its environmental dimension. The concept of sustainability is not only related to environmental subjects, it is also linked to social and economic subjects, such as poverty, equity, social justice and fair trade (McKeown, 2002; UNESCO, 2013). In previous studies, a similar tendency was

observed that pre-service teachers from different disciplines had a limited understanding of sustainability and they mostly equated sustainability with environmental issues (e.g., Birdsall, 2014; Kilinc & Aydin, 2013; Summers & Childs, 2007; Tuncer, Tekkaya, & Sungur, 2006). One of the reasons for this result may be that the concept of sustainability has been mostly associated with environmental subjects in the school curriculum (Petersen & Alkis, 2009). For example, in Grades 3-8 Turkish science education curriculum (MoNEa, 2018), sustainability is described as efficient use of resources and recycling; economic and social aspects of sustainability are not included much. While two of the pre-service mathematics teachers defined education for sustainability as continuity of education and training, eight participants defined education for sustainability as related to increasing students' environmental awareness. As participants mostly emphasized the environmental dimension of sustainability, they defined education for sustainability concerning its environmental aspect. Similarly, in different studies that were conducted with pre-service teachers, the results showed that education for sustainability was mostly defined concerning environmental subjects (e.g., Burmeister, Jacob & Eilks, 2013; Evans, Whitehouse, & Hickey, 2012). The reason why pre-service mathematics teachers may not have comprehensive understanding of sustainability could be that lecturers from science, mathematics, and arts education departments do not integrate sustainability in their courses. They mostly describe one dimension of sustainability (Cavas, Ertepinar, & Teksoz, 2014).

Another outcome of this study was that pre-service mathematics teachers described the purpose of mathematics education as relating mathematics and life and helping students gain mathematical thinking skills, such as problem solving. There is a significant relationship between teachers' beliefs related to mathematics education and their practice (Wilkins, 2008). In this study, the majority of the participants described the purpose of mathematics education as relating mathematics and life. Sustainability oriented content can provide real-life examples that can be used in mathematics teaching. For instance, the climate change issue can provide real data for worthwhile mathematics problems. Mathematical models can be used in describing, predicting and communicating climate change (Barwell, 2013). This could also help students develop their mathematical thinking skills, such as problem solving. More than half of the pre-service teachers stated that sustainability could be used both as a goal and a context in mathematics. They suggested sustainability subjects to be included in mathematics to increase students' awareness of sustainability. Other participants except one of them stated that sustainability topics could be used as a context in mathematics lessons. Hamilton and Pfaff (2014) suggested a framework, including sustainability in mathematics courses without sacrificing the course content. The authors noted that a sustainability-oriented context could be used in mathematics teaching and this can help students develop their knowledge and skills related to sustainability. UNESCO (2017) also emphasized that sustainability issues can be integrated into teaching and learning to empower learners to make responsible decisions for the future. The findings obtained in this study suggest that pre-service mathematics teachers were willing to include sustainability topics in mathematics courses. During the interviews, they gave examples of some environmental subjects,

such as environmental pollution, water consumption, recycling, that can be related to mathematics. Renert (2011) mentioned that sustainability solutions, such as carbon storage, zero waste and renewable energy sources, could be possible entry points for sustainable mathematics education. Barwell also (2013, 2018) discussed the role of mathematics in understanding environmental issues, such as climate change, species loss and deforestation. Many laws and policies to overcome climate change threats are prepared based on the predictions of mathematical models related to climate change (Barwell, 2018). Serow (2015) pointed out that while students are exploring sustainability subjects, they can also gain knowledge and skills related to mathematics like problem solving, data collection and data analysis. Furthermore, Erkan, Pfaff, Hamilton and Rogers (2012) suggested that sustainability-themed problems can be used in computing classes for teaching data structures and algorithms. The authors noted that students could learn core computing concepts, and also, they can understand climate change, energy and food issues. Therefore, mathematics education can play a crucial role in preparing students to deal with problems of the world and produce sustainable solutions for these complex problems (Barwell, 2018).

In this study, pre-service mathematics teachers described different mathematics learning domains that can be linked to sustainability. They mostly gave examples related to numbers, geometry, measurement and data processing. Probability was the learning domain that they did not describe in their sustainability and mathematics teaching linked examples. Similarly, Serow (2015) stated that geometry, data analysis and counting can be linked to sustainability. The author also described sustainability examples that can be related to mathematics education, such as water consumption, energy consumption, population growth, renewable energy sources, food production, waste reduction and the greenhouse effect. In this study, pre-service mathematics teachers reported some environmental topics, such as water consumption, wastes, recycling and energy consumption, which can be linked to mathematics education. However, they did not mention climate change, economic development and social justice issues that can be related to mathematics education. Social justice as a social aspect of sustainability takes attention in the literature. Several researchers (e.g., Gutstein, 2007; Karaali & Khadjavi, 2019) describe mathematics for social justice that refers to bringing social justice issues into mathematics classes. Moreover, Hamilton and Pfaff (2019) suggest that social and environmental aspects of sustainability can be linked while teaching mathematics to find solutions to the complex problems of the world. Lastly, in the national literature, Mehmetlioglu and Karaarslan (2015) found similar results concerning integrating sustainability into mathematics teaching. The authors reported that pre-service early childhood teachers were mostly aware of the environmental aspect of sustainability and they were willing to use sustainability issues as a context in their future mathematics classes. Although pre-service mathematics teachers were not so much aware or prepared about how to integrate three dimensions of sustainability into their mathematics classes, they all had a tendency and motivation to connect sustainability and mathematics teaching. Sustainability issues can be utilized in mathematics lessons, which could increase students' awareness of global problems in turn.

Recommendations and Limitations

In this study, it was explored that middle school pre-service mathematics teachers were aware of environmental sustainability, and they had some opinions about how to link sustainability and mathematics teaching. This study was an initial attempt to explore pre-service mathematics teachers' opinions related to sustainability-oriented mathematics lessons. More empirical studies are needed to investigate teachers' ways of engaging sustainability topics into mathematics lessons. Education for sustainability is mostly viewed as challenging for many subject teachers. Teachers need more concrete examples to integrate sustainability into school objectives and their teaching (Waltner et al., 2020). Therefore, teachers' competencies to implement ESD should be developed (UNECE, 2011). Pre-service mathematics teachers should be taught a holistic perspective of sustainability integrating social, environmental and economic aspects. Instead of teaching sustainability topics in isolation, in teaching mathematics, sustainability topics can be used as a context and teaching and learning resources can be developed based on real-life examples. To increase pre-service mathematics teachers' competencies related to ESD, pre-service mathematics teachers could be encouraged to take courses related to environment and sustainability. Recently, the "Sustainable Development and Education" course was included in the elementary mathematics teacher education program (Higher Education Council, 2018) as an elective course. This is progress in increasing sustainability awareness of pre-service mathematics teachers. Additionally, sustainability topics should be incorporated into pedagogical content courses (i.e., courses related to teaching mathematics). In this way, pre-service mathematics teachers can find more opportunities to relate to sustainability and mathematics teaching.

There are several limitations of this study. The study is limited to the data obtained from 10 participants' responses to the interview questions. Also, pre-service mathematics teachers were likely to have more informed opinions than the group they represent because they were a self-selected group. Thus, in further studies, more comprehensive and diverse samples can be chosen. Furthermore, when these pre-service teachers start their profession, they can be asked to prepare and implement sustainability integrated mathematics lessons. They can be observed, and interviews can be conducted to understand their perceptions and experiences related to sustainability integrated mathematics teaching.

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Appendix

Interview Questions

These interview questions are prepared to get your opinions about how sustainability can be related to mathematics education. We request that you sincerely respond to the questions. If you would like to withdraw from the study for any reason, please let us know.

1. Have you taken any course so far related to sustainability or the environment? Which courses did you take?
2. To what extent are you related to sustainability or environmental issues? (Prompts: Have you participated in an activity? Or do you read books or articles about these issues?)
3. What do you understand from the concept of sustainability? Can you explain it?
4. What does education for sustainability mean to you?
5. What do you think the purpose of mathematics education is? Why is mathematics education important?
6. Do you think there is a link or relation between mathematics education and sustainability? Can you explain it?

7. Which mathematics topics or objectives can be related to sustainability? Can you give an example?
8. Have you seen an activity or a lesson plan that sustainability and mathematics education was linked together? Can you explain it?
9. Have you designed an activity that related sustainability with mathematics education? Can you explain it?
10. Can you share a short activity that helps integrate the concept of sustainability into elementary or middle school mathematics education?
11. Do you feel yourself confident in integrating the concept of sustainability into mathematics education? Can you explain it?
12. Would you like to improve yourself about mathematics education for sustainability?
13. Would you like to attend a one-day seminar and workshop "Mathematics Education for Sustainability"?
14. Is there anything you would like to add?

Ortaokul Matematik Öğretmen Adaylarının Sürdürülebilirlik için Matematik Eğitimi Üzerine Görüşleri

Atıf:

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Özet

Problem Durumu: Sürdürülebilirlik için eğitim, bireylerin yaşadığı gezegende kendi rolünü anlaması, geleceği tehdit eden yoksulluk, iklim değişikliği, çevrenin bozulması, nüfus artışı, eşitsizlik gibi karmaşık problemlerin birbirleriyle nasıl ilişkili olduğunu fark etmesini ve sürdürülebilir çözüm yollarının keşfetmesini sağlayan bütüncül ve disiplinler arası bir yaklaşımdır (UNESCO, 2011). Sürdürülebilirlik için eğitim bireylerin sürdürülebilir bir yaşam için gerekli olan bilgi, beceri, tutum ve değerlerle donatılmasını sağlar (UNESCO, 2017). Sürdürülebilirlik kavramı tek bir disiplinle değil, sanat, tarih, fen bilimleri, matematik gibi tüm disiplinlerle ilişkilendirilebilir (McKeown ve Hopkins, 2003). Ancak öğretmenlerin sürdürülebilirlik kavramını öğrencilerine nasıl öğretebilecekleri, nasıl derslerinde kullanabilecekleri hala tartışmalıdır (Andersson, 2017). Literatürde fen bilimleri sosyal bilimler, dil bilgisi gibi derslerde sürdürülebilirlik için eğitimin nasıl uygulanacağı üzerinde çeşitli çalışmalar bulunmaktadır (örn., Sund & Gericke, 2020). Avusturalya ve Yeni Zelanda gibi bazı ülkelerde ise sürdürülebilirlik kavramı tüm öğretim programlarında yer almakta ve öğrencilerin sürdürülebilirlik vizyonuyla yetiştirilmesi vurgulanmaktadır (Quinn vd., 2015). Türkiye'de genel olarak çevre ve sürdürülebilirlik kavramı özellikle fen bilimleri öğretimiyle ilişkilendirilmekte ve fen

bilimleri öğretim programında yer almaktadır. Diğer taraftan matematik öğretiminin sürdürülebilirlikle ilişkilendirilmesi üzerine ulusal ve uluslararası literatürde henüz yeteri kadar çalışma bulunmamaktadır. Örneğin, İklim değişikliği konuları ve matematik konuları arasında yeteri kadar bağlantı kurulmamaktadır (Renert, 2011). Sürdürülebilirlikle ilgili konular gerçek yaşamdan örnekler verilerek matematik derslerinin öğretiminde kullanılabilir (Hamilton & Pfaff, 2014; Renert, 2011). Özellikle son yıllarda sürdürülebilirlik ve matematik öğretimi arasında nasıl bağlantı kurulabileceği üzerine araştırmaların artmaya başladığı söylenebilir (örn., Barwell, 2018; Hamilton & Pfaff, 2014; Hauge & Barwell, 2017; Nicol, 2018; Serow, 2015). Hauge ve Barwell (2017) sosyal, çevresel ve ekonomik problemlerde matematiğin rolünü anlamak için kritik matematik eğitimi yaklaşımını önermişlerdir. Yazarlara göre kritik matematik eğitimi öğrencilere matematiğin yaşamlarının bir parçası olduğunu ve çevre konularıyla ilişkisini gösterebilir. Barwell (2018) matematik eğitiminin dünyayı kurtarmayacak olsa da öğrencilere gezegenimizin durumunu anlamak için yardımcı olabileceğini belirtmiştir. Bu nedenle matematik öğretmenlerinin sürdürülebilirlik için eğitimin farkında olmaları ve sürdürülebilirlik konularının matematik öğretiminde nasıl kullanılabileceğini keşfetmeleri önemlidir. Türkiye'de ise bu alanda yeteri kadar argüman üretilmemiş, çalışma yapılmamıştır. Bu nedenle bu çalışmada sürdürülebilirlik bilincinin matematik derslerinde verilebileceğinden ve matematik öğretmenlerinin bu konuda bilgi ve becerilerinin artırılması gerektiğinden yola çıkılarak matematik öğretiminin sürdürülebilirlikle ilişkilendirilmesi üzerine ortaokul matematik öğretmen adaylarının görüşleri ve hazır bulunuşlukları araştırılmıştır.

Araştırmanın Amacı: Bu çalışmanın amacı ortaokul matematik öğretmen adaylarının sürdürülebilirlik kavramının matematik öğretimi ile ilişkilendirilebilmesi üzerine görüşlerini araştırmak ve sürdürülebilirlik için matematik eğitimi hakkındaki farkındalıklarını ortaya çıkarmaktır. Bu kapsamda bu çalışmada aşağıdaki araştırma sorularına cevaplar aranmıştır:

1) Ortaokul matematik öğretmen adaylarının matematik öğretiminin sürdürülebilirlikle ilişkilendirilmesine yönelik görüşleri nelerdir?

   a. Ortaokul matematik öğretmen adaylarının sürdürülebilirliğe yönelik görüşleri nelerdir?

   b. Ortaokul matematik öğretmen adayları sürdürülebilirlik ile matematik öğretimi arasında nasıl bir ilişki kurmaktadırlar?

   c. Ortaokul matematik öğretmen adayları hangi matematik konuları ve sürdürülebilirlik konularının ilişkilendirilebileceğini düşünmektedirler?

Araştırma Yöntemi: Araştırma sorularına cevap aramak için çalışma temel nitel araştırma deseni (Merriam, 2009) kullanılarak gerçekleştirilmiştir. Yorumlayıcı bir yaklaşımla matematik öğretmen adaylarının sürdürülebilirlik konuları ile matematik öğretiminin ilişkilendirilmesi üzerine sahip oldukları görüşler incelenmiştir. Katılımcılar, Ankara ilinde bulunan bir devlet üniversitesinin son sınıfında okuyan 10 ortaokul matematik öğretmen adayından oluşmaktadır. Katılımcıların 9'u kadın, 1'i erkektir. Katılımcıların kayıtlı oldukları öğretmen yetiştirme programı 5-8. sınıflara

matematik öğreten öğretmenler yetiştirmeyi amaçlayan 4 yıllık bir programdır. Program genel olarak Fen-Edebiyat Fakültesi'nden alınan alan dersleri, Eğitim Bilimleri Bölümü'nden alınan eğitim bilimleri dersleri ile öğretmen adaylarının kendi programlarından aldıkları matematik öğretimiyle ilgili derslerden oluşmaktadır. Ayrıca program matematik öğretmen adaylarına 6 seçmeli ders önermektedir. Bu derslerin arasında "Sürdürülebilirlik için Eğitim ve Farkındalık" dersi de yer almaktadır. 10 öğretmen adayından 3'ü görüşmeler sırasında bu seçmeli dersi aldığını ya da almakta olduğunu belirtmiştir. Katılımcılar Matematik Öğretmenliği programında derslerinin çoğunu tamamlamış olmaları ve öğretmen olmaya yakın oldukları için amaçlı örneklem yöntemiyle seçilmişlerdir. Çalışmanın verileri ise, 2017-2018 Güz yarıyılında yarı yapılandırılmış yaklaşık yarım saat süren bireysel görüşmeler yapılarak toplanmıştır. Görüşmeler deşifre edildikten sonra, çalışmanın verileri kodlanmıştır. İlk olarak, "Birinci Döngü, önerilen bazı genel yönergelerle kodlamaya açık uçlu yaklaşım" olarak tanımlanan ilk kodlama kullanılmştır (Saldaña, 2009, s. 81). Bu aşamada, sürdürülebilirlik tanımı ve sürdürülebilirlik için eğitim tanımına ilişkin literatürden gelen kodlardan yararlanılmıştır. Örneğin, sürdürülebilirlik tanımı ve sürdürülebilirlik için eğitim tanımı ile ilgili kod ve kategoriler Birdsall (2014), Kawaga (2007), Kilinc ve Aydın (2011) ve McKeown (2002)'nin çalışmaları incelenerek oluşturulmuştur. Analiz sırasında yeni kodlar çıktıkça kod listesine eklenmiştir. İlk kodlamadan sonra, odaklanmış kodlama, ikinci döngü analitik süreç olarak (Saldaña, 2009), yalnızca araştırma sorularını ilgilendiren kodlara odaklanmak için kullanılmıştır. Verilerin analizinde kodlama güvenirliği için ikinci araştırmacı da rastgele seçilen dört görüşmeyi kodlamış, kodlar karşılaştırılmış ve güvenirlik %80 olarak bulunmuştur.

Araştırma Bulguları: Ortaokul matematik öğretmen adayları ile yapılan görüşmeler sonucunda 10 katılımcıdan 3'ü araştırma esnasında çevre ve sürdürülebilirlikle ilgili bir seçmeli ders alıyor olduğunu ya da aldığını belirtirken, 7'si lisans programında böyle bir ders almadıklarını ifade etmişlerdir. Ders almakta olan katılımcılar sürdürülebilirlik ve çevre ile ilgili konulara daha fazla ilgililerinin arttığını belirtmişlerdir. Analizden elde edilen sonuçlara göre toplam 6 kategori altında kodlar oluşturulmuştur. Bu kategoriler şöyledir: "Sürdürülebilirliğin Tanımı", "Sürdürülebilirlik için Eğitim'in Tanımı", Matematik Eğitimi'nin Amacı", "Matematik Öğretimi ve Sürdürülebilirlik Arasındaki İlişki", "Sürdürülebilirlikle İlişkilendirilebilen Matematik Konuları" ve "Sürdürülebilirlikle ve Matematiği İlişkilendiren Etkinlik Örnekleri". Katılımcılar daha önce matematik eğitiminin sürdürülebilirlik kavramıyla ilişkilendirilebileceğini hiç düşünmediklerini dile getirmişlerdir. Ancak görüşmeler sırasında verdikleri yanıtlardan çeşitli matematik ve sürdürülebilirlik konuları arasında bağlantı kurulabileceğini ifade etmişlerdir. Sürdürülebilirlik ve matematik öğretimi arasındaki ilişkiyi açıklarken iki temel kod ortaya çıkmıştır: 1. *Sürdürülebilirliğin hem amaç hem de bağlam olarak kullanılması ve* 2. *Sürdürülebilirliğin sadece bağlam olarak kullanılması*. Katılımcılardan 6'sı matematik konularını anlatırken sürdürülebilirlik konularına (örn., enerji, su, atıklar) yer verilmesi gerektiğini ve böylece öğrencilerde sürdürülebilirlik bilincinin de kazandırılabileceğini ifade etmişlerdir. Üç öğretmen adayı ise matematik öğretiminde sürdürülebilirliği bağlam olarak kullanılmasından yani sürdürülebilirlik konuları

temel alınarak matematik derslerinin işlenebileceğini belirtmişlerdir. Bu katılımcılar sürdürülebilirlik bilincinin doğrudan değil ancak örtük olarak verilebileceğini vurgulamışlardır. Katılımcılar sürdürülebilirlik konularıyla ilişkilendirilebilecek çeşitli matematik konu alanlarından da bahsetmişlerdir. Örneğin, sayılar, işlemler, veri işleme, geometri ve ölçme gibi konular en çok örnek verdikleri alanlardır. Sürdürülebilirlik ile ilgili konulardan ise özellikle su tüketimi, geri dönüşüm, atıklar ve enerji tüketimi gibi konuların matematik öğretimiyle ilişkilendirilebileceğini ifade etmişlerdir.

Araştırma Sonuçları ve Öneriler: Bu çalışmada öğretmen adaylarının açıklamaları sürdürülebilirlik konularının matematik dersi ile nasıl ilişkilendirilebileceği ile ilgili yol göstermektedir. Öğrenciler sürdürülebilirlikle ilgili konuları keşfederken aynı zamanda matematikle ilgili veri toplama, verileri analiz etme, problem çözme gibi pek çok beceriyi kazanabilirler (Serow, 2015). Çalışma sırasında matematik öğretmen adayları verdikleri örneklerde matematikle ilgili pek çok öğrenme alanından bahsetmişlerdir. En çok örnek verdikleri matematik öğrenme alanları, sayılar, geometri, ölçme ve veri işlemedir. Benzer şekilde, Serow (2015) geometri, veri analizi ve sayılar gibi matematik öğrenme alanlarının sürdürülebilirlikle ilişkilendirilebileceğini ifade etmiştir. Serow (2015) aynı zamanda su tüketimi, enerji kullanımı, nüfus artışı, yenilenebilir enerji kaynakları, atıkların azaltılması, sürdürülebilir gıda üretimi, sera gazı etkisi gibi sürdürülebilirlikle ilgili çeşitli konulara yer vermiştir. Bu çalışmada ise matematik öğretmen adaylarının sürdürülebilirlikle ilgili verdikleri örnekler özellikle çevresel sürdürülebilirlik üzerine bulunmuştur. Sürdürülebilir gıda üretimi, iklim değişikliği, ekonomik gelişme, sosyal adalet gibi konularla ilgili yeteri kadar örnek sunulmamıştır. Çalışmaya katılan ortaokul matematik öğretmen adaylarının sürdürülebilirlikle matematik konularının ilişkilendirilebilmesine yönelik olumlu yaklaşımlara sahip oldukları gözlemlenmiştir. Barwell (2018) sürdürülebilirlik konularının matematik eğitimiyle ilişkilendirilmesi üzerine yeteri kadar argüman üretilmediğini, bu konuda daha fazla araştırma yapılması gerektiğini vurgulamaktadır. Buradan yola çıkarak bu çalışmada öğretmen adaylarının verdikleri örnekler sürdürülebilirlik kavramının matematik konularının öğretimiyle nasıl ilişkilendirilebileceği üzerine bazı öneriler sunmaktadır. Matematik konularını öğretirken sürdürülebilirliğin hem bağlam hem de amaç olarak kullanılabileceği algısı ortaya çıkmaktadır. İleriki çalışmalarda matematik öğretmenlerinin derslerinde sürdürülebilirlik konularıyla matematiği nasıl ilişkilendirdiği ile ilgili araştırmalar yapılabilir ve öğretmenler için somut örnekler sunulabilir. Matematik öğretmen adaylarına sürdürülebilirliğin sosyal, çevresel ve ekonomik boyutlarını da anlatarak daha bütüncül bir bakış açısı geliştirmeleri sağlanabilir. Lisans eğitimi sırasında matematik öğretmen adaylarına matematik öğretimi derslerinde sürdürülebilirlik konularını da ilişkilendirebilecekleri fırsatlar sunulabilir. Bu çalışmanın devamı olarak adayların matematik öğretmeni olduklarında kendi sınıflarında sürdürülebilirlik konularını matematik derslerinde nasıl ilişkilendirdikleri gözlemlenebilir ve öğretmenlerin konuyla ilgili deneyimleri ve algıları üzerine görüşmeler yapılabilir.

Anahtar Kelimeler: Sürdürülebilirlik için eğitim, sürdürülebilirlik, matematik öğretimi, ortaokul matematik öğretmen adayları

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Investigating the School 2023 Project through the Lens of Teachers: A Case Study

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ABSTRACT

Purpose: Turkey has gained a new education policy together with the introduction of 2023 Educational Vision. With this motivation, the Antalya Provincial Directorate of National Education has started a project entitled "School 2023" to contribute to the goals of this vision. This research aimed at examining the opinions of the teachers, one of the greatest shareholders of the project, about the School 2023 Project.

Method: The research adopted the case study design of qualitative research methods. The study group consisted of 27 voluntary teachers, 16 female and 11 male teachers. A semi-structured interview form was used to receive teachers' opinions about the School 2023 Project. The collected data were analyzed through content analysis technique.

Findings: When the findings of the research were examined, it was observed that although the opinions of the teachers were generally positive, there were some deficiencies about the project. The fact that bringing together different activities with students contributes to equality of opportunity was the most important positive impact of the project. Workshops and materials provided with financial assistance to the schools involved in the project created a positive atmosphere especially at schools in the rural areas.

Implications for Research and Practice: The project has the potential to contribute to the realization of an important reform such as the 2023 Educational Vision. In this respect, transition process of the project can be positively affected when it is carried out in different provinces and within different school types, and the possible effects are evaluated by the researchers.

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Introduction

In today's world, education is considered as the most fundamental element in the realization of social development and transformation. The rapid progress of technology and the desire of societies to be a part of the global order obliged individuals of this century to acquire some basic skills. These skills are cited as critical thinking skills, problem-solving skills, communication and maintenance skills, cooperation, information and technology literacy, flexibility and adaptability, global competencies, and financial literacy. (Partnership for 21st Century Skills, 2009). They can only be gained through a systematic training process in accordance with the standards of the age. Today, countries are taking remedial, regulatory and improving steps towards education in order to raise the level of education of societies since education is seen as one of the most important factors in measuring the development levels of countries. (Ginsburg, Moseley & Pigozzi, 2010; Glennerster, Kremer, Mbiti & Takavarasha, 2011). Within this framework, education reforms have been made in regions such as Malaysia, Poland, Japan, and Hong Kong and new targets have been set for education systems. (Jakubowski, 2015; Kennedy, 2012; Nurul-Awanis, Hazlina, Yoke-May & Zariyawati, 2011; Yuda & Itoh, 2006). New reforms in this area continue in our country as well. The "FATİH Project" and "4 + 4 + 4 education system", which were recently implemented and aimed at ensuring equal opportunities in education, can be given as examples of these reforms. Nowadays, it can be said that the biggest target for our education system is the 2023 Educational Vision set by the Ministry of National Education.

The main purpose of the Educational Vision 2023, which will be carried into action with the motto of "Happy Kids, Strong Turkey", is to train qualified and moral individuals who are equipped with the skills of the age and the future and who can use this equipment for the sake of humanity, who are science-loving, curious and sensitive to culture. Within this framework, it is planned to establish design-skill workshops in schools in order to ensure the development of students' interests, abilities, and characters. In addition, it is stated that compulsory course hours and types will be reduced and time to deepen, personalize and practice is provided, on condition that the compulsory courses related to basic skills are preserved. (MNE, 2018). With the introduction of the 2023 Educational Vision, which aims to direct students from theoretical expression to practical activities, to develop their personal skills and to make the school a living space, the School 2023 Project was put into practice by the Antalya Provincial Directorate of National Education to contribute to these goals.

The School 2023 is a project started to be implemented in 14 voluntary schools in the second semester of the 2018-2019 academic year, provides leisure time for students within the school, and enables students to realize their own learning adventure by moving away from the competition and rivalry environment in the school. In the project introduction published by Antalya Provincial Directorate of National Education, the school is defined as an ecosystem which enriches students' skills and leads to happiness; internalizes their life skills along with universal, national and spiritual virtues; which is appropriate to individual, academic and social development

goals that support the development of students towards their interests, abilities and characters; and which is based on sharing-based understanding instead of competition and rivalry oriented perspective. Within the scope of the project, there is a list of activities where teachers and trainers serve as instructors and students can choose freely according to their wishes.

In this list; sports activities (sports-based skills, chess, football, volleyball, basketball, table tennis, badminton, dart, judo, taekwondo, go), folk dances (halay, zeybek, horon, bar, welcome, spoon folk dances), music and show activities (guitar, baglama, mandolin, flute, keyboard, violin, bagpipe, kemancha, rebab, rhythm instruments, clarinet, drums, zurna, creative drama, semah), visual art activities (painting techniques, varieties of painting, design studies, clay works, ceramic works), computer activities (operating systems, word processing, spreadsheets, presentation preparation, e-mail), model aircraft construction (Ata production, Flamingo-FIH production, stork-FIA production), self-development (basic religious sciences, etiquette, children's yoga, efficient study methods, effective and fast reading techniques, effective listening techniques, diction course, writing skills, intelligent games), traditional children's games (blind man's buff, elflock, tipcat, hide-and-seek, bulbul in cage, surprise, hot ball, open door, rope jumping, dodge ball, Beyblade, jacks, seven tiles, handkerchief picks, duck duck goose, hopscotch) and foreign language education (English, German, Russian, French) are offered to students.

At the beginning of the semester, a "Leisure Time Activity/Student Course Questionnaire" is delivered and the students are asked to select the ones that are suitable for their interests and skills and submit them to the school administration after getting it signed to their parents. Later, the school administration determines the activities be opened by considering the students' wishes and current conditions. Teachers of the school are involved in some of the activities, while in the more specific areas, trainers from the Public Training Center are assigned.

In primary and middle schools, which provide voluntary participation in the project, the break time is increased to 40 minutes and students are given the opportunity to know and realize themselves through activities that are appropriate to their interests, abilities, and characters. These activities can be considered as leisure time activities. While the concept of leisure time is defined by Broadhurst (2001) as the period of time that one can freely use; Tezcan (1993) defined the time in which the person gets rid of all responsibilities both for himself and others and will engage in an activity of his choice. Leisure time is defined as the time which a person devotes to personal preferences apart from the activities performed for continuing his life (Gokce, 1984); a special area of individuals' life which gives pleasure, enhances personal satisfaction, provides alternatives, and offers creativity (Ozdemir, Karakucuk, Gumus & Kiran, 2006) In addition, it is characterised as psychological and physiological satisfaction that enables a person to rest and relax, and increases his knowledge and experience (Yetim, 2005). In the School 2023 Project, the students have leisure time to explore their personal skills, to relax, and to feel the school as a living space. In this leisure time, teachers as practitioners have the greatest responsibility. Teachers act as instructors in the activities chosen by the students and contribute to the development

of their personal skills. Moreover, the teachers in the project spend more time at school and communicate with the students more. In this context, it is very important to determine the opinions of the teachers, the implementers of the project, about the School 2023 Project and present it in line with the evaluations of the practitioners. The aim of this study was to determine the opinions of practitioner teachers about the School 2023 Project.

Method

Research Design

The research adopted the case study design of qualitative research methods. A case is a phenomenon that is observed at a single point within a certain time interval and always occurs in a limited context (Gerring, 2007; Miles & Huberman, 1994). The case study is defined as an in-depth description and examination of a limited system (Merriam, 2015). In addition, case studies provide wide and significant perspectives on events and behaviours (Brown, 2008) and from this aspect, they are considered as an important source of information. This research aimed at describing and examining the School 2023 Project, which is implemented within a limited system, thoroughly. Besides, the teachers' opinions are a source of information for researchers in understanding and describing the project in depth. These aspects of the research are considered appropriate to the nature of the case study design.

Study Group

The research was conducted with the teachers who were working at the voluntary primary and middle schools of the School 2023 Project. The project is carried out on a voluntary basis at a total of 14 schools, 10 primary and 4 secondary schools within the borders of Antalya. The study group consisted of 27 voluntary teachers, 16 female and 11 male teachers, with a maximum of two teachers from each of the schools. Descriptive information about the participants in the study group is shown in Table 1.

Table 1

Descriptive Information about the Participants

Demographic Information		**N**
School Stage	Primary school	19
	Middle school	8
Experience	1-10 years	7
	11-20 years	13
	21-30 years	7
Gender	Female	16
	Male	11
Age	30-40	16
	41-50	9
	51-60	2

Table 1 Continue

Demographic Information		N
Activities conducted by primary school teachers as trainers	Traditional child games	9
	Intelligence games	4
	Agriculture-Landscaping	3
	Visual arts	2
	Folk dances	2
	Efficient study techniques	1
	Yoga	1
	Model aircraft construction	1
	Chess	1
	Music	1
	Painting techniques	1
	Gymnastics	1
	Coding	1
	Robotics	1
	English	1
Activities conducted by middle school teachers as trainers	Traditional child games	3
	Music	2
	Writing skills	1
	English	1
	Yoga	1
	Robotics	1
	Organic agriculture	1

19 of the teachers in the study group work at primary school and eight of them work at middle school. When the seniority of the teachers was examined on a yearly basis, it was found that there were seven teachers whose seniority was between 1-10 years, 13 teachers between 11-20 years and seven teachers between 21-30 years. In addition, 16 of the teachers were in the 30-40 age range, nine teachers were in the 41-50 age range, and two teachers were in the 51-60 age range. In addition, all of the teachers in the study group took part in the leisure time activities implemented within the scope of the project and served as trainers in at least one activity. The list of activities did not differ at primary or secondary school levels. The activities that the teachers have taken part in the research process are shown in Table 1. However, these activities might have varied every month and teachers could take part in different activities.

Data Collection Tool

A semi-structured interview form was used to receive teachers' opinions about the School 2023 Project. Semi-structured interviews enable participants to explain the perceived world with their own thoughts (Merriam, 2013). Therefore, the interview form prepared for this purpose included questions about collecting the teachers' demographic information and getting their opinions about the School 2023 Project. The questions were initially evaluated by the experts to ensure the content validity, and the interview form was finalized by administering the pilot form to test the functionality of the questions.

Data Collection Process

A research team was formed with eight researchers working at Akdeniz University Faculty of Education in order to examine and evaluate the school 2023 project. The researchers conducted studies with principals, teachers and other stakeholders to explore different aspects of the project. In this study, which aimed to examine the school 2023 project in line with the teachers' opinions, semi-structured interviews were conducted with the teachers in the data collection process. During the interviews, the teachers were assured that their personal information would be kept confidential and that the data would be used only within the scope of this research. By this way, they were tried to provide responses that would best reflect their feelings and thoughts.

Data Analysis

In order to begin the analysis of the data, the participants' interview records were transcribed. Subsequently, the participant interview forms were numbered from T1 to T27 to avoid any confusion during the analyses and reporting. The aim was to provide evidence for validity by supporting the themes presented in the findings with participant opinions. The content analysis technique was used for the analysis of the data obtained from the interviews. The content analysis involves the process of defining, coding and collecting data under the themes (Patton, 2018; Yildirim & Simsek, 2011). In the qualitative research data, the researcher tries to find out what fits together and seeks coordinateness. In this way, sub-themes that can be divided into codes and themes that can be divided into sub-themes are determined (Patton, 2018). In the analysis of the data, this path was followed, and two researchers took charge in creating codes, sub-themes and themes. In order to increase the reliability of the data analysis processes, the concordance assessment between themes, sub-themes and codes was conducted. The differences were discussed, and themes, sub-themes and codes were arranged.

Findings

This part includes findings obtained from the analysis of the research data. The findings were presented with tables, explanations and excerpts from participants' responses. In this context, all themes and sub-themes are shown in Table 2.

Table 2

Themes and Sub-Themes

Theme	Sub-theme
General opinions	Positive opinions
	Negative opinions
Opinions about the activities	Positive opinions
	Negative opinions
Opinions about the impact of the project on teachers	Positive effects
	Negative effects

Table 2 Continue

Theme	Sub-theme
Opinions about the impact of the project on students	Evaluations by academic achievement
	Evaluations by self-improvement
	Evaluations by school belonging
	Evaluations by socialisation
	Evaluations by the interest in the class
Suggestions for the project	Suggestions for activities
	Suggestions for infrastructure
	Suggestions for courses
	Suggestions for teachers
	Suggestions for trainers

When Table 2 is examined, it is seen that the all opinions of the teachers about the School 2023 Project were gathered under the themes "*General opinions*", "*Opinions about the activities*", "*Opinions about the impact of the project on teachers*", "*Opinions about the impact of the project on students*" and "*Suggestions for the project*".

The teachers' general opinions about the School 2023 Project were gathered around the sub-themes of "*Positive opinions*" and "*Negative opinions*". Sub-themes and codes related to this theme are presented in Table 3.

Table 3

Teachers' General Opinions about the School 2023 Project

Sub-theme	Code	Participants	f	%
Positive opinions	Students' participation in different activities contributes to equality of opportunity.	T2, T3, T6, T7, T8, T15, T16, T18, T19, T20, T22, T26, T27	13	48.15
	Students are exploring their interests and skills.	T6, T8, T12, T14, T15, T16, T17, T20, T21, T22, T23, T27	12	44.44
	It has a positive effect on peer interaction and cooperation.	T6, T7, T9, T10, T14, T15, T17, T20, T21, T23, T26	11	40.74
	It helps students see the school as a living space.	T3, T4, T5, T6, T11, T15, T19, T23, T25, T26, T27	11	40.74
	It supports students' development areas.	T2, T5, T7, T8, T9, T11, T14, T16, T17, T20	10	37.04
	Students' interest in the course and their academic success are increasing.	T5, T6, T8, T14, T15, T23, T26	8	29.63
	Teacher-student interaction is increasing.	T5, T12, T21, T23	4	14.81
	In-school discipline problems are diminishing	T5, T8	2	7.41

Table 3 Continue

Sub-theme	Code	Participants	f	%
Negative opinions	There are various problems in schools with poor infrastructure.	T1, T3, T4, T9, T10, T12, T13, T14, T19, T20, T22, T24, T27	13	48.15
	The students had adaptation problems to the course after the activity.	T2, T6, T7, T10, T11, T13, T15, T18, T22, T25, T26, T27	12	44.44
	It causes extra intensity and fatigue in students.	T1, T2, T3, T8, T13, T18, T19, T20, T25, T27	10	37.04
	There are problems in the implementation process.	T1, T2, T3, T5, T19, T23, T24, T27	8	29.63
	Teachers' time and workload at school are increasing.	T2, T3, T8, T15, T18, T23, T27	7	25.93
	Disciplinary problems occur in the school since the project grants freedom to the students.	T3, T18, T19, T22, T23, T25	6	22.22
	Students' performance in studying a course decrease.	T3, T4, T13, T14, T19	5	18.52
	Some trainers are pedagogically inadequate.	T7, T8, T20, T24	4	14.81
	Students get bored.	T3, T4, T8, T20	4	14.81

When teachers' positive opinions about the project are examined, it is seen that the code *"Students' participation in different activities contributes to equality of opportunity"* has the highest repetition value (f=13). The least expressed code (f=2) under this sub-theme was *"In-school discipline problems are diminishing."* On the other hand, in the negative opinions of teachers about the project, the code *"There are various problems in schools with poor infrastructure"* was repeated at most (f=13). In this sub-theme, *"Some trainers are pedagogically inadequate"* and *"Students get bored"* are the least frequent codes (f = 4). Some excerpts of teachers' opinions for the sub-themes "*Positive opinions*" and "*Negative opinions*" are as follows:

T7: *"Our parents are slightly below the middle line in terms of socially, economically and culturally. Therefore, we have a child profile that cannot take part in social activities and cannot feel such an environment. In this sense, of course, it was a very positive study for our children to get acquainted with social activities. They created an area outside the classroom, where they could express themselves outside of academic success, share something to socialize, gain self-esteem."*

T4: *"We don't have workshops or gym. In short, this infrastructure must be established first to carry out such activities efficiently."*

T11: *"After 40 minutes of activity, it takes time for them to be motivated, which leads to negative consequences for the course."*

T21: *"In general, it is a good project in order to reveal the talents of children. Thanks to this project, I saw different aspects of my students that I did not notice."*

The opinions of the teachers about the leisure time activities in the School 2023 Project were gathered around the sub-themes of *"Positive opinions"* and *"Negative opinions"*. Sub-themes and codes related to this theme are presented in Table 4.

Table 4

Findings of Teachers 'Opinions on the Leisure Time Activities in the School 2023 Project

Sub-theme	Code	Participants	f	%
Positive opinions	The number of activities and content are sufficient.	T6, T10, T13, T14, T15, T16, T17, T18, T19, T20, T21, T23, T24, T25, T26	15	55.55
	Interest in sports and art activities is high.	T1, T2, T3, T15, T18, T24, T26	7	25.93
	It improves students' personal skills.	T1, T5, T6, T21	4	14.81
	It contributes to school belonging and socialization.	T9, T10, T11	3	11.11
	It improves students' self-confidence.	T5, T15	2	7.41
Negative opinions	Some activities are unnecessary.	T1, T2, T12, T27	4	14.81
	Time allocated for activities is insufficient.	T8, T19	2	7.41
	There are many activities in a day.	T1, T2	2	7.41
	In general, there is no need for activities.	T3	1	3.70
	Activities are not carried out in accordance with the project.	T7	1	3.70

According to Table 4, the most common expression used by teachers in the "Positive opinions" sub-theme was gathered under the code (f=15) *"Number of activities and content are sufficient."* The most commonly used expression in the "Negative opinions" sub-theme was found under the code *"Some activities are unnecessary"* (f = 4). Moreover, when the teachers' statements around this theme were considered, it was found that positive opinions were more than negative opinions. Under "Positive opinions" sub-theme, there were five different codes and these codes were repeated 31 times. On the other hand, it was found that the codes in the "Negative opinions" sub-theme consisted of five different codes and they were repeated 10 times. Some of the teachers' statements about leisure time activities in the School 2023 Project are as follows:

T2: *"There are also unnecessary activities. As I said, we already have some activities that are related to the course. It had better get them out."*

T6: *"In fact, when we look at the list, there is a wide range. There are activities that can appeal to the skills of children in every field both cognitively and psychologically."*

T12: *"It is a project that will support the development of students' interests and abilities."*

T8: *"The children consistently start an activity. Let's say we will make an activity about handicrafts. We spend half an hour until the children come and sit and figure out what I've already done. Then, no time is left for the class. Another class comes, the same things occur.*

Unfortunately, it was not practical in terms of completing an activity and product releasing process."

The opinions of the teachers about the effects of the School 2023 Project in their lives were gathered around the sub-themes of "*Positive effects*" and "*Negative effects*". Sub-themes and codes related to this theme are presented in Table 5.

Table 5

Findings of Teachers' Opinions about the Effects of the School 2023 Project on their lives

Sub-theme	Code	Participants	f	%
Positive effects	It contributes to my personal development.	T6, T8, T11, T12, T15, T21, T23, T24	8	29.63
	It helps communicate with students more and recognize them.	T2, T8, T9, T10, T12, T18, T21	7	25.93
	It provides the opportunity to share knowledge and experiences with students.	T13, T14, T16, T17, T22, T26	6	22.22
	It offers the chance to socialise.	T15, T25, T27	3	11.11
Negative effects	I feel physical fatigue.	T1, T2, T3, T4, T5, T7, T10, T11, T18, T20	10	37.06
	The increase in the length of being at school negatively affects my social life.	T3, T13, T22, T23	4	14.81
	I feel mental fatigue.	T4, T5	2	7.41

When Table 5 was examined, it was found that the teachers mostly converged around the code "*I feel physical exhaustion*" (f=10) in the negative effects. Following it, the code "*It contributes to my personal development*" in the positive effects sub-theme appeared as the most repeated code. However, it was observed that the teachers mostly emphasized the "*Positive effects*" sub-theme (f=24) when it comes to the effects of the project on their own lives. Some of the teachers' opinions on the effects of the School 2023 Project on their own lives are as follows:

T1: *"When we lecture courses for eleven consecutive hours every day, we feel physical fatigue and it affects everything in our life. Since it affected our desire to take the class and motivation to lecture it, the project was negative in terms of this aspect."*

T3: *"We usually leave at 3.00, but now it's 4.30. When we get home, we have a private life. We don't have time for neither our kids nor our home."*

T8: "*It helped me improve more myself in a field I was interested. During the semester, we attended courses and learned games so as to teach different games to the students and spend better time with them."*

T9: "*Yeah, it was effective. It helped me knit my students up more."*

The opinions of the teachers about the positive and negative aspects of the leisure time activities (in terms of the students) in the School 2023 Project were gathered around five sub-themes. Sub-themes and codes related to this theme are presented in Table 6.

Table 6

Findings of Teachers' Opinions about the Positive and Negative Aspects of the Leisure Time Activities in the School 2023 Project for Students

Sub-theme	Code	Participants	f	%
Evaluations by academic achievement	Academic achievement increased.	T5, T6, T8, T10, T11, T12, T17, T19, T23, T27	10	37.04
	Academic achievement has fallen.	T1, T2, T3, T4, T18, T20, T22	7	25.93
	There were students whose academic achievement either increased or has fallen.	T7, T13, T14, T15, T26	5	18.52
	There was no change in terms of academic achievement.	T21, T24, T25	3	11.11
Evaluations by self-improvement	It had positive effects in terms of self-improvement (self-confidence, environmental cleanliness, love of animals, solidarity, sense of responsibility etc.).	T1, T2, T4, T5, T6, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T21, T22, T23, T24, T26, T27	22	81.49
	There were students who were affected by self-improvement either positively or negatively.	T7, T8	2	7.41
	There was no change in terms of self-improvement.	T3, T20	2	7.41
Evaluations by school belonging	Students' school belonging levels increased.	T1, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T21, T23, T25, T26, T27	19	70.37
	There was no change in terms of school belonging.	T2, T4, T19, T20	4	14.81
	There were students whose school belonging either increased or decreased.	T18, T22	2	7.41
Evaluations by socialisation	It had positive effects on socialization (peer relations, teacher relations, etc.).	T1, T2, T3, T4, T5, T6, T8, T9, T10, T11, T12, T14, T16, T17, T18, T19, T21, T23, T24, T25, T27	21	77.77
	Socialization opportunities have disappeared.	T22	1	3.70
	There was no change in terms of socialisation.	T20	1	3.70
Evaluations by the interest in the class	The interest in the class has increased.	T5, T10, T12, T15, T16, T17, T23, T27	8	29.63
	The interest in the class has decreased.	T3, T4, T11, T14, T18, T20	6	22.22
	There was no change in terms of interest in the class.	T7, T8, T21, T22, T24	5	18.52
	The interest in the afternoon classes has decreased.	T1, T2, T19	3	11.11
	There were students whose interest in the class either increased or decreased.	T6, T26	2	7.41

The findings obtained from teachers' opinions about the positive and negative aspects of the leisure time activities in the School 2023 Project for students were gathered under these sub-themes; "*Evaluations by academic achievement*", "*Evaluations by self-improvement*", "*Evaluations by school belonging*", "*Evaluations by socialisation*" and "*Evaluations by interest in the class*". When the codes under the sub-themes were examined, the most repeated codes were "*Academic achievement increased*" (f=10), "*It had positive effects in terms of self-improvement (self-confidence, environmental cleanliness, love of animals, solidarity, sense of responsibility etc.)*" (f=22), "*Students' school belonging levels increased*" (f=19), "*It had positive effects on socialization (peer relations, teacher relations, etc.)*" (f=21), and "*The interest in the class has increased*" (f=8).

Some excerpts of teachers' opinions on the positive and negative aspects of the leisure time activities in the School 2023 Project are as follows:

T23: "*His speech became much different even in his English class. It was nice to see a student, who attended marbling art activity while using his dexterity for a specific project. I certainly believe that academic achievement increased.*"

T15: "*I think that students socially developed in terms of bilateral relations and expressing themselves thanks to their success in activities and expressing themselves in activities.*"

T18: "*I've seen a few students in my class that it provides personal growth. We had children who went to the art class and took the basics of the art class and started to paint successfully. We had students who started to play instruments like flute and keyboard.*"

T27: "*There were those who played hooky. It' never happened this year. Those, who skipped school, come to school with pleasure this year. I think the project is effective. A child wants to be involved where he likes. There are students who come to school only for the activities. They come with pleasure.*"

T5: "*Students stay calm after they discharge outside. Normally, we had to spend 7-8 minutes to motivate them, but now I don't need any time at all. When I directly start to lecture, all eyes are on me. I mean, the attention span has increased.*"

The teachers' suggestions for more effective implementation of the School 2023 Project were gathered under five sub-themes. Sub-themes and codes related to this theme are presented in Table 7.

Table 7

Teachers' Suggestions for More Effective Implementation of the School 2023 Project

Sub-theme	Code	Participants	f	%
Suggestions for activities	Activities should take place in the afternoon or after the class hours have been completed.	T1, T2, T4, T5, T13, T18, T19, T22, T24, T25, T26, T27	12	44.44
	Activities should be provided for children's interests and needs.	T1, T4, T7, T8, T11, T18, T19, T20, T21, T26	10	37.04
	Number duration of activities in a day should be arranged.	T1, T2, T3, T5, T15	5	18.52
	After the activities, a bathroom break should be given.	T6, T13, T14, T21	4	14.81

Table 7 Continue

Sub-theme	Code	Participants	f	%
Suggestions for activities	Students should not be released during the transition between activities, they should be guided by the instructor.	T13, T19	2	7.41
	Students of different age groups should not be together.	T19	1	3.70
	Arrangements should be made for students who do not participate in the activities.	T25	1	3.70
Suggestions for infrastructure	Physical conditions of the school should be improved.	T1, T4, T8, T9, T10, T11, T12, T14, T15, T16, T17, T19, T20, T22, T24	15	55.55
	Workshops should be established.	T4, T8, T15, T19, T20, T21, T22, T24	8	29.63
	Required materials and equipment should be provided.	T6, T9, T10, T11, T16, T17, T20	7	25.93
Suggestions for courses	Basic courses should be taught in the first hours of the day.	T1, T2, T4, T5, T18, T19, T22, T24, T25, T26, T27	11	40.74
	Transitions between courses and activities should be arranged.	T13	1	3.70
Suggestions for teachers	Teachers should take part in activities according to their qualifications.	T12, T17, T21, T23	4	14.81
	Teachers' opinions about the implementation of the project should be received.	T1, T13	2	7.41
	In-service training should be provided to the teachers in the project.	T13, T23	2	7.41
Suggestions for trainers	Trainers with pedagogical formation certificate should be assigned.	T7, T8, T21	3	11.11

According to Table 7, it was found that teachers put forth the most suggestions in the sub-theme "*Suggestions for activities*" (f =35). The code "*Activities should take place in the afternoon or after the class hours have been completed"* which was the most repeated by the teachers under this sub-theme, emerged as the common proposal of 12 different teachers. When the whole theme was taken into consideration, it was found that the code "*Physical conditions of the school should be improved*" in the sub-theme "*Suggestions for infrastructure"* was the most repeated recommendation. Other sub-themes under the theme "*Suggestions for the Project*" were "*Suggestions for courses*", "*Suggestions for teachers*", and "*Suggestions for trainers*". Some of the teachers' suggestions for more effective implementation of the School 2023 Project are as follows:

T4: "*Rather than conducting the project 40 minutes class- 40 minutes of leisure time activity, it can be reorganized in a way that the activities will be in the last hours. At least we*

can efficiently lecture their classes in the morning. By this way, they can discharge through the activities in the last hours and have a rest when they go home. But, when they come to the class after an activity, it is not really productive."

T10: "*Infrastructure and physical conditions should be improved in order to carry out the project more effectively. Equipment for the activities should be provided as much as necessary."*

T19: "*I think that the main courses should be taught in the morning to conduct this project more efficiently."*

T17: "*Teachers should take part in the activities according to their wishes and competences."*

Discussion, Conclusion and Recommendations

This study was conducted to determine teachers' opinions about the School 2023 Project. When the findings of the research were examined, it was seen that although the opinions of the teachers were generally positive, there were some deficiencies about the project. The fact that bringing together different activities with students contributed to equality of opportunity was the most important positive impact of the project. Workshops and materials provided with financial assistance to the schools involved in the project created a positive atmosphere especially in schools of rural areas. In addition to these positive effects, there were also negative thoughts about the project. These thoughts were separately presented for teachers, students, the scope of the project and activities.

In general, teachers found the number and content of the project activities sufficient, while there were the ones who thought that some activities were unnecessary. However, there was only one teacher who thought that activities were unnecessary and should be removed. The teachers generally thought that the activities listed in the project booklet enabled students to improve personal skills and self-confidence. In addition, it is emphasized that the activities have the characteristics that will contribute to their socialization by keeping the students together. When the statements of teachers were examined, it was seen that students were generally more interested in art and sports activities. In the studies conducted in the related literature, it was found that teachers performed art and sports activities in the free activity courses (Dundar & Karaca, 2011) and students participated them willingly (Gurbuzturk & Cakmak, 2017). When the negative opinions about the activities in the project were examined, some of the teachers thought that the number of daily activities should be reduced, and some of them found the duration of the activities insufficient. The activities conducted within the scope of the project were carried out in 40 minutes as in the leisure time activity course. In the studies, it was emphasized by the teachers that the 40-minute was inadequate to perform an activity in a course (Cinoglu & Bagcı, 2018; Gurbuzturk & Cakmak, 2017).

When the teachers' opinions about the impacts of the School 2023 Project on their lives were examined, it was seen that positive effects (f=24) were repeated more frequently than negative effects (f=16). The idea that the project contributed to the personal development of teachers was the most commonly used expression. When the

studies that received the opinions of teachers for the 2023 Educational Vision were examined, it was seen that the expectations that teachers participating in design and skill workshops could improve their personal skills (Dogan, 2019; Kurt & Duran, 2019). In this context, teachers' expectations were parallel to the views of teachers towards this project prepared within the framework of 2023 Educational Vision. Other positive effects of the project on teachers were shown as contributing to their socialization, transferring their experiences to the students, and establishing closer relations with the students. However, in addition to these positive effects, some teachers stated that they experienced both physical and mental fatigue after the activities and could not devote time to their social lives with the increase in their time at school.

Considering the impact of the School 2023 Project on the personal development of the students, 22 of the 27 teachers thought that the activities had a positive effect on their personal development. In addition, two teachers thought that they had no effect, while two teachers stated that they both positively and negatively affected students. When the teachers' opinions about 2023 Educational Vision were taken into consideration, the training to be done in design and skill workshops were seen as positive for the students to discover and develop their talents by being directed to their own interests and areas (Dogan, 2019; Kurt & Duran, 2019). In addition, in different studies, it was found that the personal development of students taking free activity courses was positively affected (Aydemir, Bozkurt & Sekerci, 2015; Tasdemir & Sargin 2015). These findings are in line with the results of our study. In addition, the majority of the teachers in the project believed that students' academic achievement was positively affected, while some claimed that they were adversely affected, and some advocated that no change occurred.

When the impact of activities on students' school belonging is considered, the majority of teachers (f=19) emphasized that students' sense of school belonging increased. When the studies in the literature are examined, it is stated that especially social activities increase children's commitment and make them love school more (Aydemir, Bozkurt & Sekerci, 2015; Cinoglu & Bagci, 2018; Gomleksiz & Ozdas, 2013). Looking at the change in students' interest in the lessons, it was seen that the positive and negative views of the teachers were close to each other. The teachers expressing positive opinions stated that they had positive relations with the students in the activities, and the interest of the students who energized in the activities increased. However, some of the teachers stated that the students came to the lessons tired and they were distracted during the course due to the effect of the leisure time activities. Some of the teachers thought that there were students who were tired of the activities and therefore the students' interest in the lesson decreased especially in the afternoon lessons. While some teachers who commented on the 2023 Educational Vision were positive about the extension of break time periods (Dogan, 2019), some teachers thought that students having a 40-minute break time would experience concentration problems (Kurt & Duran, 2019). In this respect, it is seen that the thoughts about 40-minute leisure time activity differed as expressed in the expectations of teachers. When the impact of the School 2023 Project on the socialization of the students was examined, it was seen that 22 teachers expressed positive opinions. Besides, only one teacher

thought that the socialization opportunities of the students were abolished. In the studies, it is stated that social activities will contribute to the socialization of the students (Bukusoglu & Bayturan, 2005; Cinoglu & Bagci, 2018) and from this aspect, the findings of this research are supported.

Teachers' suggestions for the project were discussed under the headings of activity, infrastructure, lessons, and suggestions for teachers and trainers. When we look at the suggestions for the activities, the implementation of the activities in the afternoon or after the completion of class hours (f=12) was the most frequently repeated recommendation. In this context, it was suggested to take the basic lessons to the first hours and to plan breaks between course-activity transitions. In addition, it was seen that it is very important to present activities aim at the interests and needs of children. In addition, the reduction in the number of activities was also emphasized by some teachers. There were also suggestions regarding the infrastructure. The majority of teachers (f=16) stated that the physical conditions of schools should be adapted and workshops should be established. In addition, some of the teachers mentioned that the materials and equipment required in the activities should be provided.

In the literature, teachers' opinions about the 2023 Educational Vision were taken into consideration and the necessity of developing the infrastructure of schools was emphasized (Dogan, 2019; Kurt & Duran, 2019). In addition to this, the teachers who took the free activity course also drew attention to the lack of lack infrastructure (Ay, Acat & Yuksel, 2016; Aydemir, Bozkurt & Sekerci, 2015; Gurbuzturk & Cakmak, 2017; Sevim Yilmaz, 2015) and material (Sevim Yilmaz, 2015; Tasdemir & Sargin, 2015; Bozpolat, 2016). In the statements of the teachers towards the trainers, it is suggested that the teachers who will participate in these activities should receive in-service training and take part in the activities appropriate to their qualifications. In addition, it was emphasized that the trainers from the Public Training Center should have a pedagogical formation certificate.

Considering the teachers' opinions about the project, it can be said that the project has positive effects although some deficiencies were encountered during the project. In particular, assistance for infrastructure problems has helped to open workshops and meet the material needs for activities, even if they are limited. In addition, it is seen in the studies that instead of performing activities with the students, basic lessons are taught from time to time (Ay, Acat & Yuksel, 2016; Bozpolat, 2016; Cinoglu & Bagci, 2018; Gurbuzturk & Cakmak, 2017; Sevim Yilmaz, 2015). However, it is emphasized that such an application is not made in the School 2023 Project and it is tried to prepare the environments where the students can do their preferred activities through the instructors. In these aspects, the project has the potential to contribute to the realization of important reform such as the 2023 Educational Vision. However, it can only be achieved by joint action of all stakeholders. The studies in the literature emphasize the importance of support for educational reforms (Clark, 2010; Cheng, 2005; Ors, Erdogan & Kipici, 2013; Resnik, 2007; Tutkun, 2010). In this context, the support of teachers as the implementers of the School 2023 Project is of vital importance, and their opinions and suggestions should be taken into consideration.

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Okul 2023 Projesinin Öğretmenlerin Gözünden İncelenmesi: Bir Durum Çalışması

Atıf:

Canbulat, M., Direkci, B., Simsek, E. E., & Simsek, B. (2020). Investigating the school 2023 project through the lens of teachers: A case study. *Eurasian Journal of Educational Research 89, 137-158.* DOI: 10.14689/ejer.2020.89.7

Özet

Problem Durumu: Bilgi çağı olarak adlandırılan günümüzde eğitim, toplumsal gelişimin ve dönüşümün gerçekleşmesinde en temel unsur olarak görülmektedir. Teknolojinin hızla ilerlemesi ve toplumların küresel düzenin bir parçası olma isteği, 21. yüzyılda yaşayan bireylerin bazı temel becerileri kazanmasını zorunlu kılmıştır. Söz konusu beceriler; eleştirel düşünme becerisi, problem çözme becerisi, iletişim kurma ve sürdürme becerisi, işbirliği, bilgi ve teknoloji okuryazarlığı, esneklik ve uyum sağlayabilme, küresel yetkinlikler ve finansal okuryazarlık olarak gösterilmektedir (Partnership for 21st Century Skills, 2009). Bu beceriler ise ancak çağın standartlarına uygun ve sistemli bir eğitim süreciyle kazandırılabilmektedir. Günümüzde ülkeler, toplumların eğitim seviyesinin yükseltilmesi amacıyla eğitime yönelik iyileştirici, düzenleyici ve geliştirici adımlar atmaktadır. Çünkü eğitim, ülkelerin gelişmişlik seviyelerinin ölçülmesinde en önemli faktörlerden birisi olarak görülmektedir (Ginsburg, Moseley ve Pigozzi, 2010; Glennerster, Kremer, Mbiti ve Takavarasha, 2011). Bu çerçevede Malezya, Polonya, Japonya, Hong Hong gibi bölgelerde eğitim reformları yapılmış ve eğitim sistemlerine yönelik yeni hedefler

ortaya konulmuştur (Yuda ve Itoh, 2006; Nurul-Awanis, Hazlina, Yoke-May ve Zariyawati, 2011; Kennedy, 2012; Jakubowski, 2015). Ülkemizde de bu alanda yeni reformlar yapılmaya devam etmektedir. Günümüzde eğitim sistemimize yönelik en geniş çaplı hedefin, Milli Eğitim Bakanlığı'nın ortaya koymuş olduğu 2023 Eğitim Vizyonu olduğu söylenebilir. Öğrencileri kuramsal anlatımdan uygulamaya yönelik etkinliklere yönlendirmeyi, onların kişisel becerilerini geliştirmeyi ve okulu bir yaşam alanı haline getirmeyi hedefleyen 2023 Eğitim Vizyonu'nun tanıtılmasıyla, bu hedeflere katkı sunmak amacıyla Antalya İl Milli Eğitim Müdürlüğü tarafından Okul 2023 Projesi uygulamaya konulmuştur. Öğrencilerin okuldaki yarışma ve rekabet ortamından uzaklaşarak kendi öğrenme serüvenini gerçekleştirmesini sağlamak amacıyla Antalya ilindeki gönüllü okullarda başlatılan proje, öğrencilere sunduğu serbest zaman dilimleriyle (40 dakika şeklinde planlanmış teneffüslerle) okul ekosistemine farklı bir bakış açısı kazandırmaktadır.

Okul 2023 Projesi, 2018-2019 eğitim-öğretim yılının ikinci döneminde gönüllü 14 okulda uygulanmaya başlayan ve okul sınırları içerisinde öğrencilere serbest zamanlar tanıyan bir projedir. Antalya İl Milli Eğitim Müdürlüğü tarafından yayımlanan proje tanıtımında okul; her bir çocuğun değerine değer, mutluluğuna mutluluk katan, evrensel, milli ve manevi erdemlerle birlikte yaşam becerilerinin içselleştirildiği, öğrencilerin ilgi, yetenek ve mizaçlarına yönelik gelişimlerini destekleyen bireysel, akademik ve sosyal gelişim amaçlarına uygun, yarışma ve rekabet odaklı değil paylaşım temelli bir anlayışın hâkim olduğu bir ekosistem şeklinde tanımlanmıştır. Proje kapsamında, öğretmenler ve usta öğreticilerin öğretici olarak görev aldığı ve öğrencilerin kendi isteklerine göre özgürce seçim yapabildiği etkinlik listesi bulunmaktadır. Dönemin başında "Serbest Zaman Etkinlik/Kurs Öğrenci Anket Formu" verilerek öğrencilerden, formda yer alan etkinliklerden kendi ilgi ve becerisine uygun olanları seçmesi ve velisine imzalatarak okul idaresine teslim etmesi istenmektedir. Okul idaresi ise öğrenci isteklerini ve mevcut koşulları göz önünde bulundurarak açılacak etkinlikleri belirlemektedir. . Öğretmenler, öğrencilerin seçmiş olduğu etkinliklerde öğretici olarak görev almakta, onların kişisel becerilerini ortaya çıkarmasına ve geliştirmesine katkı sağlamakta, Ayrıca proje kapsamında görev alan öğretmenlerin genel olarak okulda bulunma ve öğrencilerle iletişimde bulunma süreleri artmaktadır. Bu bağlamda projenin uygulayıcıları olan öğretmenlerin, Okul 2023 Projesi ile ilgili görüşlerini belirlemek ve projeyi uygulayıcıların değerlendirmeleri etrafında ortaya koymak son derece önemlidir.

Araştırmanın Amacı: Araştırmanın amacı, Okul 2023 Projesi'nde görev alan öğretmenlerin projeye yönelik görüşlerini belirlemektir.

Araştırmanın Yöntemi: Araştırma nitel araştırma desenlerinden durum çalışması deseniyle yürütülmüştür. Okul 2023 Projesi'ne gönüllü olarak katılan ilkokullarda ve ortaokullarda görev yapmakta olan 27 öğretmenle çalışma grubu oluşturulmuştur. Okul 2023 projesinin incelenmesi ve değerlendirilmesi amacıyla Akdeniz Üniversitesi Eğitim Fakültesinde görev yapan 8 araştırmacı ile bir çalışma ekibi oluşturulmuştur. Araştırmacılar projenin farklı yönlerini incelemek amacıyla müdürler, öğretmenler ve diğer paydaşlarla çalışmalar yürütmüştür. Okul 2023 projesinin öğretmen görüşleri doğrultusunda incelenmesi amaçlanan bu çalışmada, verilerin toplanma sürecinde

öğretmenlerle yarı yapılandırılmış görüşmeler yapılmıştır. Görüşmelerden elde edilen veriler ise içerik analiziyle çözümlenmiştir.

Araştırmanın Bulguları: Araştırmanın verilerinin analizi sonucunda veriler "Genel düşünceler", "Etkinlikler hakkındaki düşünceler", "Projenin öğretmenler üzerindeki etkilerine yönelik düşünceler", "Projenin öğrenciler üzerindeki etkilerine yönelik düşünceler" ve "Projeye ilişkin öneriler" temaları altında sistemleştirilmiştir. Öğretmenlerin genel düşünceleri, projenin olumlu ve olumsuz yönlerini kendi görüşleri doğrultusunda ortaya koymaktadır. Bunun yanında proje kapsamında yapılan etkinliklerin nitelik ve nicelik olarak yeterli olduğu öğretmenlerin çoğunluğu tarafından ifade edilmiş, ancak olumsuz görüşlerin olduğu da tespit edilmiştir. Öğretmenlerin Okul 2023 Projesinin kendi yaşamları üzerindeki etkileri hakkındaki görüşlerine bakıldığında kişisel gelişimlerine katkı sağlaması, öğrencileri yakından tanımaları gibi pozitif yönlerin yanı sıra özellikle fiziksel olarak yorgunluk yaşadıkları ön plana çıkmıştır. Projenin öğrencilere olan etkisine yönelik öğrenmen görüşlerine bakıldığında öğrencilerin akademik başarı ve derslere olan ilgi düzeylerindeki değişim noktasında tam manasıyla bir fikir birliği sağlanamadığı görülmektedir. Bunun yanında öğrencilerin kişisel gelişimleri, sosyalleşmeleri ve okula aidiyetlerindeki değişimler noktasında öğretmenlerin büyük çoğunluğu projeyi olumlu yönde değerlendirmiştir. Ayrıca öğretmenler etkinliklere, alt yapı düzenlemelerine, derslere, görev alan öğretmenlere ve usta öğreticilere yönelik önerilerde bulunmuştur.

Araştırmanın Sonuçları ve Önerileri: Araştırmanın bulguları incelendiğinde öğretmen görüşleri genel anlamda olumlu olsa da projeyle ilgili bazı eksikliklerin olduğu görülmektedir. Farklı etkinliklerin öğrencilerle buluşturulmasının fırsat eşitliğine katkı sağlaması, proje kapsamında en çok öne çıkarılan olumlu etkidir. Projeye dâhil olan okullara yapılan maddi yardımlarla kurulan atölyeler ve temin edilen materyaller özellikle merkezde yer almayan okullarda olumlu bir hava yaratmıştır. Öğretmenler genel anlamda listede yer alan etkinliklerin, öğrencilerin kişisel becerilerini ve özgüvenlerini geliştirebilecek nitelikte olduğunu düşünmektedir. Ayrıca etkinliklerin öğrencileri bir arada tutarak sosyalleşmelerine katkı sağlayacak türden olduğu vurgulanmıştır. Projede yer alan etkinliklere yönelik olumsuz görüşlere bakıldığında öğretmenlerin bir kısmı gün içi etkinlik sayılarının azaltılması gerektiğini düşünmekte, bir kısmı ise etkinlik sürelerini yetersiz bulmaktadır.

Projenin öğretmenlerin kişisel gelişimlerine katkı sağladığı düşüncesi öğretmenler tarafından en sık kullanılan ifade olmuştur. 2023 Eğitim Vizyonu'na yönelik öğretmen görüşlerinin alındığı çalışmalar incelendiğinde, tasarım ve beceri atölyelerine katılan öğretmenlerin kişisel becerilerini geliştirebileceğine yönelik beklentilerin dile getirildiği görülmektedir (Kurt ve Duran, 2019; Doğan, 2019). Bunun yanı sıra bazı öğretmenler; hem etkinlikler sonrası fiziksel ve zihinsel yorgunluklar yaşadıklarını hem de okulda bulunma sürelerinin artmasıyla beraber sosyal hayatlarına zaman ayıramadıklarını ifade etmişlerdir. Projenin öğrenciler üzerindeki etkisi ile ilgili akademik başarı ve derslere olan ilgi düzeylerindeki değişim noktasında tam manasıyla bir fikir birliği sağlanamadığı görülmektedir. Bunun yanında öğrencilerin kişisel gelişimleri, sosyalleşmeleri ve okula aidiyetlerindeki değişimler noktasında

öğretmenlerin büyük çoğunluğu projeyi olumlu yönde değerlendirmiştir. Alan yazında yapılan çalışmalarda serbest zaman etkinliklerinin öğrencilerin kişisel gelişimlerine (Taşdemir ve Sargın 2015; Aydemir, Bozkurt ve Şekerci, 2015), okul aidiyetlerinin artmasına (Gömleksiz ve Özdaş, 2013; Aydemir, Bozkurt ve Şekerci, 2015; Cinoğlu ve Bağcı, 2018), sosyalleşmelerine (Büküşoğlu ve Bayturan, 2005; Cinoğlu ve Bağcı, 2018) katkı sağladığı görülmektedir. Öğretmenlerin projeye ilişkin önerileri ise etkinlik, alt yapı, ders, öğretmenler ve usta öğreticilere yönelik öneriler başlıkları altında ele alınmıştır.

Bu yönleriyle proje, 2023 Eğitim Vizyonu gibi önemli bir reformun gerçekleştirilmesine katkı sağlayabilecek potansiyele sahiptir. Ancak bunun gerçekleştirilmesi tüm paydaşların ortak hareket etmesiyle sağlanabilir. Literatürde yer alan çalışmalarda da eğitim reformlarına verilecek desteğin önemi vurgulanmaktadır (Cheng, 2005; Resnik, 2007; Clark, 2010; Tutkun, 2010; Örs, Erdoğan ve Kipici, 2013). Bu çerçevede Okul 2023 Projesi'nin uygulayıcısı olarak öğretmenlerin projeye olan desteği hayatî önem taşımakta, görüşlerinin ve önerilerinin dikkate alınması gerekmektedir.

Anahtar Sözcükler: 2023 Eğitim Vizyonu, Okul 2023 Projesi, öğretmen, serbest zaman etkinliği, teneffüs

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Academic Risk Taking Behavior in University Students: Academic Procrastination, Academic Locus of Control, and Academic Perfectionism

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ABSTRACT

Purpose: The aim of this study was to examine how academic procrastination, academic locus of control, and academic perfectionism predicts the tendency of university students' academic risk taking. Also, this study focused on understanding how academic procrastination, academic locus of control, and academic perfectionism of university students had power to predict the students' tendency of academic risk taking.

Research Methods: The study group of this research consisted of 507 (351 female and 154 male) undergraduate students studying at a state university in Turkey during the 2018-2019 academic-year fall semester. The study group was identified using convenient sampling. In this study, the "Personal Information Form", "Academic Risk Taking Scale", "Academic Procrastination Scale", "Perceived Social Self-efficacy Scale", "Academic Locus of Control Scale", and "Academic Perfectionism Scale" were used to collect data. The Pearson Moments Multiplication Correlation Coefficient (r) and stepwise multiple regression analysis were used in the analysis of the data. The upper margin of error is assumed to be 0.05.

Findings: According to the findings obtained, academic procrastination, academic locus of control, and academic perfectionism respectively predicted the academic risk-taking behaviors of university students significantly. Accordingly, as the academic procrastination, academic external locus of control, and academic perfectionism decreased, academic internal locus of control increased, and academic risk-taking behavior increased as well.

Implications for Research and Practice: Research can be done by using other variables to understand academic risk-taking behavior. In addition, various activities can be planned for students to take more risks in academic life, to show less procrastination behavior and to have more internal locus of control.

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Introduction

Education in the 21st century, is an important tool for individuals to develop themselves in modern societies and to exist as qualified individuals in society. While education provides support for individuals to be assertive, responsible, and realistic thinkers, qualified education also brings academic success. Although it is not seen as singularly sufficient for the society to gain momentum, academic achievement is one of the main objectives of educational institutions. There are many variables that are thought to be related to academic achievement. When the gains planned to be obtained as a result of educational experiences are evaluated, we cannot talk about the existence of certain uncertainties. In the face of these uncertainties, we can say that the position of individuals will play a role in their success. In this context, the importance of taking risks as one of the variables leading to academic success can be emphasized. According to Tan, Lim and Manalo (2016) academic risk taking is sufficient in the learning settings.

According to Assaily (2003), risk is defined as accepting the possibility of loss. Risk taking involves the behavior of individuals against this possibility. In other words, behavior with the acceptance of the possibility of unwanted consequences is called taking risks. Young (1991) defines risk-taking behavior as being willing to engage in an unknown behavior, and not primarily thinking of success and failure when trying new and different things. Pannel et al. (2006) express risk-taking behavior as showing courage when it comes to something unknown and emphasize that risk-taking is the desire to try something new and different without focusing on the success or failure as a result. Osman, Hamid and Hassan (2009) emphasize the importance of multi-dimensional thinking, high-level thinking, self-management as well as the ability to take risks in the academic platform.

Academic risk-taking behavior refers to the selection of school success tasks that vary according to the likelihood of success of the students, and also receiving feedback or having an expectation of feedback (Clifford, 1991). According to Korkmaz (2002), academic risk-taking behavior is defined as the determination of students to strive against the difficulties they face during the learning process. Also, Tan et al. (2016) says that the students who can take academic risks can choose more difficult tasks in an easy way. Furthermore, taking risk in academic settings mean that taking a chance to make a mistake, or getting low scores etc. (Tan, 2017). When the literature is examined, it is observed that there are many studies related to risk taking behavior while studies related to academic risk-taking behavior are limited. While it is emphasized that there is a negative relationship between risk-taking behavior and academic achievement (Kıran Esen, 2005); there is a negative correlation between academic risk-taking behavior and fear of negative evaluation (Cetin, İlhan & Yılmaz, 2014) and a positive relationship between problem solving skills and study skills (İlhan, Cetin, Oner-Sunkur & Yılmaz, 2013). Academic risk-taking behavior is one of the important factors related to academic achievement. For example, it is known that there is a positive relationship between academic risk-taking behaviors and positive attitude towards science (Deveci & Aydın, 2018). In addition, in the study conducted by Deveci and Aydın (2018), it was found that students with high academic risk-taking

skills were creative, had higher critical thinking skills, and innovative thinking skills. From these findings, it is obvious that academic success and academic risk-taking behavior are related. On the other hand, the study conducted by Karademir and Akgul (2019) emphasizes that students who perceive themselves as successful exhibit more academic risk-taking behavior. In addition to these findings, Sunkur, Ilhan, Kinay and Kılınc (2014) emphasized that there was a positive relationship between academic risk taking and positive perfectionism, while there was a negative relationship between academic risk-taking behavior and negative perfectionism.

When all these findings are taken into consideration, it is seen that academic risk-taking behavior, which is accepted as positive in contrast to risk-taking behavior, has an important role in students' academic lives. Students' being more successful, innovative and brave in their academic lives is related to their ability to show academic risk-taking behavior. In addition, it is observed that students with academic risk-taking skills have critical thinking and problem-solving skills which are among the necessary skills for both school life and after school life.

Procrastination can be defined as an individual, consciously and under their control, delaying a task and leaving it to be completed at a later time. In addition, procrastination includes the need for an individual to perform an activity or to complete a task, while not having the motivation to perform it (Ackerman & Gross, 2005). When the literature is examined, it can be seen that procrastination behavior is associated with many cognitive, emotional and personality variables. From an emotional perspective, procrastination behavior is associated with fear of failure, anxiety of evaluation (Soloman & Rothblum, 1984), and low self-confidence (Zhang, Dong, Fang, Chai, Mei & Fan, 2017). From a cognitive perspective, perfectionism, difficulty in decision making (Soloman & Rothblum, 1984) and low self-efficacy (Haycock, McCarthy & Skay, 1998) are related to procrastination behavior. When the personality dimension is considered, a positive relationship is observed between neuroticism, which is one of the five factors of personality theory, and procrastination behavior (Wang, Qian, Wang & Chen, 2011).

Academic procrastination behavior, which is a dimension of procrastination behavior, was stated by Akbay (2009) as suspending the works related to academic life (homework, exam preparation, reports to be submitted, etc.) of individuals. Senecal, Julien and Guay (2003), on the other hand, have defined academic procrastination as the tendency to delay starting academic tasks or delaying their completion irrationally. It can be said that academic procrastination behavior in university students is quite a common dynamic. Steel and Klingsieck (2016) underline that academic procrastination is an important obstacle for students' academic achievement. A study by Ozer (2005) reveals that 52% of university students exhibit procrastination behavior. In another study conducted by Soloman and Rothblum (1984), 46% of the students who participated in the study reported that they exhibited procrastination behavior in term papers, 27.6% postponed their studies for exams and 30.1% postponed their weekly assignments. In other words, one in two university students has to cope with academic procrastination behavior. When the literature is examined, a negative relationship is observed between academic procrastination behavior and academic achievement

(Balkıs & Duru, 2010), general competence, and levels of responsibility towards others (Celikkaleli & Akbay, 2013). On the other hand, there is a positive relationship between general procrastination behavior and anxiety, including academic procrastination, and a negative relationship with time management skills (Kagan, 2009). Also, there is a negative relationship between academic procrastination and well-being (Grunschel, Schwinger, Steinmayr & Fries, 2016). Akca (2012), on the other hand, found a positive relationship between self-sabotage, external locus of control and academic procrastination behavior, while academic procrastination behavior, locus of control and academic achievement predicted self-hindering behavior. In addition, risk taking behavior positively predicts academic procrastination behavior (Afzal & Jami, 2018). There is a negative correlation between academic risk-taking behavior, which is emphasized as a positive behavior in contrast to risk-taking behavior, and procrastination behavior (Watson, 2001). Miligram, Marshevsky and Sadeh (1995) point out that risk taking is an important reason for academic procrastination. Ozer (2005), supporting the thoughts of Miligram et al., also stated that one of the reasons for academic procrastination behavior was to prevent themselves from taking risks. In other words, it can be said that individuals show procrastination behavior because they avoid taking risks in the academic platform.

According to Rotter (1966), reinforcement, reward and appreciation play an important role in the acquisition and performance of skills and knowledge in human nature; but what an individual sees as a reward or reinforcement may not be the same for another person. One of the determinants of this situation is how they perceive the reward and their behavior, which corresponds to that reward, is dependent or independent of external forces (Rotter, 1966). Meaning, an individual thinking that the control of their behavior is dependent on external factors or themselves. In other words, it is related to the individual's view of their locus of control as internal or external. Therefore, Rotter (1966) divides the locus of control into two as internal and external locus of control. When individuals perceive their actions as a result of chance, fate, and the power of others, they call it external locus of control, and if they perceive their actions as a result of their characteristic features, they call it internal locus of control. The academic locus of control is related to what the individual bases the control of their actions in their academic life. External academic locus of control is explained by an individual looking at their academic experiences as having an external control (luck, fate, other people), whereas internal academic locus of control means that the individual relates it to their own behavior and characteristics (Akın, 2007). When the literature is examined, between internal locus of control and social self-efficacy levels (Iskender & Akın, 2010) there is a positive relationship, there is a negative relationship with internet addiction (Iskender & Akın, 2010), and a positive relationship with self-confidence levels (Mooney, Sherman, & Lo Presto, 1991) and positive thinking skills (Celik & Sarıcam, 2018). In an additional study, it is observed that students take less risks in studies where their performance is rewarded or evaluated (Condry & Chambers, 1978). In other words, individuals avoid taking risks when they are controlled by external factors. In addition, while the students choose less risky tasks while being evaluated by the teacher, they show that students tend to take more risks in tasks requiring self-assessment (Hughes, Sullivan & Mosley, 1985;

Salili, Maehr, Sorensen & Fyans, 1976). Similarly, this view was supported by Findley and Cooper (1983), indicating that individuals can take more risks when they have an external locus of control.

Perfectionism has been described by Pacht (1984) as individuals determining their goals at a level so high that they are unlikely to succeed. In other words, perfectionism can also be defined as an individual setting extremely high goals and then forcing themselves to achieve these goals. When the reasons of perfectionism are considered, it is observed that the goals are too high to be realistic, excessive efforts are made to achieve these goals, there is too much focus on failure and excessive criticism of the self by the individual (Burns, 1980; Hamachek, 1978; Hollender, 1965; Pacht, 1984; Hewit & Flett). Perfectionist individuals tend to exhibit procrastination behavior because they are afraid of judgment and failure (Patcht, 1984). Perfectionism can be examined in two sub-dimensions: harmonized perfectionism that sets realistic goals, strives to achieve these goals and, if necessary, can give up their goals, and discordant perfectionism where unattainable goals are set and they are unsatisfied with their efforts (Hamachek, 1978). One of the groups where perfectionism is very common is students. One of the reasons for this is that especially the teachers have high expectations from the students, and the problems of the students are exaggerated by the teachers (Pacht, 1984). Teachers' expectations from the students are generally in the academic field. Academic perfectionism, which is one of the types of perfectionism, is defined as over-exertion of individuals by setting unrealistic and self-challenging goals in the academic field (Odacı, Kalkan & Cıkrıkcı, 2017). When literature is examined, a positive relationship is observed between perfectionism and academic perfectionism (Odacı et al., 2017). There is a positive relationship between perfectionism and anger (Buyukbayraktar, 2011), and a positive relationship between discordant perfectionism and academic burnout (Zhang, Gan & Cham, 2007). There is very limited research on academic perfectionism in the literature.

When the literature is reviewed, it is clear that students' risk taking depends on a lot of variables. Also, it is clear that there is not enough research about these variables. So far, researchers have examined variables related to academic risk taking. However, up to present, the important variables such as academic procrastination, academic locus of control, and academic perfectionism have been ignored. Thanks to this study, the relation between academic risk taking and academic procrastination, academic locus of control, and academic perfectionism were examined. In this wise, understanding academic risk taking was clarified.

Method

Research Design

This study is a relational screening model study conducted in order to investigate the extent to which academic procrastination, academic locus of control, and academic perfectionism predicted the academic risk-taking behaviors of university students. Studies aiming to determine the existence and degree of co-change between two or more variables are relational screening model studies (Kuzu, 2005).

Participants

The study group of this study consisted of 507 students studying in 4 major faculties (Faculty of Education, Faculty of Science and Literature, Faculty of Economics and Administrative Sciences and Faculty of Engineering) at a university in the spring term of 2018-2019. 351 of these students were female (69.2%) and 154 were male (30.4%). Two students did not specify their gender. The age range of the participants ranged from 18 to 33, with an average of 20.73 (SD = 1.84). Additionally, 151 of the participants were first year (29.8%), 123 were second year (24.3%), 171 were third year (33.7%), and 60 were fourth year (11.8%) students. Again, two students did not specify their class level. In order to determine the study group, convenient sampling method was used.

Research Instruments

Personal Information Form: In order to define the study group, the participants were asked about their sex, class level and age, in the personal information form created by the researchers.

Academic Risk-Taking Scale: ARTS, which aims to measure students' academic risk-taking behaviors, was developed by Clifford (1991) and adapted into Turkish by Korkmaz Baylav (2002). The scale reveals the students' learning status, their courage to cope with the difficulties they face in the academic field, and their willingness or unwillingness to learn. ARTS, which is a five-point Likert-type scale, consists of 36 items. The lowest score that can be obtained from the scale is 36 and the highest score is 180. Higher scores obtained from the scale indicates the ability to take risks in the academic field. Korkmaz Baylav (2002), who carried out translation studies on both primary school and university students, reported internal consistency coefficients (Cronbach's Alpha) as .90 and .89, respectively, in the analysis of the reliability of the scale. While the items included in the original scale were collected under four headings (tendency to have negative feelings after failure, tendency to prefer difficult operations, tendency to recover after failure, and tendency to be effective), it was reported by the researcher that the items were collected under four headings in the Turkish translation (inclination to not complete homework). As a result of the reliability analysis conducted within the scope of this study, the internal consistency coefficient of the scale was found to be .84.

Academic Procrastination Scale: Academic Procrastination Scale (APS), which aims to measure the procrastination behaviors of individuals in the academic field, was developed by Cakıcı (2003). In the scale developed by Cakıcı (2003), there are 19 items including 12 positive and seven negative items that contain the tasks that students should undertake in their learning lives (such as studying, preparing for exams, preparing projects). APS is a five-point Likert-type scale (1 = "does not reflect me at all", 5 = "reflects me completely"). The lowest score from the APS is 19 while the highest score is 95. Higher scores indicate higher academic procrastination behaviors of the students. The internal consistency reliability (Cronbach Alpha) coefficient of the academic procrastination scale was reported as .92. However, internal consistency reliability coefficient calculated for the first factor of the scale was .89 and it was .84 for

the second factor. Spearman Brown's two half test reliability was calculated as .87 for the 10-item first half test, .86 for the second half-test with 9 items, and .85 in total. The internal consistency reliability coefficient of the APS used in this study was found to be .90.

Academic Locus of Control Scale: The Academic Locus of Control Scale (ALoCS) was developed by Akın (2007) to measure students' beliefs about their ability to gain control over academic outcomes. The five-point Likert-type (1 = "never reflects me", 5 = "completely reflects me") ALoCS consists of 17 items. It has two sub-dimensions: internal locus of control (six items) and external locus of control (11 items). The lowest score that can be obtained from the internal locus of control subscale is 6 and the highest score is 30. The lowest score that can be obtained from the external locus of control subscale is 11 and the highest score is 55. The increase in the score obtained from each sub-dimension of the scale, which doesn't have reverse items, shows that it has characteristics related to the related dimension. In the reliability analysis results, internal consistency reliability coefficients of the scale were .94 for internal locus of control and .95 for external locus of control. In the retest reliability analysis, the coefficient of internal control was found to be .97, while the external control locus was .93. Internal consistency reliability coefficients were .80 for internal control and .73 for external control.

Academic Perfectionism Scale: The Academic Perfectionism Scale (APS) was developed by Odacı, Kalkan and Cikrıkci (2017) to determine university students' academic perfectionism attitudes in the academic field. The five-point Likert-type (1 = "strongly disagree", 5 = "strongly agree") APS consists of 13 items. As a result of the exploratory factor analysis, APS was reported to be a three-factor scale. Factors explained in the scope of the study are as follows; the first factor was defined as "Self-Doubt-six items", the second factor was "Comparison-four items" and the third factor was "Idealization-three items". In addition to the three-factor structure, a total score can also be obtained from the scale. For the scope of this study, it was conducted on the total score. When the total score is evaluated, the lowest score that can be obtained from the scale is 13 and the highest score is 65. There is no item on the scale that is reversed. Higher scores indicate that university students have a perfectionist tendency in their academic work. The internal consistency reliability coefficients for the sub-dimensions of APS were .78, .69, .57, respectively, and the Cronbach's Alpha coefficient for the whole scale was reported as .82. In the scope of this study, Cronbach's alpha coefficient for APS was found to be .83.

Results

Pearson correlation coefficients between the academic risk-taking variable (predicted) and academic procrastination, locus of control and academic perfectionism (predictor) for 507 university students in the sample are given in Table 1.

Table 1

Correlations between Academic Risk Taking, Academic Procrastination, Academic Locus of Control and Academic Perfectionism

	1	2	3	4	5
1. Academic Risk Taking	-				
2. Academic Procrastination	-.36(**)	-			
3. Academic Internal Locus of Control	.18(**)	-.11(**)	-		
4. Academic External Locus of Control	-.32(**)	.28(**)	-.29(**)	-	
5. Academic Perfectionism	-.26(**)	.02	.11(**)	.32(**)	-
Mean	120.41	55.41	23.47	25.20	35.75
Ss	16.56	13.90	4.17	6.14	8.12

* p<.05 ** p<.001

Table 1 shows that there was a significant negative relationship between academic risk-taking levels and academic procrastination (r = -.36, p <.001), academic external locus of control (r = -.32, p <.001) and academic perfectionism (r = -. 26, p <.001) levels. According to this result, as the academic procrastination levels of university students decrease, external locus of control tendencies in the academic field decreases and they take a less perfectionist attitude in academic sense, their academic risk-taking levels increase. There was a significant positive relationship between academic risk taking and academic internal locus of control (r = .18, p <.001). This finding reveals that the increase in the tendency of university students to act with an internal locus of control in the academic field will increase their academic risk-taking tendencies.

When the relationship between independent variables was examined; there was a negative relationship between academic procrastination and academic internal locus of control (r = -.11, p <.001), and a positive relationship between academic external locus of control (r = .28, p <.001), whereas there was no relationship with academic perfectionism (r = .02, p> .001). Significant negative correlation was found between academic internal locus of control and academic external locus of control (r = -.29, p <.001) and a positive correlation with academic perfectionism (r = .11, p <.001). Finally, it can be said that there was a positive significant relationship between academic external locus of control and academic perfectionism (r = .32, p <.001).

The results of the stepwise regression analysis of the variables of academic procrastination, academic locus of control and academic perfectionism, which are considered to be predictors of taking academic risk in university students, are given in Table 2.

Table 2

Results of Stepwise Regression Analysis on Academic Procrastination, Academic Locus of Control and Academic Perfectionism as Predictors of Academic Risk-Taking

Model	*Variables*	*B*	*SH_B*	*β*	*t*	*R*	*R^2*	*F*	*p*
1	Constant	143.92	2.83	-	50.85	.36	.13	73.34	.000
	Academic Procrastination	-.42	.05	-.36	-8.56				
2	Constant	155.76	3.44	-	45.31	.42	.18	55.34	.000
	Academic Procrastination	-.34	.05	-.29	-6.84				
	Academic External Locus of Control	-.65	.11	-.24	-5.72				
3	Constant	167.75	4.12	-	40.77	.47	.22	47.15	.000
	Academic Procrastination	-.37	.05	-.31	-7.58				
	Academic External Locus of Control	-.44	.12	-.17	-3.77				
	Academic Perfectionism	-.43	.09	-.21	-5.04				
4	Constant	153.85	5.88	-	26.18	.49	.24	38.74	.000
	Academic Procrastination	-.38	.05	-.32	-7.67				
	Academic External Locus of Control	-.31	.12	-.11	-2.49				
	Academic Perfectionism	-.50	.09	-.24	-5.70				
	Academic Internal Locus of Control	.55	.17	.14	3.28				

*p<.01

According to Table 2, when standardized regression coefficients (β) were considered, academic procrastination (β =-.32), academic external locus of control (β =-.11), academic perfectionism (β =.24) and academic internal locus of control (β = .14) significantly predicted academic risk-taking behavior, respectively ($F_{(4-506)}$ = 38.74, p< .001). On the basis of these findings, academic procrastination, which is the strongest predictor of academic risk-taking behaviors of university students, explained %13 of total variance alone. Academic procrastination explained %18 of the total variance, with academic external locus of control. While academic procrastination, academic external locus of control, academic perfectionism together explained %22 of the total variance, with the addition of academic internal locus of control, all variables jointly accounted for %24 of academic risk-taking scores (R=0.49, R^2 =0.24).

Discussion, Conclusion and Recommendations

The purpose of this study was to investigate whether academic procrastination, academic locus of control, and academic perfectionism variables predict academic risk-taking behaviors of university students. The behavior patterns that students acquire in their academic life will continue after university life. In other words, the

behaviors acquired by students who spend most of their important development processes in academic environments, such as schools, will be part of their identities and accompany them throughout their lives. Characteristics such as assertiveness, responsibility, and intrinsic motivation will not only lead the individual to academic success throughout their university life but will also enable them to continue as qualified individuals after university. Therefore, exploring the relationship between these behaviors will enable students to discover the problems in their own lives. In addition, the psychological counselor's awareness of these relationships during the counseling process will facilitate the assessment of students who come with the problem of academic procrastination in a more holistic way and provide more comprehensive assistance.

One of the concepts related to academic achievement is the academic risk-taking behavior expressed by Korkmaz (2002) as efforts made by students towards problems in learning environments. In this study, it was aimed to investigate the relationship between academic risk-taking behavior and academic procrastination behavior, academic locus of control and academic perfectionism behavior. When the previous studies are examined, it is stated that there is a positive relationship between academic risk taking and perfectionism (Kılıc & Kinay, 2014) and a negative relationship between academic risk taking and procrastination (Watson, 2001). In addition, it is emphasized that there is a positive relationship between academic risk taking and internal locus of control and a negative relationship between academic risk taking and external locus of control (Prihadi et al., 2018). When all these studies are taken into consideration, it is seen that they support the findings of this study.

According to the correlation table of the study, it was observed that there was a negative relationship between academic risk-taking behavior and academic procrastination behavior. Similar to these findings, Watson (2000) states that there is a negative relationship between risk-taking behavior and procrastination behavior. Soloman and Rothblum (1984) argue that individuals perform procrastination behavior because they are afraid of failure. Academic risk-taking behavior explains the desire of the individual to realize the behavior without thinking about success and failure (Pannel et al., 2016). The opinion that individuals perform academic procrastination behavior because they avoid taking academic risks have been proposed by Miligram et al. (1995). In short, there can be a negative relationship between performing academic procrastination behavior and avoiding academic risks, since individuals focus on success and failure under procrastination behavior. In other words, the success-oriented individual can perform procrastination because of fear/anxiety of failure and avoid taking risks due to the same fear/anxiety. When the data of this study were examined, the negative relationship between academic procrastination and academic risk taking supports this idea.

Apart from these findings, while there was a negative significant relationship between academic risk-taking behavior and external locus of control, there was a positive and significant relationship between academic risk-taking behavior and internal locus of control. Huges et al. (1976) stated that while students avoid taking risks in teacher-assessment tasks, they take more risks in tasks requiring self-

assessment and emphasize that individuals do not take risks in external control-related situations and undergo risk in internal control situations. Similarly, Condry and Chambers (1978) emphasize that individuals take less risks in evaluation and rewarding situations and that external control is an obstacle to the risk-taking behavior of the individual. In another study, Prihadi et al. (2018) underline that individuals exhibit less risk-taking behaviors when they think that the control of events is dependent on outsiders. Maehr and Stallings (1972), who have a similar view, state that when students are subjected to external evaluations such as teacher evaluations, their autonomy is blocked and their performance decreases. In addition, it is emphasized that students are reluctant to try difficult tasks when exposed to external control (Maehr & Stallings, 1972). The reason for this may be that external evaluations focus on whether or not a person achieves the task given, rather than addressing their pleasure during learning. In other words, with an external locus of control, it may be that the individual is focused on whether or not they can succeed, while they are focused on enjoying themselves (Maehr & Stallings, 1972) and developing a skill (Elliott & Dweck, 1981) with an internal locus of control. Because in the external locus of control, individuals focus on performance rather than learning (Elliott & Dweck, 1981). Based on these findings, it is seen that when individuals achieve self-control in their lives, they do not have the anxiety of being evaluated by others, and they can exhibit risk-taking behavior. In other words, individuals with high internal locus of control exhibit academic risk-taking behavior, whereas individuals with high external locus of control avoid academic risk taking. The findings of the studies support the previous studies. As can be seen from all these studies, individuals are more comfortable taking risks when they have internal locus of control, that is, when they evaluate their own behavior. However, when evaluation is externally oriented, that is, an individual is subjected to the reward and discretion of an external individual, the individual avoids taking risks.

When the study findings are examined, there is a negative significant relationship between academic risk-taking behavior and academic perfectionism. In the light of this information, it can be stated that students who show academic risk-taking behavior are far from having a perfectionist attitude. Pannel et al. (2016) describe academic risk taking as an individual's desire to try without focusing on the success or failure as a result of the individual's behavior. Based on this statement, it is understood that there is a negative relationship between risk taking and perfectionism. This opinion is supported with the findings of this study. Previous studies have shown a negative relationship between academic procrastination and academic achievement (Balkıs & Duru, 2010). An important reason why individuals exhibit perfectionism is their distorted focus on success (Patch, 1984). In short, the individual exhibits perfectionist behavior because they avoid failure. When both academic procrastination behavior and academic perfectionism behavior are examined, it is seen that an avoidance of failure lies under both of them. Taking academic risks is more about courage than focusing on success or failure. Individuals who exhibit academic perfectionism and academic procrastination behaviors may not be able to take risks in their academic life due having success as their main focus, and this study supports this view.

When all variables were analyzed using standardized regression analysis, it was observed that academic procrastination was the most powerful variable predicting academic risk-taking behavior. When all variables were examined together, it was seen that they predicted academic risk-taking behavior by 24%. This ratio is important and cannot be underestimated. In other words, it is seen that academic procrastination, academic locus of control, and academic perfectionism variables should be taken into consideration while considering academic risk-taking behavior.

As a result, there is a negative relationship between academic risk-taking behavior and academic procrastination and academic perfectionism. In other words, individuals need to be far from academic perfectionism and academic procrastination behaviors in order to exhibit academic risk-taking behavior. Considering that there is a focus of success in the basis of these behaviors, it is predicted that individuals who act with the desire to try something new without focusing on achieving or failing in the academic environment may exhibit more academic risk-taking behavior. In addition, while there is a negative relationship between external locus of control and academic risk taking, a positive relationship between internal locus of control and academic risk taking is observed. To explain, the external appreciation and reward is an important obstacle for individuals to take risks in the academic environment. On the other hand, when an individual makes their own assessment, they can be more courageous and take more risks. Therefore, when the academic locus of control is examined, it is possible that individuals with external locus of control perform less academic risk-taking behavior and individuals with internal locus of control are more likely to perform academic risk-taking behavior.

Academic risk-taking behavior has an important role in students' academic life and is associated with many variables. However, when the research about academic risk taking over the years are examined, it is seen that there are only a few national and international studies in this field. For this reason, researchers who want to work on this subject will make an important contribution to the literature in all quantitative and qualitative studies covering the factors that affect academic risk-taking behavior and what it affects. In addition, examining the demographic variables (age, sex, class level, socio-economic status) that affect academic risk-taking behavior, or looking at their relationship with parent and teacher attitudes, is recommended because it will provide important information about academic risk-taking. In addition, the variables of academic risk taking, academic procrastination, locus of control and academic perfectionism have been examined in the universe of university students. Researchers who want to do research on the subject working on different developmental periods will benefit the literature. Considering the results of this research, in order to increase the students' academic risk-taking behaviors, psychological counseling groups can be started, or interviews can be organized in schools to reduce the academic procrastination behaviors of the students. Apart from that, also, teachers can benefit from this research to understand the reasons behind low academic risk taking on their students and they can help their students to increase academic risk taking in the class environment. In addition to increasing the internal locus of control of the students, one of the main objectives of the education, education and training programs that can

reduce the external locus of control can be prepared, and each input, output and stakeholder in education and training can be rearranged to provide students with an internal control-oriented perspective. Counseling practices, workshops or interviews can be planned in order to increase the awareness of the students in line with their own goals, expectations and desires and to provide them with skills to reach them.

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Üniversite Öğrencilerinde Akademik Risk Alma Davranışı: Akademik Erteleme, Akademik Kontrol Odağı ve Akademik Mükemmeliyetçilik

Atıf:

Akbay, S. E., & Delibalta, A. (2020). Academic risk taking behavior in university students: Academic procrastination, academic locus of control, and academic perfectionism. *Eurasian Journal of Educational Research, 89*, *159-178.* DOI: 10.14689/ejer.2020.89.8

Özet

Problem Durumu ve Araştırmanın Amacı: 21. yy.da eğitim, modern toplumlarda bireylerin kendilerini geliştirebilmeleri ve toplum içinde nitelikli bireyler olarak var olabilmeleri için önemli bir araçtır. Eğitim bireylere atılgan, sorumluluk sahibi ve realist düşünebilen kişiler olmaları yolunda destek sağlarken, nitelikli eğitim yaşantısı akademik başarıyı da beraberinde getirir. Toplumun ileriye ivme kazanmasında tek başına yeterli olarak görülmese de akademik başarı eğitim kurumlarının en temel hedefleri arasındadır. Akademik başarı ile ilişkili olduğu düşünülen birçok değişken bulunmaktadır. Eğitim yaşantıları sonucu elde edilmesi planlanan kazanımlar değerlendirildiğinde bir takım belirsizliklerin varlığından söz etmememiz mümkün olamaz. Bu belirsizlikler karşısında kişilerin aldığı pozisyonun onların başarıları üzerinde rol oynayacağını söyleyebiliriz. Bu bağlamda akademik başarıya kişileri götürecek değişkenlerden biri olarak risk almanın önemine vurgu yapılabilir. Bu çalışmanın amacı üniversite öğrencilerinin akademik başarıları üzerinde önemli bir yer sahibi olduğu düşünülen akademik risk alma davranışlarını akademik erteleme, akademik kontrol odağı ve akademik mükemmeliyetçiliğin ne derecede yordadığını incelemektir.

Araştırmanın Yöntemi: Bu çalışma, üniversite öğrencilerinin akademik risk alma davranışlarını akademik erteleme, akademik kontrol odağı ve akademik mükemmeliyetçiliğin ne derecede yordadığını incelemek amacıyla yapılan, ilişkisel tarama modelinde betimsel bir çalışmadır. İki ya da daha fazla sayıdaki değişken arasında birlikte değişimin varlığını ve derecesini belirlemeyi amaçlayan çalışmalar ilişkisel tarama modeli araştırmalardır (Kuzu, 2005).

Katılımcılar: Bu araştırmanın çalışma grubunu, Türkiye'nin Güney bölgesinde yer alan bir Üniversitenin 2018-2019 bahar döneminde 4 büyük fakültesinde (Eğitim Fakültesi, Fen-Edebiyat Fakültesi, İİBF ve Mühendislik Fakültesi) öğrenim görmekte olan 507 öğrenci oluşturmuştur. Bu öğrencilerin 351'i kadın (%69,2), 154'ü erkektir (%30,4). İki öğrenci cinsiyetini belirtmemiştir. Katılımcıların yaş aralığı 18 ile 33 arasında değişmekte olup, ortalaması 20,73'tür (SS=1,84). Bununla birlikte katılımcıların 151'i

birinci sınıf (%29,8), 123'ü ikinci sınıf (%24,3), 171'i 3. sınıf (%33,7) ve 60'ı da 4. sınıf (%11,8) öğrencilerinden oluşmaktadır. Yine iki öğrenci sınıf düzeyini belirtmemişlerdir. Çalışma gurubunun belirlenmesinde kolay ulaşılabileni örnekleme yöntemi kullanılmıştır.

Araştırmanın Bulguları: Çalışma grubunu oluşturan 507 üniversite öğrencisi için akademik risk alma değişkeni (yordanan) ile akademik erteleme, akademik kontrol odağı ve akademik mükemmeliyetçilik değişkenleri (yordayıcı) arasındaki Pearson korelasyon katsayıları incelendiğinde, örneklemin akademik risk alma düzeyleri ile akademik erteleme ($r = -.36$, $p < .001$), akademik dışsal kontrol odağı ($r = -.32$, $p < .001$) ve akademik mükemmeliyetçilik ($r = -.26$, $p < .001$) düzeyleri arasında negatif yönde manidar bir ilişki bulunmuştur. Bu sonuca göre, üniversite öğrencilerinin akademik erteleme düzeyleri düştükçe, akademik alandaki dışsal kontrol odağı eğilimleri azaldıkça ve akademik anlamda daha az mükemmeliyetçi tutum içerisine girdikçe akademik anlamda risk alma seviyeleri de artmaktadır. Akademik risk alma ile akademik içsel kontrol odağı arasında ise ($r = .18$, $p < .001$) pozitif yönde manidar bir ilişkiye rastlanılmıştır. Bu bulgu ise üniversite öğrencilerinin akademik alandaki içsel kontrol odaklı hareket etme eğilimlerinin artmasının onların akademik risk alma eğilimlerini arttıracağını ortaya koymaktadır.

Bağımsız değişkenlerin birbirleri ile olan ilişkilerine bakıldığında ise; akademik erteleme ile akademik içsel kontrol arasında ($r = -.11$, $p < .001$) negatif yönde, akademik dışsal kontrol arasında ($r = .28$, $p < .001$) pozitif yönde bir ilişki olduğu buna karşın akademik mükemmeliyetçilikle arasında herhangi bir ilişkinin olmadığı ($r = .02$, $p > .001$) görülmüştür. Akademik içsel kontrol ile akademik dışsal kontrol arasında ($r = -.29$, $p < .001$) negatif yönde, akademik mükemmeliyetçilik arasında ise ($r = .11$, $p < .001$) pozitif yönde anlamlı bir ilişki bulgusu elde edilmiştir. Son olarak akademik dışsal kontrol odağı ile akademik mükemmeliyetçilik arasında ($r = .32$, $p < .001$) arasında pozitif yönde anlamlı bir ilişki olduğu söylenebilir.

Üniversite öğrencilerinde akademik risk almanın yordayıcıları olduğu düşünülen akademik erteleme, akademik kontrol odağı ve akademik mükemmeliyetçilik değişkenlerine ilişkin aşamalı regresyon analizi sonuçlarına göre, standardize edilmiş regresyon katsayıları (β) dikkate alındığında, sırasıyla akademik erteleme ($\beta = -.32$), akademik dışsal kontrol odağı ($\beta = -.11$), akademik mükemmeliyetçilik ($\beta = .24$) ve akademik içsel kontrol odağının ($\beta = .14$) akademik risk alma davranışını anlamlı bir şekilde yordadığı görülmektedir ($F_{(4-506)} = 38.74$, $p < .001$). Bu bulgular temelinde, üniversite öğrencilerinin akademik risk alma davranışlarını en güçlü düzeyde yordayan değişken olan akademik erteleme tek başına toplam varyansın %13'ünü açıklamaktadır. Akademik erteleme, akademik dışsal kontrol odağı ile birlikte toplam varyansın %18'ini açıklamaktadır. Akademik erteleme, akademik dışsal kontrol odağı, akademik mükemmeliyetçilik birlikte toplam varyansın %22'sinin açıklarken bu değişkenler akademik içsel kontrolün eklenmesiyle tüm değişkenler ortak olarak akademik risk alma puanlarını %24'ünü açıklamaktadırlar ($R = 0,49$, $R^2 = 0,24$).

Sonuç ve Öneriler: Sonuç olarak akademik risk alma davranışı ile akademik erteleme ve akademik mükemmeliyetçilik arasında negatif bir ilişki bulunmaktadır. Yani

bireylerin akademik risk alma davranışını sergileyebilmeleri için akademik mükemmeliyetçilik ve akademik erteleme davranışlarından uzak olmaları gerekmektedir. Bu davranışların temelinde başarı odağı olduğu düşünüldüğünde akademik ortamda başarmaya veya başarmamaya odaklanmadan yalnızca yeni bir şey deneme isteği ile hareket eden bireylerin daha fazla akademik risk alma davranışı sergileyebilecekleri öngörülmektedir. Ek olarak dışsal kontrol odağı ile akademik risk alma arasında negatif ilişki olduğu gözlemlenirken, içsel akademik kontrol odağı ile akademik risk alma arasında pozitif ilişki gözlemlenmektedir. Açıklamak gerekirse dışarıdan gelecek olan takdir ve ödül bireylerin akademik ortamda risk almalarının önündeki önemli bir engeldir. Diğer bir taraftan birey kendi değerlendirmesini kendisi yaptığında daha fazla cesaretli olabilmekte ve daha çok risk alabilmekte olduğu düşünülmektedir. Dolayısıyla akademik kontrol odağına bakıldığında dışsal kontrol odağına sahip bireylerin daha az akademik risk alma davranışı gerçekleştirmesi, içsel kontrol odağına sahip bireylerin ise daha fazla akademik risk alma davranışı gerçekleştirmesi olası görülmektedir. Bu araştırmanın sonuçlarına göre şu önerilerde bulunulabilir; öğrencilerin akademik risk alma davranışlarını artırmak amacıyla öğrencilerin akademik erteleme davranışlarını azaltmak için psikolojik danışma grupları açılabilir veya okullarda mülakatlar düzenlenebilir. Bunun dışında, öğretmenler bu araştırmadan öğrencilerine akademik risk almanın engelleri arkasındaki nedenleri anlamak için yararlanabilir ve öğrencilerine sınıf ortamında akademik risk almayı artırmada yardımcı olabilirler. Öğrencilere iç kontrol odaklı bir bakış açısı sağlamak için eğitim-öğretim faaliyetleri ve işleyişi yeniden gözden geçirilebilir. Akademik erteleme davranışlarını azaltma, akademik mükemmeliyetçiliği sağlıklı bir boyutta deneyimleyebilmeleri için rehberlik uygulamaları, çalıştaylar veya mülakatlar planlanabilir.

Anahtar Kelimeler: akademik risk alma, akademik erteleme, akademik kontrol odağı, akademik mükemmeliyetçilik.

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The Effects of Working in Public or Private Schools on Job Satisfaction of Teachers in Turkey: A Meta-Analysis Study*

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ABSTRACT

Purpose: The main problem of this study is to investigate whether the school type (private/public) has any effects on job satisfaction of teachers or not to reveal the effects of the school type (private/public) on job satisfaction of teachers in Turkey.

Research Methods: In this study, as one of the research synthesis methods, the meta-analysis method was used. In the analysis of the data, one of the group comparison meta-analysis methods, the Group Difference Method was used.

Findings: According to the results of this research, in accordance with the random effects model (d=.56; [.41; .70]), a statistically significant medium level of effect size was detected in favor of teachers working in private schools concerning the school type variable. As a result of the conducted moderator analysis, it was determined that the effect sizes of the studies varied by the grade of education (p=.002), and the place of research (p=.00). Effect sizes of the studies did not differ significantly publication type (p=.07), the title of the teacher (p=.13), and the scale (p=.23).

Implications for Research and Practice: In the context of this meta-analysis study, the findings suggest that qualitative and quantitative studies discussing which factors are effective in high job satisfaction of teachers working in private schools should be carried out.

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Introduction

Nowadays, it has been discussed that there is a relationship between the quality of the education and job satisfaction (JS) of teachers. JS of teachers who work in public and private schools where competition is highly observed can be affected by many factors, such as the culture of the school, working conditions, way of management, and the communication style of the staff. Especially in recent years, the establishment of private schools is encouraged within the context of privatization of education; parents are supported in this direction and they are encouraged to send their children to these schools. On the other hand, given that most teachers who were not appointed by the government were working in private schools as an alternative way of being employed as a teacher makes it significant to detect the JS levels of teachers working in private and public schools. The working conditions of teachers in the school environment may cause their JS to decrease after a while. The low JS levels of teachers also decrease their satisfaction with life over time (Vural, 2004). The working conditions of private and public schools differ for teachers. It is necessary to reveal to what extent these differences affect teachers' JS levels. In many developed and developing countries, the privatization of education in the context of neo-liberal policies has been on the agenda in recent years (Bracey, 2002). Types of privatization of education and the role of private schools in this process vary from country to country (Levin, 2001). Within this scope, private and public schools are compared concerning variables, such as efficiency, productivity, the success of students, accountability, and JS (Papanastasiou & Zembylas, 2005; Yılmaz & Sarpkaya, 2016).

Job Satisfaction: Private and Public Schools

In this context of definitions in the literature, JS of teacher refers to an emotional situation that occurs as a result of perceiving values related to working conditions, wages, career opportunities and organizational environment in school (Canbay, 2007; Hongying, 2007). JS for teachers can be stated as teacher's attitude towards his/her students and school (Vural, 2004; Zembylas & Papanastasiou, 2004). Teacher JS is an essential factor for teachers' and school effectiveness and students' academic and educational achievement (Lopes & Oliveira, 2020). JS level of teachers isaffected by personal characteristics, such as age, gender, and educational level as well as many organizational factors, such as salary, the perspective of administrators, school type (private/public), working conditions, and social relationships (Vural, 2004; Yaramıs & Cinkir, 2014). The JS level of teachers affects their performances in a positive or negative way (Xiaofu & Qiwen, 2007). Various studies (Akhtar, Hashmi, & Naqvi, 2010; Buka & Bilgic, 2010; Small, 2020; Tasdan & Tiryaki, 2008) revealing that the type of school affects JS of teachers in different dimensions and levels have been carried out in national and international literature.

In the research conducted by Demato (2001), it was observed that the JS of teachers working in private schools was higher compared to teachers working in public schools. The JS of teachers is significantly affected by internal factors, such as the quality of students, their relationship with the teacher, and their perspectives (Lee, Dedrick, &Smith, 1991). In addition to these internal factors, positive relationships

with students and the factor of autonomy in the process of education are also effective (Shann, 1998). It was revealed in various studies that although external factors, such as working conditions, salary, administrator support, workload, physical environment, rewards, school security, and status are effective in JS of teachers, internal factors are more effective in JS (Akhtar, Hashmi, & Naqvi, 2010; Dinham & Scott, 2000; Markovits, Davis, Fay, & Dick, 2010; Small, 2020; Tye & O'Brien, 2002). On the other hand, workload, low salaries, and the negative teacher profile perceived by the society are mentioned as the factors which decrease JS of teachers (Sugrue & Mertkan, 2017; Spear, Gould, & Lee, 2000). Although there are various studies in the literature that compare the perception of teachers on JS concerning the school type (public/private), the number of studies that synthesize which factors cause these differences is not sufficient.

In various studies carried out to determine the effects of school type on JS of teachers (Demirel, 2014; Papanastasiou &Zembylas, 2005; Small, 2020), it was observed that opinions and perceptions of teachers working in public schools on JS were more positive compared to teachers working in private schools. In some studies, (Buka & Bilgic, 2010; Bil, 2018), it was observed that teachers working in private schools had more JS compared to teachers working in public schools. In some other studies (Akhtar, Hashmi, & Naqvi, 2010), it was observed that the school type did not have any determinant role in the perception of teachers on JS.

In the meta-analysis study conducted by Yurtcu (2015), it was observed that there was a positive strong relationship between JS of teachers and their organizational commitment. In the meta-analysis study carried out by Gedik and Ustuner (2017), it was revealed that working in public or private schools had a moderator role in the relationship between organizational commitment and JS. Additionally, in the meta-analysis study carried out by Yorulmaz, Colak and Altinkurt (2017), their findings showed that there was a relationship between JS of teachers and their exhaustion. In Turkey, there are meta-analysis studies which discuss the relationship between JS of teachers and educational leadership (Cogaltay, Yalcın, & Karadag, 2016), the effects of gender on JS of teachers (Aydın, Uysal, & Sarıer, 2012; Aytac, 2015), and the relationship between JS of teachers and the quality of work life (Akar, 2018).

The increase recently experienced in Turkey in the number of studies discussing opinions of teachers on JS has revealed the need to compile these results by considering the number of samples and to synthesize them to reach a common result. However, to our knowledge, there is not any meta-analysis study discussing the JS of teachers within the context of public and private schools in Turkey. The problem of this study is to determine if the school type (private/public) is effective in the JS of teachers. The aim of this research is to identify the effects of school type (public and private school) on JS of teachers.

Method

Research Design

Meta-analysis method was used in this study. Meta-analysis method is a method of systematically analyzing and synthesizing the data of quantitative studies on the same subject independently. As one of the comparative meta-analysis methods, the group difference method was used in the analysis of data. In the group difference method meta-analysis, the effect size is calculated to show the mean difference between groups. If the experimental and control groups were formed by the researcher, this type of meta-analysis is called group comparison meta-analysis (Cumming, 2012).

Data Collection

Master's theses, PhD dissertations, and research articles which discuss the topic of this research in Turkey constitute the main data sources and scope of this study. To have access the relevant studies, the keywords "job satisfaction/satisfaction from job," "occupational satisfaction," "job content," "public and private school," and "pleasure from job" were searched in several databases, including Web of Science, ERIC, ULAKBİM, EBSCOhost, Scopus, Google Academic and YOK National Thesis Center. After this search, it was determined that 43 studies among 126 studies carried out on the topic of research were appropriate for the inclusion criteria in Turkey. Inclusion criteria used in the selection of the studies which would be included in this research are given below:

(i) Criterion 1: Published or unpublished study sources: Master's theses, PhD dissertations, and research articles published in the literature were taken into the scope.

(ii) Criterion 2: The appropriateness of dependent or independent variables in the studies for meta-analysis study: It was paid attention that studies included in meta-analysis studies to reach effect size were empirical studies and that private-public schools were used as the independent variable.

(iii) Criterion 3: Quantitative data which are necessary for meta-analysis: It was paid attention that it included quantitative data (e.g., mean, standard deviation, number of samples and p-value) in calculating effect sizes, which are necessary for meta-analysis.

(iv) Criterion 4: Studies carried out in Turkey between 1990 and 2019 were considered.

Exclusion Criteria: 83 studies obtained as a result of the literature review were excluded from the carried out meta-analysis study since they were not deemed appropriate for the inclusion criteria because they were carried out in different samples (e.g., school administrators and academic staff), they did not have necessary statistical data for meta-analysis, and they included only qualitative findings.

Reporting

Turkish version published on the official website of PRISMA is used for systematic review and meta-analysis. The process of determining the studies included in the meta-analysis study is given in Figure 1 (Asık & Ozen, 2019).

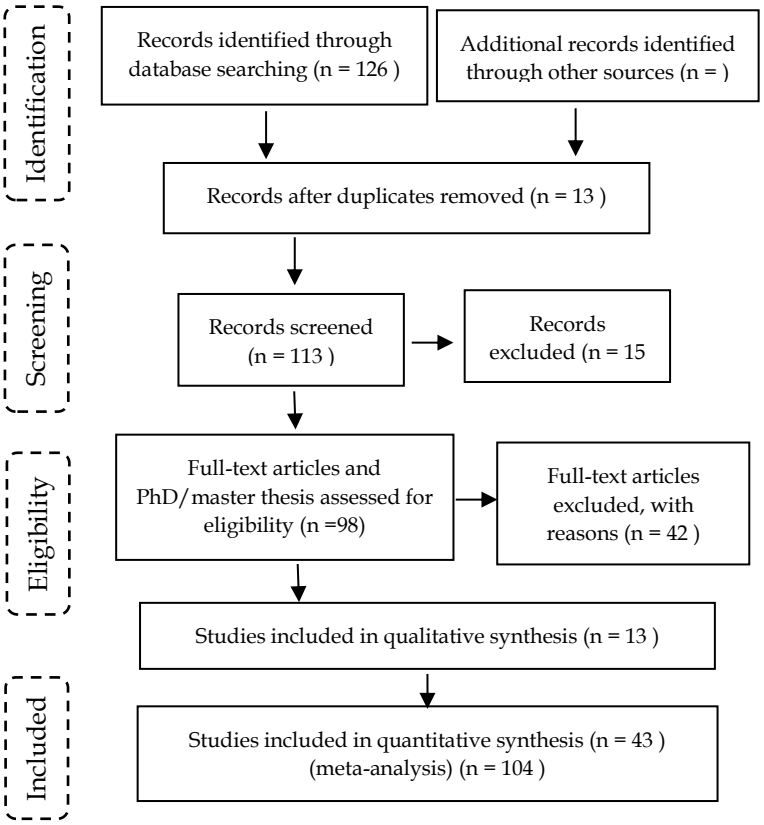

Figure 1. *Prisma Flow Diagram for Meta-analysis*

Reliability of the research: In a meta-analysis study, inter-rater reliability is significant in the coding process of studies on the reliability of results. With this aim, a coding protocol and form, including the identity, content, and data of the study were created. Data in the studies which would be included by at least two coders were separately written into coding protocol. Cohen's Kappa statistics were used to provide inter-rater reliability after the coding process (Lipsey & Wilson, 2001) and the reliability was .97. This result indicates a good concordance between coders (Card, 2012).

Validity of the research: Given that all accessible studies which are deemed appropriate for the inclusion criteria of the meta-analysis were scanned and included by using all

data bases is an indicator of the validity of the research (Petticrew & Roberts, 2006). In the context of accessing all studies as a result of the scan, it can be stated that validity was ensured. Each one of 43 studies included in the meta-analysis in this context was analyzed in detail, and it was verified that the validity and reliability of data collection tools used in the research was provided. Therefore, it can be stated that this meta-analysis study is also valid.

Data Analysis

CMA Ver. 2. [Comprehensive Meta-Analysis] software was used for the statistical calculations of this study. In this meta-analysis study, the random effects model was used in the calculation of the overall effect size. In this study, private schools were taken as the experiment group and public schools were taken as the control group. Therefore, the positive effect size was interpreted in favor of private schools and the negative effect size is interpreted in favor of public schools.

Results

Publication Bias

Publication bias exists when the studies included in the analysis differ systematically from all studies that should have been included. This may lead to an upward bias in the summary effect (Borenstein, Hedges, Higgins, & Rothstein, 2009). The published studies generally reach similar findings or unpublished studies may obtain different findings. This problem may lead to researchers to question the reliability of the meta-analysis study (Dincer, 2020). One common form of missing data in a meta-analysis is missing studies. The most common cause of missing studies is publication bias. As many researchers have shown, there is a bias in the published literature toward statistically significant results (Begg & Berlin, 1988; Duval & Tweedie, 2000; Pigott, 2012). Therefore, it is necessary to investigate whether there is publication bias in the meta-analysis study. In this study, publication bias was calculated using Funnel plot, Orwin's Fail-Safe N., Duval's and Tweedie's Trim and Fill method, Egger's tests, and Kendall's Tau coefficient (Borenstein et al., 2009; Cooper, Hedges, & Valentine, 2009). As observed in Figure 2, most of the 43 studies included in the research are located towards the top of the figure and highly close to the united effect size. Accordingly, the funnel plot indicates that there is not any publication bias for the studies included in the research (Borenstein et al., 2009).

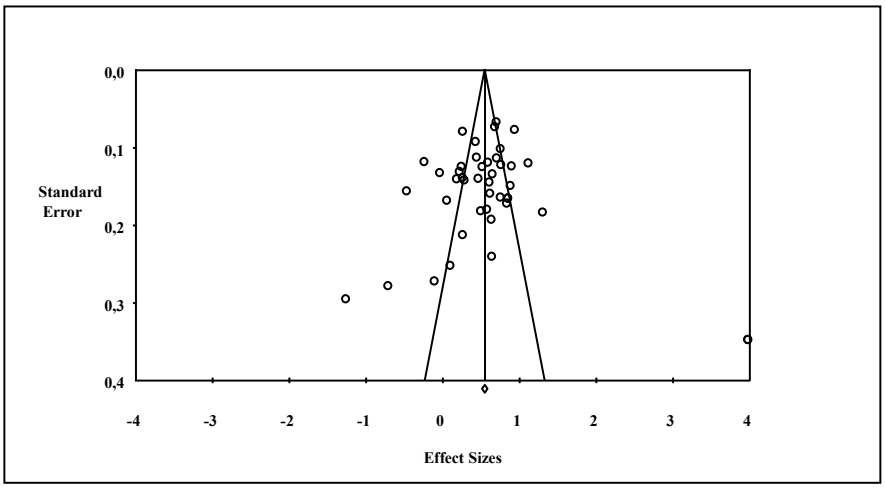

Figure 2. *Funnel Plot*

Test results of the publication bias of the studies included in the meta-analysis are given in Table 1. Orwin's Fail-Safe N calculation was also carried out to test publication bias. Orwin's Fail-Safe N calculates the number of studies that might be missing in a meta-analysis (Borenstein et al., 2009). As a result of this analysis, Orwin's Fail-Safe N was calculated as 2317. The necessary number of studies for .56 average effect size, which was found as a result of meta-analysis, to reach .01 level of effect size (trivial). In other words, to almost zero effect level is 2317. Forty-three studies that were specified in accordance with inclusion criteria are the whole number of studies that were carried out in Turkey for this research question. Since there is no possibility of accessing other 2317 studies apart from these ones, the acquired result is considered another indicator that there is no publication bias in this meta-analysis.

Table 1

Publication Bias Test Results for JS/School Type

The Number of Included Studies	Orwin's Fail-Safe N number	Duwal's and Tweedy's Trim and Fill Method		Egger's Test	Kendall's Tau Coefficient
		Trimmed	SOF	P=.98	
	2317	Study	Observed (filled)	(Double queue)	P=.57
43		2	.56 (.58)		

According to the result of the trim and fill method of Duval and Tweedie, when two equal studies were included, it was observed that average effect size which was.56 as a result of the meta-analysis changed to .58. Since this change is insignificant, it can be accepted that the reported effect size is reliable. Given that Egger's test result (p=.49) is not significant, it was considered another indicator that there is no publication bias in this meta-analysis. It was observed that Kendall's Tau coefficient, which is another

method, is -.06 and p=.57; in this case, since the expectation that p-value did not create a significant difference, in other words, it was higher than .05, was met, it was statistically proved that there was not any publication bias (Table 1).

Uncombined Findings of Effect Size Analysis in Accordance with School Type Variable

Forest plot of effect sizes of the opinions of teachers working in private and public schools on JS, standard error, and lower and upper limits concerning 95% reliability interval is given in Figure 3.

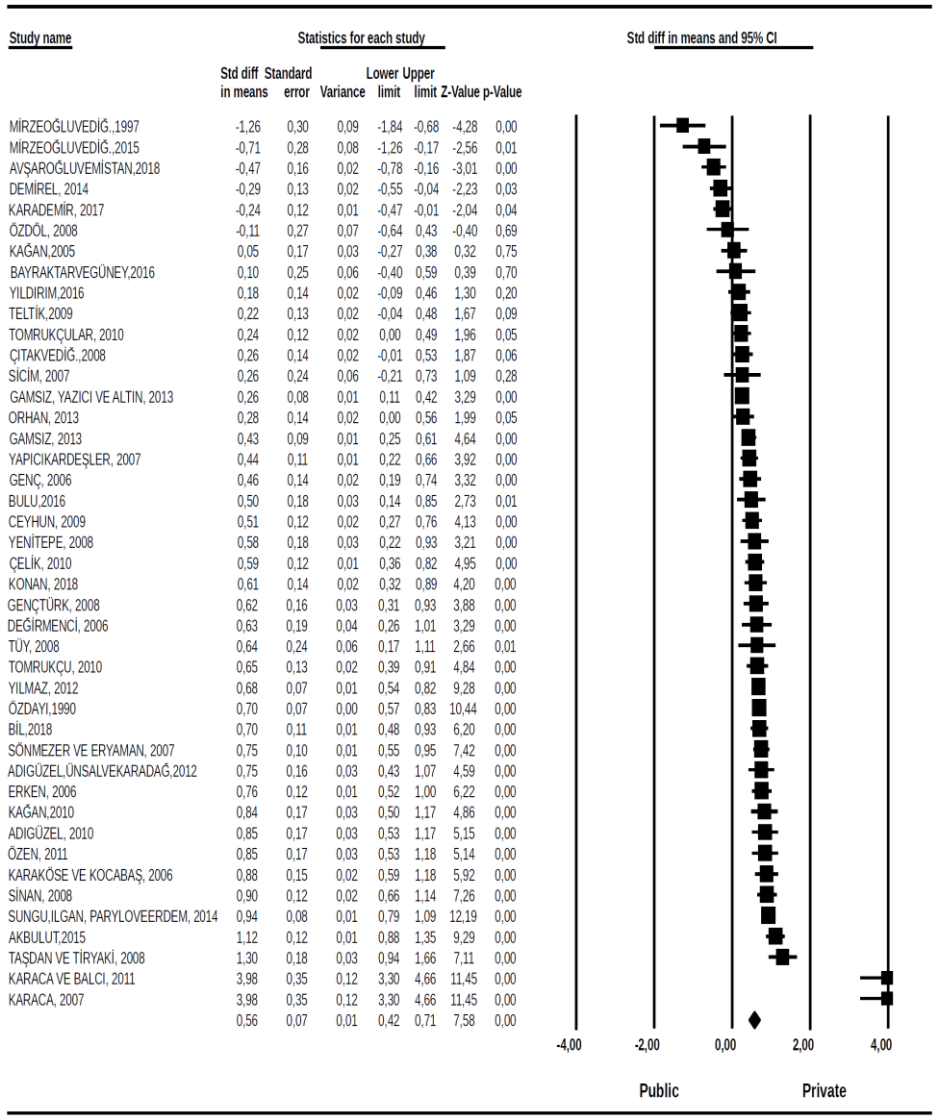

Figure 3. *Forest Plot of Effects Sizes of Studies by the Variable of School Type*

When Figure 3 is analyzed, it is observed that according to the random effects model, there is a difference higher than zero in favor of teachers working in private schools. While a statistically significant difference ($p<.05$) was in 36 of 43 studies, no significant difference was found in seven studies.

Findings of Effect Sizes Combined by Fixed and Random Effects Model and Heterogeneity Test Results

Average effect size (without excluding outliers) of the effect sizes of the perceptions of teachers working in the private and public schools on JS, which was combined according to the fixed and random effects model, standard error, and lower and upper limits in accordance with 95% confidence interval are given in Table 2.

Table 2

Findings of the Effect Size Meta-Analysis of Studies Combined by Fixed and Random Effects Model and Homogeneity Test

Model		Effect size and 95% confidence interval				Homogeneity		
	Number of Studies	ES	Standard Error	Variance	Z-value	Q-value	df (Q)	I^2
Fixed effect	43	.54	.02	.00	27.60	550.40	42	92.36
Random effect	43	.56	.07	.06	7.57			

According to the random effects model, the average effect size value of the effect size values of the studies which were included in this study in accordance with school type is ES=.56; the standard error of the average effect size was SE=.07; and the upper limit of the confidence interval of the average effect size was .70 and the lower limit was .41 (Table 2).

The data obtained from 43 studies included in the meta-analysis in line with the calculations showed that according to the random effects model, teachers working in private schools had more JS than teachers working in public schools. In the interpretation of the effects size, it has been stated that in Cohen's classification, d=0.20-0.50 means low effect level; 0.50-0.80 means medium effect level, and higher than 0.80 means high effect level (Cohen, 1988). Since the effect size value was between 0.50-0.80 in this study, according to Cohen's classification, a medium level of effect size was found.

According to the classification carried out by Thalheimer and Cook (2002), $-0.15 < d < 0.15$ means insignificant; $0.15 < d < 0.40$ means low level; $0.40 < d < 0.75$ means medium level; $0.75 < d < 1.10$ means high level; $1.10 < d < 1.45$ means very high level; and $1.45 < d$ means perfect level of effect size. According to this classification, it was observed that there was a medium level (0.40-0.75) of difference. When the statistical significance was calculated in accordance with Z test, Z was 7.57 (Z=7.57).

Homogeneity Analysis

For the homogeneity test, in other words, for Q-statistic, Q was calculated to be 550.40 (Q=550.40). From the chi-square table, 44 degrees of freedom was 45.77 at the 95% significance level. Since the Q-statistic value (Q = 550.40) exceeds the critical value of the chi-square distribution with 42 degrees of freedom (x2 0.95 = 27.50), the absence hypothesis of the distribution of effect sizes was rejected in the fixed effects model. In other words, the distribution of effect sizes is heterogeneous according to the random effects model.

Developed as a complement to Q statistics, I2 reveals more clear results about heterogeneity. I2 shows the ratio of the total variance of the effect size. Unlike Q statistic, the I2 statistic is not affected by the number of studies. In the interpretation of I2, 25% indicates a low level of heterogeneity; 50% indicates a medium level of heterogeneity; and 75% indicates a high level of heterogeneity (Cooper et al., 2009). As a result of homogeneity tests (Q and I2) administered for the school type variable, since there was a high level of heterogeneity between studies, the model for the process of combining was transformed into a random model. As a result of homogeneity tests (Q and I2) for the school type variable, since there was a level of heterogeneity which was close to a high level between studies, moderator analyzes were carried out to determine the possible causes of this heterogeneity.

Results of the Moderator Analysis according to School Type Variable

Results of the moderator analysis which was performed to reveal the reasons of heterogeneity occurring as a result of the school type variable are given in Table 3.

Table 3

Categorical Moderator Results related to the Effects of School Type on JS

Moderator	k	d	SE	%95 CI	Q
Publication Type					5.21
MA	23	.59	.08	[.43; .75]	
PhD	4	.80	.08	[.63; .97]	
Article	16	.43	.16	[.11; .75]	
Education Level					18.67
Preschool	3	1.41	.75	[-.06; 2.88]	
Primary	12	.74	.12	[.51; .97]	
Preschool/Primary	3	.08	.16	[-.24; .40]	
Middle School	11	.27	.16	[-.05; .59]	
Primary/Middle School	12	.74	.12	[.51; .97]	
Private Education	2	.009	.48	[-.93;.95]	
Scale Type					6.82
Balcı	4	.64	.25	[.13; 1.14]	
Batıgun and Sahin	4	1.09	.35	[.39; 1.79]	
Gunduz	3	-.27	.82	[-1.89; 1.35]	
Hackman and Oldham	1	.09	.25	[-.39; .59]	
Minnesota	30	.56	.07	[.41; .71]	
Spector	1	.60	.14	[.32; .89]	

Table 3 Continue

Moderator	k	d	SE	%95 CI	Q
Title of Teacher					8.51
Classroom	2	.44	.19	[.07; .82]	
Branch	17	.55	.13	[.28; .82]	
Classroom-branch	17	.51	.08	[.35; .68]	
Counselor	2	.84	.11	[.61; 1.07]	
Preschool	3	1.41	.75	[-.06; 2.88]	
Special Education	2	.009	.48	[-.93; .95]	
Region of the Study					2605
All regions	1	.93	.07	[.78; 1.08]	
Aegean	1	.85	.16	[.52; 1.17]	
Southeastern	3	.51	.39	[-.26; 1.28]	
Central Anatolia	12	.77	.23	[.30; 1.24]	
Black Sea	10	.46	.11	[.24; .68]	
Marmara	16	.48	.05	[.37; .60]	

Note: k=number of studies, d=Cohen's d (SOF), SE= Standard Error, CI= Confidence Interval, Q=heterogeneity among the studies; Comparison analyses were carried out for the studies with two and more subgroups. *p<.05

As a result of the conducted moderator analysis, it was determined that the effect sizes of the studies varied by the education level (p=.00) and the region of the study (p=.00). Results of the studies in which preschool education level was considered in terms of education level show that JS of teachers is higher in favor of private schools (d=1.41). The findings showed that effect sizes of studies do not differ significantly publication type (p=.07), the title of the teacher (p=.13), and the scale type (p=.23). In this meta-analysis study, it was observed that the Minnesota Job Satisfaction Scale (Akkamıs, 2010), which is thought to contain many variables related to teaching and based on the theoretical basis of Herzberg's two factor theory, was used in 30 studies.

Discussion, Conclusion and Recommendations

In this study, a statistically significant moderate effect size was determined in accordance with the random effects model (d =.56; [.41; .70]) in favor of teachers working in private schools in terms of the school type variable. According to the classification of Thalheimer and Cook (2002), this result is a medium level ES. Results of this meta-analysis show that whether teachers work in private or public schools is a significant variable affecting their JS.

In the TALIS report published by OECD (2014), it was revealed that the number of students is high in Turkey (average number of students in class 30 and more), the lack of a reward system, and that the performance evaluation processes are not effective had a negative impact on JS of teachers. It is determined that teachers have high job satisfaction and self-efficacy perception in schools where teachers participate in professional development activities in TALIS 2018 report (OECD, 2019). According to the random effects model results, there is a medium level of difference in favor of

teachers working in private schools concerning the school type variable that has shown parallelism with the results of studies conducted by Adıguzel (2010), Akbulut (2015), Bil (2018), Tasdan and Tiryaki (2008) and TED (2014). It is seen that teachers working in public schools generally have a negative perception of the sub-dimensions of JS about these studies. According to Herzberg's two-factor theory (Herzberg, Mausner, & Snyderman, 1959), it is possible to say that the protective factors-external factors (e.g., wage, social relations, working conditions, physical-technological infrastructure and organizational culture) which are one of the significant dimensions of JS, are effective in the high levels of JS of teachers working in private schools. The working conditions (e.g., wages, administators and parent pressure, no job guarantee and workload) of public schools' teachers in Turkey actually is better than the teachers working in private schools. However, in this meta-analysis study, it was observed that the JS of private school teachers is relatively higher than public school teachers. This situation can be explained by the high number of teachers who are new to the profession in private schools. There are teachers who have completed university but cannot be appointed to work in private educational institutions. This can be related to the high level of job satisfaction of teachers in the first years of the profession. Private school teachers who are new to the profession desire to gain experience and have a job may cause their job satisfaction to be high. It can be stated that the satisfaction of teachers working in private schools is higher than the satisfaction of teachers in public schools concerning external satisfaction factors, such as working conditions, social relations with administrators and other teachers. In addition, it is seen that these results show continuity during the years of meta-analysis studies. This situation needs to be questioned, especially in terms of public schools because the low level of JS of teachers shall negatively influence the performance of teachers and schools.

In the studies carried out by Celik (2010), Gencturk (2008), Green, Machin, Murphy, and Zhu (2008), (Lopes and Oliveira, 2020), Ocal (2011) and Yılmaz (2012), it was revealed that teachers working in private schools have higher JS because all kinds of opportunities in private schools are higher than in public schools, wages are more satisfactory, physical-technological infrastructure is sufficient, education and self-development activities are given more, working conditions are better, and the number of students in the classes is lower. These results support the results of the meta-analysis study. This difference may reflect the greater autonomy of private schools. For instance, private schools can select their students and teachers, and they can set their culture and disciplinary regulations (Lopes & Oliveira, 2020).

There is a significant positive relationship between the school's organizational climate and teachers' JS. In addition, teachers' JS is influenced by several factors, such as instructional leadership, teacher autonomy and social communication (Rezaee, Khoshsima, Zare-Behtash, & Sarani, 2019). In the studies conducted by Tasdan and Tiryaki (2008), and Yılmaz and Altinkurt (2012), the prominent findings of external job satisfaction factors, such as low salaries received by teachers working in public schools, limited career development opportunities, insufficient physical-technological infrastructure, lack of positive social relations and lack of working conditions provide an important clue in the low level of JS of teachers in this meta-analysis study. It was

observed in these studies that job satisfaction of teachers working in private schools is higher than the JS of teachers working in public schools in terms of job and quality, wages, organizational climate, executive support, social relations, career conditions, and career management. Within the scope of these studies, it can be stated that the school type variable affects the external JS (hygiene-protective) the most, and the internal job satisfaction (motivation-self-assessment) the least.

Teachers working in public schools have problems concerning autonomy, working conditions, administrative support and school resources. JS decreases as there is not a structure supporting the idealistic approach in the early years of the teaching profession, an effective system that monitors their professional competencies and development, and a performance-based approach to success (NCES, 1997; TED, 2014). As one of the factors that increase the job satisfaction of teachers in private schools, it is important to create an independent and autonomous work environment where teachers can reveal their own abilities and to raise awareness in both schools and Ministry of National Education (MONE) for providing administrative support in public schools (Sinan, 2008; Tuy, 2008). The results of this study are also significant in terms of revealing that the low level of JS of teachers in public schools has become continuous over the years. Within the context of that "the quality of an education system is related to the quality of teachers", measures must be taken to increase teachers' job satisfaction, especially in public schools.

In the meta-analysis study conducted by Akar (2018), it was revealed that teachers' quality of work life strongly affects their JS. In this context, measures must be taken to increase the job satisfaction of teachers in public schools, especially in terms of wages, administrative support, social relations, working conditions and career management. Within the scope of the results of this meta-analysis study, apart from the school type variable, meta-analysis studies can be carried out using variables affecting job satisfaction, such as school culture, exhaustion, economic and social environment. In the context of the results of this meta-analysis study, it may be suggested that qualitative and quantitative studies should be carried out on which factors are effective in increasing the JS of teachers in private schools compared to teachers in public schools.

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(The symbol of * refers to the studies included in the meta-analysis).

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Türkiye'de Resmi ve Özel Okullarda Çalışmanın Öğretmenlerin İş Doyumu Üzerindeki Etkisi: Bir Meta-Analiz Çalışması

Atıf:

Aytac, T. (2020). The effects of working in public or private schools on job satisfaction of teachers in Turkey: A meta-analysis study. *Eurasian Journal of Educational Research 89, 179-200*. DOI: 10.14689/ejer.2020.89.9

Özet

Problem Durumu: Eğitimin niteliği ile öğretmenlerin iş doyumu (İD) arasında ilişki olduğu günümüzde tartışılmaktadır. Rekabetin yoğun olarak yaşandığı resmi ve özel okullarda çalışan öğretmenlerin İD; okulun kültürü, çalışma koşulları, yönetim biçimi ve çalışanların iletişim biçimi gibi birçok faktörden etkilenebilir. Özellikle son yıllarda eğitimin özelleştirilmesi politikaları bağlamında özel okulların kurulması teşvik edilmekte ve velilere de bu yönde katkılar sağlanarak çocuklarını bu okullara gönderme konusunda destek sağlanmaktadır. Bir yandan da öğretmen istihdamı konusunda atanamayan öğretmenlerin bir çoğununda alternatif olarak özel okullarda çalışması, özel ve resmi okullarda çalışan öğretmenlerin İD düzeylerinin belirlenmesini önemli hale gelmektedir. Öğretmenlerin işten doyumunda, çalıştıkları okul türünün (özel/resmi) etkili olup olmadığının belirlenmesi, bu çalışmanın problemini oluşturmaktadır.

Araştırmanın amacı: Bu araştırmanın amacı: öğretmenlerin çalıştıkları okul türünün (resmi ve özel okul) işten doyumlarına etki düzeyini belirlemektir.

Araştırmanın Yöntemi: Çalışmada, araştırma sentezleme yöntemlerinden biri olan ve ampirik çalışmaların bulgularının yeniden analiz edilmesinde kullanılan meta-analiz yöntemi kullanılmıştır. Meta-analiz yöntemi aynı konu ile ilgili birbirinden bağımsız olarak yapılmış nicel çalışmaların verilerinin sistematik bir şekilde analiz edillmesi ve sentezlenmesi yöntemidir. Verilerin analizinde grup karşılaştırma meta-analiz yöntemlerinden (Rastgele etkiler modelleri) Grup Farklılığı yöntemi kullanılmıştır. Türkiye'de resmi ve özel okullarda çalışan öğretmenlerin iş doyumu (İD)'na ilişkin algılarını konu alan yüksek lisans ve doktora tezleri ile araştırma makaleleri, bu çalışmanın temel veri kaynağını ve kapsamını oluşturmaktadır. İlgili araştırmalara ulaşmak için Web of Science, ERIC, ULAKBİM, EBSCOhost, Google Akademik, Scopus ve YÖK Ulusal Tez Merkezi veri tabanlarından "iş/işten doyumu", "mesleki doyum", "iş tatmini", "resmi ve özel okul" ve "iş mennuniyeti" anahtar sözcükleri kullanılarak tarama yapılmıştır. Yapılan tarama sonrası araştırma konusuna yönelik yapılan 126 çalışmadan dâhil edilme kriterlerine uygun 43 çalışmanın olduğu belirlenmiştir. Araştırmaya dahil edilen çalışmaların seçiminde kullanılan dahil edilme kriterleri aşağıda verilmiştir;

(i) Kriter 1: Yayınlanmış veya yayımlanmamış çalışma kaynakları: Yüksek lisans ve doktora tezleri ile alanyazında yayınlanmış araştırma makaleleri kapsama alınmıştır.

(ii) Kriter 2: Çalışmalardaki bağımlı ve bağımsız değişkenin meta-analiz çalışmasına uygun olması: Meta-analiz çalışmalarında etki büyüklüğüne ulaşabilmek için dahil

edilen çalışmaların empirik çalışmalar olması ve özel-resmi okulların bağımsız değişken olarak kullanılmış olması dikkate alınmıştır.

(iii) Kriter 3: Meta-analiz için gerekli nicel verileri içermesi: Meta-analiz çalışması için gerekli olan etki büyüklüklerinin hesaplanabilmesi için nicel veriler (ortalama, standart sapma, örneklem sayısı, p değeri vb.) içermesi dikkate alınmıştır.

(iv) Kriter 4: 1990 ve 2019 yılları arasında Türkiye'de yapılan çalışmalar dikkate alınmıştır. Bu çalışmalar kapsamındaki toplam örneklem sayısı 14599 olup bunun 4296'sı özel okullarda ve 10303'ü ise devlet okullarındaki öğretmenlerdir.

Hariç Tutma Kriterleri: Literatür taraması sonucu elde edilen 83 çalışma; farklı örneklemlerde yapılan çalışmalar olması (okul yöneticileri ve öğretim üyeleri), meta-analizi için gerekli istatistiksel verilere sahip olmaması ve yalnızca nitel bulgulara yer vermesi bağlamında dâhil edilme kriterlerine uygun olmadığı için yapılan meta-analiz çalışması dışında tutulmuştur.

Araştırmanın güvenirliği: Kodlama işlemi yapıldıktan sonra kodlayıcılar arası güvenirliğin (interrater reliability) sağlanması için Cohen's Kappa istatistiği kullanılmış ve güvenirlik .97 olarak bulunmuştur. Bu sonuç, kodlayıcılar arasında mükemmel bir uyumu göstermektedir.

Araştırmanın geçerliği: Meta-analize dahil edilme kriterlerine uygun tüm çalışmaların ulaşılabilecek tüm veri tabanları kullanılarak taranması ve çalışmaya dahil edilmesi araştırmanın geçerliliğinin bir göstergesidir. Tarama sonucunda bütün çalışmalara ulaşılması bağlamında geçerliliğin sağlandığı söylenebilir. Bu bağlamda meta-analize dahil edilen 43 çalışmanın her biri ayrıntılı olarak incelenmiş, araştırmada kullanılan veri toplama araçlarının geçerliğinin ve güvenirliğin sağlandığı doğrulanmıştır. Dolayısıyla bu meta-analiz çalışmasının da geçerli olduğu söylenebilir. Bu çalışmanın istatistiksel hesaplamaları için, CMA Ver. 2. [Comprehensive Meta Analysis] yazılımı kullanılmıştır. Verilerin analizinde grup farklılığı meta-analiz yöntemi kullanılmıştır. Genel etki büyüklüğünün hesaplanmasında rastgele etkiler modeli kullanılmıştır.

Araştırmanın Bulguları: Bu çalışmada, 14599 kişilik bir örneklemi oluşturan 43 çalışmaya ait 43 adet etki büyüklüğü hesaplanmıştır. Araştırma sonuçlarına göre, okul tipi değişkenine göre özel okulda çalışan öğretmenler lehine rastgele etkiler modeline göre (d=.56; [.41; .70]) istatistiksel olarak anlamlı orta düzeyde bir etki büyüklüğü belirlenmiştir. Özel okullarda çalışan öğretmenlerin işten doyumlarının resmi okullarda çalışan öğretmenlere oranla daha fazla olduğu görülmüştür. Yapılan moderatör analizi sonucunda öğretim kademesine (p=.002) ve araştırmanın yapıldığı bölgeye (p=.00) göre çalışmaların etki büyüklüklerinin farklılaştığı belirlenmiştir. Öğretim kademesi açısından okulöncesi eğitim kademesinin ele alındığı çalışmaların sonuçları, özel okullar lehine (d=1,41) öğretmenlerin işten doyumunun daha yüksek olduğunu göstermektedir. Yayın türüne (p=.07), öğretmenin unvanına (p=.13) ve ölçek türüne (p=.23) göre çalışmaların etki büyüklüklerinin farklılaşmadığı belirlenmiştir.

Araştırmanın Sonuçları ve Önerileri: Özel okullarda çalışan öğretmenlerin İD'larının resmi okullarda çalışan öğretmenlere oranla daha fazla olduğu görülmüştür. Bu meta-

analiz çalışması sonuçları, öğretmenlerin özel ya da resmi okullarda çalışıyor olmalarının, İD'larını etkileyen anlamlı bir değişken olduğunu göstermektedir. Türk Eğitim Sistemi bağlamında resmi okullarda çalışan öğretmenlerin özel okullarda çalışan öğretmenlere oranla İD'larının düşüklüğünde onları güdüleyici bir okul kültürü olmaması, ödül sisteminin yetersizliği ve etkili bir rehberlik ve mesleki gelişim olanaklarının olmaması etkili olabilir. Türkiye'de devlet okullarında çalışan öğretmenlerinin çalışma koşulları (ücretler, yöneticiler ve ebeveyn baskısı, iş garantisi, iş yükü vb.) özel okullarda çalışan öğretmenlerden daha iyidir. Bununla birlikte bu meta-analiz çalışmasında, özel okul öğretmenlerinin iş doyumlarının devlet okulu öğretmenlerinden nispeten daha yüksek olduğu görülmüştür. Bu durum, özel okullarda mesleğe yeni başlayan öğretmenlerin deneyim kazanma motivasyonları ve bir iş sahibi olmanın öneminden kaynaklanabilir. Bu bağlamda resmi okullarda öğretmenlerin İD'unu yükseltici özellikle yönetici desteği, sosyal ilişkiler, mesleki gelişim, çalışma şartları ile kariyer yönetimi boyutlarında iş yaşamının niteliğini destekleyici ve güdüleyici önlemlerin alınması gerekir.

Resmi okullardaki öğretmenlerin işten doyumlarının düşük olması bulgusunun çeşitli araştırmalarda ifade edilmesi ve yıllar boyunca bunun devam etmesi, Türk Eğitim Sistemi sistemi açısından önemli bir sorun alanı olarak gözardı edilmemelidir. Resmi okullarda çalışan öğretmenlerin İD'larını yükseltecek düzenlemelerin gerçekleştirilmesi, MEB'in öncelikli politikaları arasında ele alınmalıdır. Bu bağlamda, "Bir eğitim sisteminin niteliğinin öğretmenlerin niteliğinin üzerinde olmasının söz konusu olamayacağı" anlayışıyla resmi okullarda, öğretmenlerin iş doyumunu artırmaya yönelik bir farkındalığın ve kültürün oluşturulmasına yönelik uygulamalar hayata geçirilmelidir.

Okulun örgüt iklimi ile öğretmenlerinin İD arasında anlamlı pozitif ilişki vardır. Ayrıca öğretmenlerin İD; öğretimsel liderlik, öğretmen özerkliği ve sosyal iletişim gibi faktörlerden etkilenmektedir. Resmi okullarda öğretmenlerin İD'unu yükseltmeye yönelik nesnel performans değerlendirmeye dayalı kariyer basamaklarının hayata geçirilmesi ve sürekliliğinin sağlanması, öğretmen özerkliğinin desteklenmesi ve özellikle yönetici-öğretmenler arasındaki ilişkilerin artırıldığı daha demokratik ve katılımcı okul kültürünün oluşturulması öğretmenlerin İD'unu olumlu yönde etkileyecektir. Bu meta-analiz sonuçları özellikle resmi okullarda çalışan öğretmenleri destekleyici ve güdüleyici bir kültür, öğrenme-öğretme ve çalışma ortamının yetersizliğini göstermektedir. Bu meta-analiz çalışması sonuçları bağlamında öğretmenlerin çalıştıkları okul türü değişkeni dışında İD'larını etkileyen okul kültürü, tükenmişlik, ekonomik ve sosyal ortam gibi değişkenler kullanılarak meta-analiz çalışmaları yapılabilir. Bu meta-analiz çalışması sonuçları bağlamında özel okullardaki öğretmenlerin İD'larının resmi okullardaki öğretmenlere göre daha yüksek olmasında hangi faktörlerin etkili olduğu konusu ile ilgili nitel ve nicel çalışmalar yapılması önerilebilir.

Anahtar Sözcükler: İş tatmini, öğretmen, meta-analiz, özel ve resmi okul.

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Trends in PhD Theses in Turkish Chemistry Education (1999-2019)*

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ABSTRACT

Purpose: This study analyzes the content of doctoral theses completed in chemistry education within the last two decades (1999-2019) after the restructuring of education faculties in Turkey. This study examines the doctoral dissertations completed in chemistry education in 1999-2019 concerning their year of publication, university, objective, research design, sample properties, data collection tools and data analysis methods.

Research Methods: This study was conducted using the qualitative research method of document review. The documents analyzed as part of this study were PhD theses completed in chemistry education in Turkey in 1999-2019. The theses were subjected to descriptive content analysis.

Findings: The findings obtained in this study showed that the number of theses began to increase in 2001 and reached its peak in 2012, before beginning to taper off in the following years. The Middle East Technical University published the highest number of theses. It was observed that most theses concerned the development and implementation of a teaching method. Quasi-experimental designs featured prominently as a research method, with most samples comprising high-school-level study groups. Although examples of quantitative research were more on the whole, in recent years, there was a higher number of studies based on mixed and qualitative research. Interviews and concept testing/achievement tests were frequently observed as data collection tools, while inferential and descriptive statistics were predominantly brought to bear as data analysis methods.

Implications for Research and Practice: This findings obtained in this study suggest that more emphasis should be placed on graduate courses that teach research methods, incorporating more practice sessions because the research methods used in the theses were not specified appropriately by the researchers. There is also a need, in keeping with international trends, to focus more on mixed method research, and to increase the number of qualitative studies, which do a better job of exploring educational environments naturally.

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Introduction

Chemistry emerged in the 18th century as a field of science that explores matter, its internal structure and its interactions. Chemistry is an academic branch that makes discoveries and contributes to theoretical and applied sciences. Chemistry education, on the other hand, concerns itself with questions, such as what to teach and how to teach it, what the knowledge content should be and how successful teaching practices have become. The establishment of chemistry education as a scientific field is relatively new compared to the academic science of chemistry itself. The science of chemistry education, which is interested in how to teach chemistry effectively, is a hybrid field of research that requires the researcher to both be well-versed in the essentials of educational sciences and have expert knowledge of the subject matter in chemistry (Gilbert, 2006; Kempa, 2002; Sozbilir, Akilli, Yasar & Dede, 2016).

The rivalry between the United States and the Soviet Union after the Second World War, and the resulting emphasis on education, precipitated the birth of the fields of science education and chemistry education. Chemistry education focused on mistakes made in theoretical learning in the 1970s, and then shifted to fighting misconceptions until the 1990s. This was soon followed by an emphasis on the teaching of concepts and, more recently, on teaching methods and techniques. The field of chemistry education then focused on teacher education and the use of information technology in chemistry classes, eventually becoming the well-established area of expertise that it is today (Jorde & Dillon, 2012; Sozbilir et al. 2016; Sozbilir & Ayas, 2015). Until the 1990s, chemistry education research was relatively scarce in Turkey (Sozbilir, 2013). As part of a National Education Development project undertaken by Turkey's Institution of Higher Education (HEI) and the World Bank, departments of education in universities across Turkey were restructured, with radically transformed functions and objectives. After that, there was a considerable rise in research in the field of chemistry education in Turkey. As academics working in departments of education began to focus on teacher education and applied chemistry education, the area of chemistry education expanded and gained tremendous momentum, reaching an all-time high in the mid-2000s (Sozbilir, Kutu & Yaşar, 2013; Sozbilir & Ayas, 2015).

As the number of publications grew, a host of diverse studies was conducted. Researchers who are working on a certain topic encounter difficulties in accessing research on that topic, wasting time and energy trying to locate what they are looking for among a large collection of studies. It is thus increasingly significant that we ascertain existing needs in the field and drive future research accordingly. Therefore, a study that monitors trends in the field by closely examining the body of research on chemistry education and its results will empower researchers working in the field of chemistry education (Cohen, Manion & Morrison, 2007). Content analysis is considered a synthesis of research, and it plays a pivotal role in making research topics widespread, shaping future work, policy, and practice, and raising public awareness (Suri & Clarke, 2009). In that regard, reviewing chemistry education research using content analysis will be beneficial for researchers in allowing them to follow trends in the field, spot problem areas, determine a course of action and avoid repetitions.

Literature Review

When looking at the content analysis work conducted in chemistry education, a few recent studies can be observed (Akkus, Sari & Uner, 2012; Sozbilir; 2013; Sozbilir et al. 2016; Sozbilir et al. 2013; Teo, Goh & Yeo, 2014; Towns & Kraft, 2013; Ulutaş et al., 2015; Yavuz, 2017). Teo et al. (2014) conducted a content analysis by reviewing 650 experimental chemistry education articles published in 2004-2013. They concluded that the most studied topic was a conceptual change, and 52 % of the studies used the mixed research method. Furthermore, the most frequent sample group was university students, and the highest number of studies was carried out in the United States, with 48.6%. Sozbilir et al. (2013) examined 273 chemistry education articles published by Turkish academics in 67 national and international journals between 1999 and 2009. They reported that the most common topic concerned the impact of teaching methods on student achievement. The most frequent research method was the quasi-experimental design, and the most common data collection tool was achievement tests. Moreover, most samples comprised undergraduates with 31-100 being the most frequent sample size, and descriptive analytics was the most preferred data analysis method. Sozbilir et al. (2016) reviewed 1338 chemistry education articles published in 65 journals between 1997 and 2013, comparing articles published in Turkey and articles authored in English and published in international journals. They reported that although there has been a rise in the number of articles published in Turkey since 2000, Turkish academia has had difficulty producing studies of international quality. A study conducted by Sozbilir (2013) found that national articles in chemistry education were largely based on quantitative research, while international articles were predicated on qualitative research. Moreover, national articles mostly relied on a single data collection tool, while international articles featured multiple tools. In another study, Ulutaş et al. (2015) conducted a content analysis of 193 chemistry education articles published in ten Turkish journals between 2000 and 2013. They concluded that most studies focused on the effects of teaching methods on success and most of these studies were based on quantitative research. They mostly used multiple-choice tests as a data collection tool and did not use pilot studies ahead of implementation, and the most common topics were fundamental chemistry and the particulate nature of matter. In a recent content analysis, Yavuz (2017) focused on graduate and doctoral theses on misconceptions in chemistry education between 2005 and 2015 in Turkey. The analysis, which looked at 64 theses, showed that most theses used scanning as a quantitative research method. They worked with samples comprising 50-100 middle school students and gathered data using concept testing and analyzed existing data using percentages/frequencies. Unlike graduate studies, Ph.D. studies mostly used the qualitative interview method to gather data. Akkus et al. (2012) carried out a content analysis by reviewing 75 graduate dissertations completed on chemistry education in Turkey between 2000 and 2010. They reported that most theses were based on quantitative research, used experimental designs, featured samples of 50-100 people, employed multiple-choice tests and analyzed data using t-tests. It can be seen that content analysis studies in the literature on teaching chemistry generally concentrate the same time (2000-2010). To our knowledge, there is not any study surveying the last 5-6 years. It can be argued that content analysis is

generally on articles and they use the same sample groups and data collection instruments.

Doctoral dissertations are significant studies in that they contribute to the development of their area as a scientific field; at the same time, they are based on original research and are more comprehensive and longer-term than other studies. Therefore, doctoral theses are expected to offer something new to the field. Doctoral theses are a rich source of data that allow researchers to see the distribution of research topics and methods in chemistry education. Furthermore, they provide an up-to-date overview of the field and give information on how trends have changed over time. Calık et al. (2008) and Kuçukozer (2016) reviewed doctoral theses on science education; Gurel et al. (2017) reviewed doctoral theses on physics education; Karadag (2009) examined PhD theses on educational sciences, and Kozikoglu and Senemoglu (2015) analyzed doctoral theses on educational programs and teaching. However, to our knowledge, no such study on doctoral theses in the field of chemistry education. Therefore, there is a need to explore and report on the changes and existing trends in chemistry education. Thus, this study aims to conduct a content analysis of the doctoral theses completed in chemistry education in Turkey. The author aims that this study will offer guidance to researchers and graduate/Ph.D. students who plan to work in chemistry education. This study aims to conduct a content analysis of doctoral dissertations carried out in the field of chemistry education within the last twenty years (1999-2019) after the restructuring of departments of education in Turkey. The study reviews doctoral theses in chemistry education concerning their topics, methods, university, distribution over the years, the teaching approach used, which chemistry topics they focus on, sampling, data collection tools and data analysis methods. For this purpose, the study seeks answers to the following research questions.

- How are doctoral dissertations in chemistry education in Turkey distributed over the years?
- What are the main problem statements explored in doctoral theses in chemistry education in Turkey?
- What are the common learning/teaching approaches utilized in doctoral theses in chemistry education in Turkey?
- What are the oft-studied chemistry topics in doctoral dissertations in the field of chemistry education in Turkey?
- What are the research methods/designs frequently employed in doctoral theses in chemistry education in Turkey?
- What are the sample groups and sample sizes commonly observed in doctoral theses in the field of chemistry education in Turkey?
- What are the common data collection tools in doctoral theses in chemistry education in Turkey?

- What are the common data analysis methods in doctoral theses in chemistry education in Turkey?

Method

Research Design

This study was conducted using the qualitative research method of document review. The main objective of document review is the study of written documents that contained information about the situation or problem that is being studied, and the analysis of the said documents with a view to inferring meaning from them (Merriam & Tisdell 2015; Yıldırım & Simşek, 2013).

Research Sample

This study relied on a comprehensive scan of the Turkish Higher Education Institution (HEI) database for studies conducted after the year 1999, as it was assumed that there was a strong rise in the number of thesis publications in the field of education following the restructuring of departments of education in Turkey (1998). Keywords, such as "chemistry education", "chemistry, education and teaching" and "chemistry teaching" were used on the HEI database, with "Ph.D." selected as the type of thesis. The search was repeated by selecting the department as "secondary education science and math", "math and science", and "primary school science education", also adding keywords, such as "chemistry education", "chemistry", and "chemistry teaching". Similar searches were conducted using English words. In total, 186 doctoral dissertations were found, and some of them were removed from the collection for being off-topic. Some theses could not be accessed due to restrictions. Some theses were accessed using the library of Artvin Çoruh University, as these dissertations were archived by the Turkey Document Management System (TÜBESS). As a result of these efforts, 168 doctoral theses were included in this research, with 162 of them reviewed in full and six reviewed on the basis of information provided on their abstracts (year, university, and objective) due to limitations on accessing the full texts. References contained a list of the theses accessed.

Research Instruments and Procedures

An analysis of these dissertations was conducted using the "Publication Classification Form" developed by Sozbilir, Kutu, and Yasar (2012). Many changes were made to this form, which was used extensively in a variety of studies. The form, which was revised for this particular study, consisted of nine categories that addressed the questions posed by this research (Appendix-1). The first two categories included the university at which the thesis was published and the year of publication; the third category featured the purpose or problem statement of the thesis (e.g., learning/teaching, teacher education, concept analysis, education/teaching problems, attitude/perception, curricula, test/criteria development and nature of science). The fourth category answered the question of which teaching/learning approach was used in the thesis (5E learning model, conceptual change approach, argumentation-based

instruction, problem-based learning, computer-assisted instruction and active learning) The fifth category concerned the subject of the research, with research design explored in the sixth category, sampling properties in the seventh, data collection tools in the eighth, and data analysis methods in the ninth.

Data Analysis

The documents analyzed as part of this study were Ph.D. theses completed in chemistry education in Turkey between 1999 and 2019. The theses were subjected to descriptive content analysis. Descriptive content analysis is a study that is conducted with the purpose of determining trends and developments by reviewing research conducted in a specific field over a long time (Calik & Sozbilir, 2014). Content analysis is a method used to evaluate for a certain publication piles (Falkingham & Reeves, 1998). The study analysed doctoral theses in chemistry education concerning their topic, university, methods, the teaching approach used, sampling, data collection tools and data analysis methods.

Many theses were classified together with an expert academician who had conducted some content analysis studies before. Afterwards, the researcher and the domain expert coded ten theses one by one and the consistency of the coding has been compared to understand if the researcher learned the categorization appropriately. The consistency was over 90% between the two coders and uncertainties were cleared. Then, the 168 doctoral theses that were analyzed were categorized again by the researcher himself after a month-long interval to confirm the validity of the content analysis. There was a 94% compatibility between the researcher's two reviews. Coding was highly aligned (Miles & Huberman, 1994). The coding differences between the two categorizations of the researcher were then reviewed again, and a field expert was consulted in cases where the researcher faced difficulty making categorization decisions. The data that were gathered as a result of the content analysis were saved in a Microsoft Excel file. The data were checked again to prevent double entries or loss of data and were exported to SPSS 18.0 for analysis. Subjected to a descriptive analysis, the results were presented in the form of frequency (f) - and percentage (%)-based graphics and tables.

Results

The distribution of the 168 theses examined in this study between 2001-2018 presented below in figure 1.

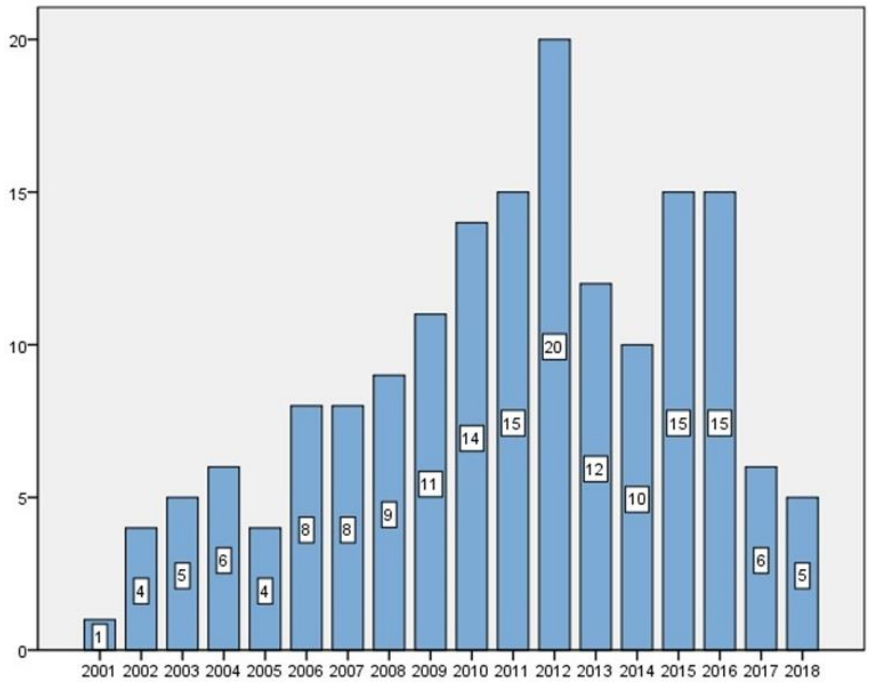

Figure 1. *Distribution of PhD Theses in Chemistry Education over the Years (1999-2019)*

As can be seen form the figure 1 during the 2000-2019 period, the first doctoral dissertations in the field of chemistry education began to be published in 2001-2002, and the number of theses published in a year reached a peak in 2012. There has been a downward trend in subsequent years. No doctoral thesis was published in the year 2019, the year of publication for this study.

The distribution of the theses by subject in Table 1 showed that most dissertations mainly dealt with improving teaching and learning, and they overwhelmingly concentrate on the effects of instructional methods on students' achievement.

Table 1

Distribution of the PhD Theses by Subject

Subject	f	%
Instruction	137	81.5
Teaching as a profession	9	5.4
Curricula work	5	3.0
Teacher education	5	3.0
Material development	3	1.8
Determining attitude/interest/motivation	3	1.8
Others	6	3.6
Total	168	100.0

Table 1 demonstrated that the majority of PhD theses in the field of chemistry education focused on the effects of the instructional method on student success.

Figure 2 shows which instructional methods were used in Chemistry Education PhD theses.

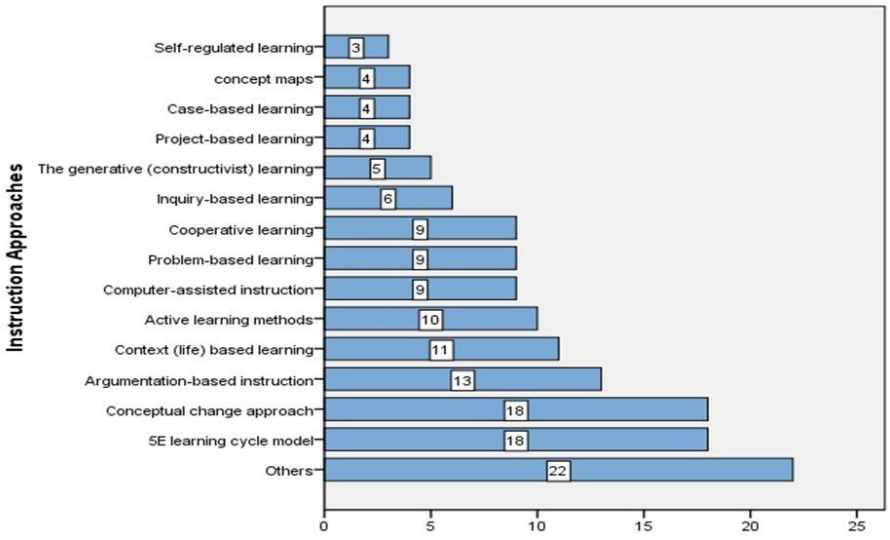

Figure 2. *Instruction Approaches Applied in Doctoral Dissertations in the Field of Chemistry Education*

The most commonly used teaching methods were the 5E learning model (18) and the conceptual change approach (18). They were followed by argumentation-based instruction (13), context (life) based learning (11), active learning methods (10), cooperative learning (9), problem-based learning (9), computer-assisted instruction (9), inquiry-based learning (6), generative learning approach (5), project-based

learning (4), concept maps (4), case-based learning (4), self-regulated learning (3), and other instructional methods (22).

Table 2 shows on which chemistry topics the theses were based on. It can be seen from Table 2 that studies concentrated on high-school chemistry curriculum and the instruction is based on high-school chemistry curriculum subjects. The theses were mostly on topics, such as acids-bases, chemical equilibrium, solutions, electrochemistry, chemical bonds, gases and reaction rate, where misconceptions are frequent. Organic chemistry topics, which mainly require knowledge level were not included in the theses at all. Some dissertations dealt with multiple chemistry topics. In addition, the instruction in some of the dissertations was based on different chemistry experiments.

Table 2

Distribution of the PhD Theses by Chemistry Topic

Chemistry Subject	**f**	%
Acids-Bases	16	10.5
The Structure of Matter	13	8.6
Multiple Chemistry Topics	13	8.6
Chemical Equilibrium	11	7.2
Solutions	10	6.6
Chemical Bonds	9	5.9
Electrochemistry	9	5.9
Gases	8	5.3
Using Experiments	7	4.6
Reaction Rate	7	4.6
Physical and Chemical Changes	6	3.9
Environmental Chemistry	5	3.3
Thermodynamics	5	3.3
Mixtures	4	2.6
Atoms and the Periodic System	4	2.6
Solubility Equilibrium	4	2.6
Chemical Reactions	3	2.0
Others	18	11.8
Total	152	100.0

Table 3 below shows the research designs used in doctoral dissertations published in chemistry education in Turkey between 1999-2019. According to Table 3, the most frequently used method in the theses was a quasi-experimental design, which is generally used in instructional activities. However, there are also some studies on instructional activities using a mixed method design. Furthermore, it can be seen that studies on the teaching profession and curriculum were mainly carried out using qualitative design.

Table 3

Research Designs and Methods Used in PhD Theses

Research Design		**f**	**%**
Quantitative	Quasi-experimental	86	52.8
	Pre-experimental	8	4.9
	Descriptive survey	4	2.5
	Correlational survey	3	1.8
	Subtotal	101	62.0
Qualitative	Case study	29	17.8
	Action research	4	2.5
	Document review	1	0.6
	Subtotal	34	20.9
Mixed	Explanatory mixed design	3	1.8
	Triangulation mixed design	15	9.2
	Embedded mixed design	10	6.1
	Subtotal	28	17.1
	Total	160	100.0

Figure 3 contains a graph that shows the distribution of various research methods over the years.

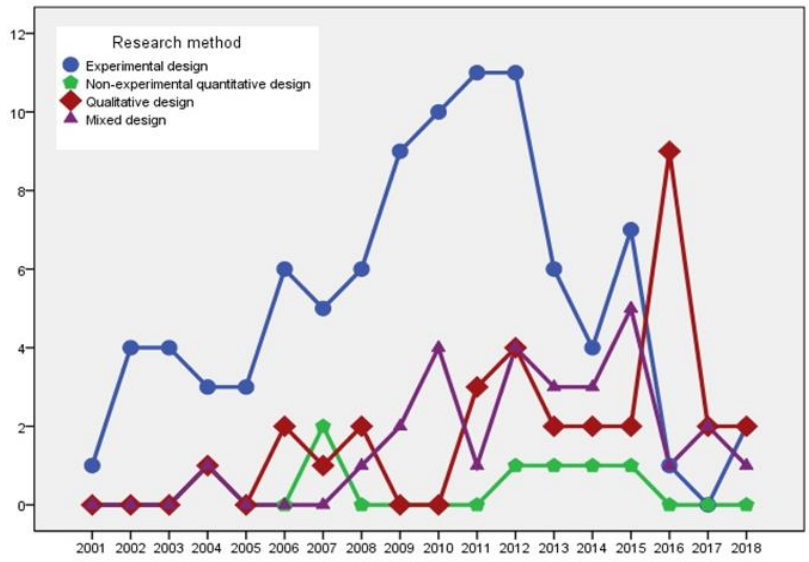

Figure 3. *Distribution of Research Methods Used in PhD Theses over the Years*

The graph demonstrates that experimental designs have not been used as frequently in recent years, while there has been a growing interest in qualitative and mixed designs. The fact that studies on chemistry teaching initially concentrated on finding misconceptions and correcting them led to the frequent use of experimental

designs in the early years. It can be seen that educational studies have recently headed for qualitative and mixed research designs because education is a social science. Using mixed research design, educational studies can be carried out both quantitatively and qualitatively in a more holistic way. It can be argued that the new trend is a mixed approach.

Figure 4 shows the distribution of sample groups that were commonly studied in dissertations.

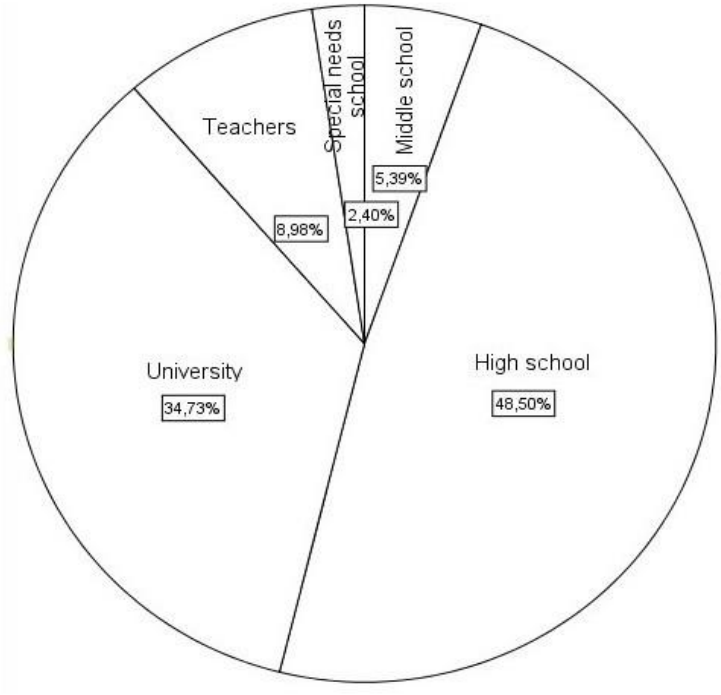

Figure 4. *Sample Groups Studied in PhD Theses on Chemistry Education*

As can be seen from figure 4, researchers gravitate towards a high school level because the topics they chose were mostly formed the high-school chemistry curriculum. University students formed the second-largest sampling group because of convenience sampling for instructional activities. Chemistry teachers were not preferred much as a sample group due to teacher education and curriculum being studied less frequently in dissertations.

The Figure 5 shows the sample sizes commonly chosen in PhD theses in the field of chemistry education in Turkey.

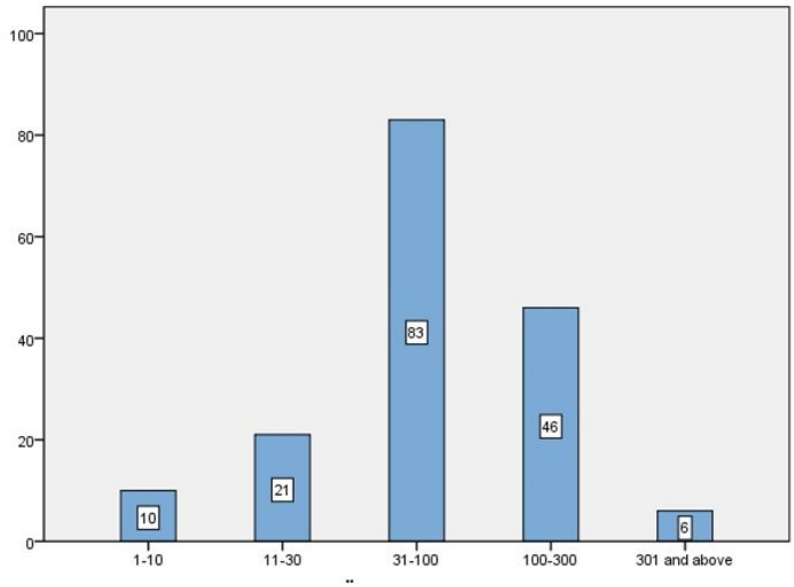

Figure 5. *Sample Sizes Commonly Preferred in PhD Theses in Chemistry Education*

The graph demonstrates that the most common sample size was 31-100 in line with instructional activities carried out in experimental designs. This may be a result of the size of the two classes, namely the experimental and control groups, because the average classroom size was between 30-40. That some experimental studies were conducted with 3-4 classes, and some of them were conducted with more crowded university samples might be responsible for the use of sample sizes of 100-300 to a relatively large extent. That the number of qualitative studies using interviews was limited might account for the limited number of small sample sizes (1-10). Similarly, that survey studies with large sample sizes were preferred less in the theses might be the reason why sample sizes over 300 were used so infrequently.

Figure 6 exhibits the number of data collection tools used in the PhD theses, that have been published in chemistry education over the last two decades and that were subjected to the content analysis as part of this study.

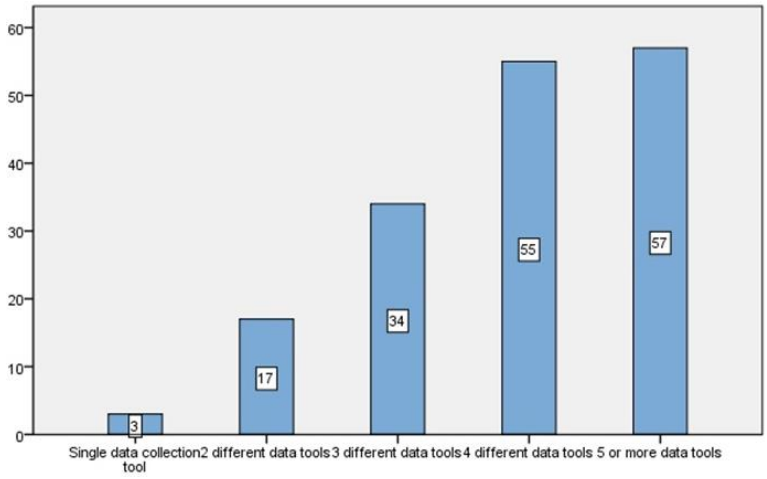

Figure 6. *Number of Data Collection Tools Commonly Employed in PhD Theses*

It is to be expected for PhD dissertations, which are normally comprehensive and long-term studies, to use different measurement tools. As can be seen from Figure 6, most of the theses covered in this study used four or more data collection tools. In addition to achievement tests, instruments, such as attitude scale, scientific process skill scale and interview forms, were used together.

Table 4 displays the types of data collection tools utilized in doctoral dissertations completed in chemistry education within the last twenty years (1999-2019) in Turkey. The 162 theses that were subjected to the content analysis used 635 data collection tools. It can be understood from Table 4 that, on average, four different scales were used for each thesis. The most commonly used data gathering instrument was the interview. The depth of learning can be assessed qualitatively using interviews. The dissertations dealt with the effects of instructional activities on achievement to a large extent as well as their effects on student's attitudes about the course. The level of how much learning took place was measured using concept tests and achievement tests. It can also be understood that in a considerable number of studies, the effect of instruction on scientific process skill was investigated besides its effects on achievement and attitudes. It was seen that interviews for different purposes were used in PhD dissertations as well as in many other studies.

Table 4

Data Collection Tools Commonly Used in PhD Theses

Data Collection Tools	f	%
Interview	113	17.8
Course-Based Attitude Scale	81	12.8
Concept Testing	70	11.0
Achievement Tests	69	10.9
Observation	66	10.4
Scientific Process Skill Scale	56	8.8
Surveys	46	7.2
Method-based Attitude Scale	16	2.5
Logical Reasoning Test	13	2.0
Written Opinions	13	2.0
Attitude Scale on Nature of Science	10	1.6
Others	82	12.9
Total	635	100.0

Figure 7 shows the number of data analysis methods used in the PhD theses reviewed by this study. It can be seen from Figure 7 that different data analysis methods were used in the studies as a result of using different data collection instruments.

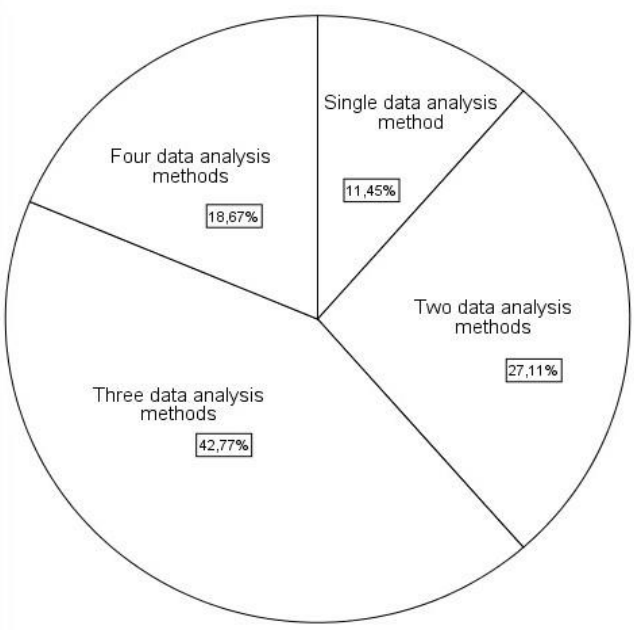

Figure 7. *Number of Data Analysis Methods Commonly Used in PhD Theses*

Table 5 shows the data analysis methods frequently used in the doctoral dissertations reviewed as part of this study. The most commonly utilized method was predictive analysis as a result of the dominance of quantitative studies. Qualitative data analysis instruments were also used considerably. Descriptive statistics, which can be used in all kinds of studies, were also utilized to a large extent. Among predictive analytics methods, t-tests were the most commonly used method, followed by the ANOVA/ANCOVA method. The most frequently used qualitative analysis method was content analysis.

Table 5

Data Analysis Methods Commonly Used in PhD Theses

Data analysis method		**f**	**%**
Descriptive	frequency and % tables	93	20.9
Predictive	t-tests	72	16.2
	ANOVA/ANCOVA	70	15.7
	Mann-Whitney U/Wilcoxon Signed-Rank Test	33	7.4
	MANOVA/MANCOVA	31	7.0
	Correlation	14	3.1
	Regression	8	1.8
	Subtotal	228	%51.2
Qualitative	Content analysis	70	15.7
	Descriptive analysis	43	9.7
	Subtotal	113	%25.4
	Others	11	2.5
	Total	445	100.0

Discussion and Conclusion

Doctoral dissertations are original, comprehensive and long-term studies that contribute to the development of their area as a scientific field. With a view to understanding the state of affairs in the field of chemistry education and offering guidance to researchers by highlighting trends, 168 PhD theses published in the last twenty years (1999-2019) have been subjected to content analysis concerning their year of publication, subject and purpose, research method, data collection tools, sample groups and data analysis methods.

This study has found that doctoral dissertations in the field of chemistry education in Turkey emerged in the years 2001-2002 and peaked in number in 2012 with 20 theses published. However, a decline has been observed in subsequent years. In 2018, this number fell to four dissertations in total; moreover, as of March 2019 -- the date of completion for this study--no new dissertations have been published this year. This study has observed the phenomenon, already established in several studies (Sozbilir; 2013; Sozbilir et al., 2013; Ulutas et al., 2015; Yavuz, 2017), that interest in the field of chemistry education research rose after the 1998 restructuring of departments of

education by HEI concerning their framework and functioning. Given that PhD theses are long-term academic works that take at least 3-4 years to complete, it is meaningful that the first theses over the last twenty-year period emerged in 2001 and 2002, or 3-4 years after the 1998 restructuring policy. It is believed that most academics working in departments of education focused on pure chemistry and did not deal with chemistry education and teaching. It can be asserted that the decline in the number of theses published in recent years stems from the oversaturation of this area of research, as well as the difficulty of attracting students to chemistry education departments, the closures of some departments, and a fall in employment opportunities in the field. Although there is a sufficiently large group of academics and researchers at universities, that fewer students are now applying to and enrolling in PhD studies means that the number of theses has inevitably decreased due to reasons, such as the termination of ÖYP (Teaching Staff Training Program), which was supported by YÖK (The Council of Higher Education).

Looking at the distribution of chemistry subjects that the theses dealt with, most studies focused on the teaching of various chemistry topics These studies mostly developed or adapted a teaching method and explored its effects on the success of students in a given chemistry subject. Since PhD theses are comprehensive in nature, these studies focused on the effects of instruction on success as the main problem, while examining other criteria, such as attitude, scientific attitude, and opinion on the nature of science. The content analysis conducted as part of this study conducted the problem statements when categorizing Ph.D. theses by research topic. Apart from instruction, other topics included teaching as a profession (5 percent), curricula study (3 percent), teacher education (3 percent), material development (2 percent), attitude/interest/motivation tests (2 percent) and content analysis (1 percent). The results of this study slightly diverge from those obtained by Teo et al. (2014) and Sozbilir et al. (2013) concerning umbrella research subjects. These studies similarly featured instruction as a prominent research topic among chemistry education articles, but the frequency of this topic was much smaller (20-30%) compared to the findings of this study; in addition, these previous studies found that learning was as common as instruction among the research topics of articles published in chemistry education. The PhD theses reviewed by this study were concerned with both learning and instruction. The majority of the theses set out to determine the level of learning in sample groups before focusing on ways to develop teaching methods that would enhance learning. As instruction research takes a long time to design, implement and analyze, field researchers might have viewed them as more appropriate for PhD-level work. This study has found that PhD studies in Turkey have tended to be confined in a narrow thematic area. Most studies, therefore, are duplicates of one another or adaptations of a given concept to a different subject matter. This study finds that it is necessary for researchers to shift their focus to original themes and define new problem statements. Teachers are a crucial element of chemistry teaching as they are the actual practitioners of teaching chemistry at schools. Teacher training will enhance chemistry teaching, as well. For high-quality education, high-quality teachers are essential. Therefore, more studies should be conducted on teacher training. Another significant component of chemistry education is the chemistry teaching curriculum. Curricula determine what will be taught, how it will be taught and how the teaching will be assessed. To improve the quality of chemistry teaching, the quality of the chemistry curriculum should be

improved. There should be more PhD dissertations on chemistry curriculums, which are supposed to contribute to chemistry teaching a lot. Furthermore, there is a pressing need for studies on the assessment and evaluation approach in chemistry teaching.

Looking at the instructional approaches/strategies studied in the 137 theses coded as instruction research and others focusing on teacher education and material development (145 theses in total), the most common approaches were conceptual change instruction and the 5E learning model. These were followed by argumentation-based instruction, cooperative learning, problem-based learning, context-based instruction, and various active learning approaches. Ulutas et al. (2015) and Teo et al. (2014), report the conceptual change instruction method as the most common teaching approach studied in graduate programs. As on international scale, studies in Turkey on chemistry teaching initially concentrated on concept analysis. In the first few years of the two-decade timeframe designated by this study, the PhD theses that were subjected to content analysis focused mostly on the 5E learning model, while more recently, the argumentation-based teaching approach and the context-based instruction strategy began to attract more academic interest. Thanks to the influence of constructivist teaching methods, activities in which students do and experience things have grown in importance. Similarly, academic studies have developed teaching methods that would nurture this approach. To grasp the attention of new generations, there is a need for further studies on the use of technology in chemistry teaching. With the increasing use of smart boards and tablet computers, more studies should be conducted on the use of such electronic devices in chemistry teaching. In parallel with the widespread use of YouTube and other social media platforms, new studies can contribute to the development of chemistry education by focusing on the applicability of chemistry teaching using these platforms.

Looking at the distribution of topics explored by 150 theses subjected to content analysis (Table 2), acids & bases featured as the most common chemistry subject. This was followed by the structure of matter, chemical equilibrium, miscellaneous general chemistry subjects, solutions, chemical bonds and electrochemistry. This finding is in line with that of Ulutas et al. (2015) and Sozbilir et al. (2016), who found that chemistry education articles frequently focused on the particulate nature of matter, basic chemistry, reaction rate, chemical bonds, acids & bases, and solutions. These topics tend to be associated with misconceptions that are frequently mentioned in the literature. Therefore, it is meaningful that these topics have been featured in studies that aim to enhance conceptual learning. The number of studies on the concept of mol, which is one of the topics that students have the most difficulty understanding, is inadequate and more studies should be conducted on this topic. It can be argued that topics, such as a periodic table, carbon chemistry and organic chemistry, which require knowledge level, are not preferred much. There is a need for further studies to develop teaching materials and put these materials at teachers' and students' service for these topics, which constitute an important part of the chemistry curriculum. Moreover, it is significant to note that there is no PhD dissertation on nanotechnology in Turkey, which is a very important concept in the science world, yet, it has not been covered adequately in the chemistry curriculum yet. Still, there are some master's theses on the subject, and to have a place in the international science and technology world, PhD dissertations in the field of nanotechnology should be supported. Furthermore, to our

knowledge, environmental chemistry, sustainability, fossil fuels, renewable energy and health and safety in chemistry topics, which have recently been included in the chemistry curriculum, have not been studied yet. Studies on these topics will also benefit chemistry teaching.

Many of the theses that were reviewed by this study were conducted using qualitative designs and more than half were found to have utilized a quasi-experimental design (53 percent). Among qualitative designs, case studies were frequently employed, while the use of mixed designs -- despite being in the minority -was observed in nearly one- fifth of the studies. Among mixed designs, triangulation was the most commonly used method. The pre-experimental design, survey designs, action research, document review, and the explanatory mixed design were rarely preferred as research methods. On the other hand, methods, such as the strong experimental design, single-subject design, ex post facto design, comparative design, cultural analysis, and theory building, were not utilized in any of the theses. These results are similar to those of the existing body of research in that quantitative studies are quite frequent (Sozbilir et al. 2013; Ulutas et al., 2015; Yavuz, 2017), although there are diverging aspects. Several studies (see Sozbilir et al. 2013; Ulutas et al., 2015; Yavuz, 2017) have shown non-experimental quantitative methods to be the most common, while this study has found that experimental designs are more often preferred as the research method. Since PhD theses are more comprehensive and are required to present more reliable results, it is expected that they would feature experimental designs more frequently. Interventional studies provide students with a novel opportunity for better learning. Experimental designs allow the researcher to statistically compare the new method with the old method (McMillian & Schumacher, 2010). Thus, since most of the PhD theses reviewed in this study focused on instruction, they frequently used experimental designs. Looking at the distribution of research designs over the years (Figure 4), we observe that experimental designs were used more often in the first years, while qualitative designs and mixed designs emerged more recently. Mixed method research has apparently been the most common design since 2010, as reported by Kuçukozer (2016) on PhD theses on science education, and by Kozikoglu & Senemoglu (2015) on educational programs and instruction. These results are consistent with the findings of this study. According to the study conducted by Teo et al. (2014), mixed designs were the most common research method. To obtain more reliable results, various data collection tools need to be used in coordination with each other. Combining quantitative and qualitative approaches ensures a better understanding of the research problem and more reliable results (Creswell, 2014). The rise of mixed designs in research in Turkey might have been influenced by international studies. Qualitative research requires more effort and serves to interpret facts in their natural environment and with a holistic approach (Creswell, 2014). In fact, more qualitative studies are needed in the social science field, such as chemistry education.

Concerning sample groups, high school students were the most common, followed by undergraduates. Other sample groups included chemistry teachers, middle school students and students with special needs. This result is compatible with the results of other studies in the field (Sozbilir et al. 2016; Sozbilir et al. 2013; Teo et al. 2014; Ulutas et al., 2015; Yavuz, 2017). Since chemistry subjects are taught at the high school level, academic studies should focus on this context. The reason why undergraduates were

a common sample group is the ease with which researchers, who are often resident lecturers at universities, can find students to interview or invite to an experiment. Due to the lack of activity in the field in recent years, special needs schools were also included in the theses as sample groups. In line with the other results of the study, the most common sample group size was 31-100 people, followed by 101-300. This result is anticipated as the quasi-experimental design, the most common research method used in the PhD theses that were reviewed by this study makes use of control groups and experimental groups that are compared with each other. The sample size is significant for the reliability and external validity of qualitative studies (Creswell, 2014). This study has found that some dissertations utilized smaller sample groups than required.

Concerning the number of data collection tools used, the most common scenario was the use of five of more data collection tools. This was followed by four and three tools, respectively. There were also a small number of cases in which two different tools and a single tool were utilized. Studies in which different types of data support each other are considered to have higher validity (Fraenkel et al., 2012). Doctoral dissertations are required to be comprehensive and valid studies. Thus, raising the number of data collection tools to ensure the validity and reliability of the results and to expand the scope of the study is expected and appropriate. This study has found that theses that made use of a single data collection tool were content analysis studies that were conducted using document review. Similarly, studies on curricula and teaching as a profession were carried out using fewer data collection tools. Looking at which data collection tools were preferred more often (Table 4), we see that concept testing and achievement tests to measure academic performance were the most common, in accordance with the problem statements of the studies. Some studies focusing on instruction employed measured learning using achievement tests, while other studies used concept testing for the same purpose. Thus, the use of concept testing and achievement tests is proportionate to the number of studies on instruction and teaching. Interviews were also used frequently to collect data. Approximately 70 percent of the dissertations made use of interviews for data collection purposes. Most of them were in the form of semi-structured interviews, while some studies preferred a structured interview format. Interviews can be leveraged both to collect qualitative data and as a means of supporting quantitative research. This explains why they are one of the most popular data collection tools. Similarly, tests to measure attitude towards chemistry courses and scientific attitude tests also feature prominently as data collection tools. Although used infrequently, surveys developed for a variety of reasons were also employed in some studies. These findings are compatible with studies in chemistry education, which report that the most common data collection tools are achievement tests and interviews (Sozbilir et al. 2016; Sozbilir et al. 2013; Ulutas et al., 2015; Yavuz, 2017). Data collection and analysis can also be effectively conducted using multiple-choice achievement tests and Likert-type attitude scale. Interviews can also provide a rich source of data (De Jong, 2007). When the first PhD dissertations appeared in chemistry education, the studies concentrated on concept analysis, and as a result, the most commonly used assessment tools were concept tests and achievement test. Later, qualitative data collection instruments became more prominent because education is a field of social science. With the interview method, rich data can be obtained (De Jong, 2007). Interviews can be applied in both qualitative

and mixed method studies and even in experimental studies. Accordingly, interviews have become an integral data collection tool for PhD dissertations. When the data collection instruments in dissertations are analyzed, it can be seen that psychological scales, which are inherent in the field of education, are not developed in the field of chemist education. In chemistry education, there is a growing need to develop new scales specifically designed for chemistry education and long term observations in the natural environment of the chemistry lessons. New data collection tools can be developed for laboratory experiments rather than achievement in chemistry courses, for which laboratories are essential.

Methods used in the PhD studies for data analysis were compatible with the research design, and the most common method for data analysis was predictive analytics. Predictive analyses are useful for exploring relationships between variables (McMillian & Schumacher, 2010). In studies based on experimental designs, it is more appropriate to analyze quantitative results using predictive analytics. Approximately half of the PhD theses made use of predictive data analysis. The most common predictive analytics methods were t-tests and variance analysis. Non-parametric tests and multivariate analyses of variance were also among the frequently utilized predictive analytics methods. The reason for the use of these analyses may be the aim of explaining the relationship between variables investigated a study in a more explicable way and the easier interpretation of the results. It was seen that researchers rarely used such advanced statistical methods as correlation, factor analysis and regression analysis, which may be a result of their not having a good knowledge of statistics. For high-quality dissertations, different statistical techniques should be used in combination.

Quantitative analysis methods were followed by qualitative data analysis methods. Content analysis was the most common qualitative analysis method. Aside from qualitative and predictive analyses, frequency and percentage-based tables are also commonly used as data analysis methods. Similar results were also reported in other studies (Akkus et al. 2012 Sozbilir et al. 2016; Sozbilir et al. 2013). This study found that nearly 90 percent of the PhD theses that were reviewed employed more than one data analysis method. To improve the validity and reliability of studies, different data collection instruments and data analysis methods should be used to enrich the theses. This is crucial for the quality, validity and reliability of research.

In conclusion, a content analysis of the doctoral dissertation conducted in Turkey in the field of education within the last two decades (1999-2019) is herewith presented to researchers and decision-makers who will chart the future course of scientific policies. Taken as a whole, the results show that the authors of the PhD theses failed to adequately define the research methods that they employed. Thus, this study recommends that more emphasis be placed on graduate courses that teach research methods, incorporating more practice sessions. There is also a need, in keeping with international trends, to focus more on mixed method research, and to increase the number of qualitative studies, which do a better job of exploring educational environments in a natural manner. As stressed by Towns (2013) and Towns and Kraft (2011), lab-based instructional approaches, which are crucial in chemistry teaching, should be developed and researched; in addition, long-term qualitative studies (e.g., action and longitudinal) in teaching environments should be conducted more

frequently. This study has observed that researchers tend to settle for easily accessible sample groups. It would therefore be more appropriate to conduct studies using various sampling methods. It can be said that the number of data collection tools and data analysis methods used in the PhD theses are adequate concerning ensuring validity and reliability. However, qualitative findings were often quantized using frequencies/percentages. Additional care should be taken to develop new ways of analyzing qualitative data and integrating various data types. The author aims that this study, which explores trends in the field of chemistry education, will help guide researchers and higher education planners in their efforts to improve and enhance instruction.

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Türkiye Kimya Eğitimi Doktora Tezlerinde Eğilimler

Atıf:

Yıldırım, T. (2020). Trends in PhD theses in Turkish chemistry education (1999-2019). *Eurasian Journal of Educational Research 89, 201-240,* DOI: 10.14689/ejer.2020.89.10

Özet

Problem Durumu: YÖK (Yüksek Öğretim Kurulu)/Dünya Bankası Milli Eğitimi Geliştirme projesi kapsamında 1998 yılında eğitim fakülteleri yeniden yapılandırılmış ve işlevlerinde köklü değişikliklere gidilmiştir. Bu tarihten sonra Türkiye'de kimya eğitim araştırmalarında önemli artış gözlenmiştir. Eğitim fakültelerinde görev yapan akademisyenlerin eğitim bilimleri, öğretmen eğitimi ve alan eğitimi gibi alanlara

yönlenmesi ile kimya eğitim alanı gelişmiş ve 2000'li yıllarda büyük bir ivme yakalayarak 2000'li yılların ortalarında zirve yapmıştır. Artan yayın sayısı ile birlikte kimya eğitim alanında farklı niteliklerde çalışmalar ortaya konmuştur. Her hangi bir konu üstüne çalışan araştırmacılar o konu ile ilgili yapılan araştırmalara ulaşırken zorluk çekmekte ve fazla sayıda olan çalışmalara ulaşmak için zaman kaybetmektedirler. Alanda ne tür araştırmalara ihtiyaç olduğunu belirleyerek gelecek çalışmalara yön verecek araştırmaların önemi artmaktadır. Bundan dolayı kimya eğitim alanında yapılan çalışmaların ve bu çalışmalardan elde edilen sonuçların yakından takip edilerek alandaki eğilimlerin belirlenmesi bu alanda çalışma yapan bilim insanlarına yol gösterici nitelikte olacaktır. Doktora tezleri, ilgili alanın bilimsel bir disiplin olarak gelişmesine katkıları olan, diğer araştırmalara göre daha kapsamlı, uzun süreli ve özgün olmaları nedeniyle önemli çalışmalardır. Doktora tezlerinden bilime yenilik getirmeleri beklenmektedir. Doktora tezleri, alan eğitiminde araştırma konularının ve yöntemlerinin yaygınlığını görmek, zamanla eğilimin nasıl değiştiğini ve güncel durumun genel görünümü hakkında bilgi vermek açısından önemli bir veri kaynağıdır.

Araştırmanın Amacı: Türkiye'de eğitim fakültelerinin yeniden yapılanmasından sonra son yirmi yıl içinde (1999-2019) kimya eğitimi alanında gerçekleştirilen doktora tezlerini içerik analizi yapmaktır. Kimya eğitim alanında Türkiye'de tamamlanan doktora tezleri; konusu, yöntemi, hangi üniversitelerde yapıldığı, yıllara göre dağılımı, kullanılan öğretim yaklaşımı, hangi kimya konularının çalışıldığı, örneklemi, kullanılan veri toplama araçları ve veri analiz yöntemleri açısından incelenmiştir.

Araştırmanın Yöntemi: Bu araştırma, nitel araştırma yaklaşımlarından doküman inceleme kullanılarak gerçekleştirilmiştir. Bu araştırmada incelenen dokümanlar Türkiye'de 1999-2019 yılları arasında kimya eğitimi alanında yapılan doktora tezleridir. Elde edilen tezler betimsel içerik analizine tabi tutulmuştur. YÖK tez veri tabanı kullanılarak kapsamlı bir tarama yapılmış ve 168 doktora tezi araştırmaya dahil edilmiştir. Elde edilen tezlerin analizi Sözbilir, Kutu ve Yaşar (2012) tarafından geliştirilen "Yayın Sınıflama Formu (YSF)" ile yapılmıştır. Tezlerin içerik analizinin güvenilirliğini sağlamak için incelenen 168 doktora tezi araştırmacı tarafından bir ay arayla iki kez sınıflandırılmıştır. İki inceleme arasındaki uyum %94 düzeyinde çıkmıştır.

Araştırmanın Bulguları: 1999-2019 yılları arasında kimya eğitimi alanında ilk doktora tezleri 2001-2002 yıllarında tamamlanmaya başlayıp giderek artmış 2012 yılında yapılan tez sayısı en yüksek seviyeye ulaşmıştır. Daha sonraki yıllarda yapılan tez sayısında düşüş görülmüştür. Yapılan tezlerin üniversitelere göre dağılımında en çok tezin (%23) Orta Doğu Teknik Üniversitesinde (ODTÜ) yapıldığı görülür. Sonra sırası ile Atatürk Üniversitesi (%20), Gazi Üniversitesi (%16), Karadeniz Teknik Üniversitesi (%14), Dokuz Eylül Üniversitesi (%8), Marmara Üniversitesi (%8), Hacettepe Üniversitesi (%7), ve Balıkesir Üniversitesi (%2) gelmektedir. Yapılan tezlerin konu dağılımında öğretme ve öğrenmeyi artırma üzerine yapıldığı, çalışmaların büyük bir kısmı uygulanan öğretim yöntemlerinin öğrencilerin başarılarına etkisi üzerinde yoğunlaştığı (%82) görülür. Bunun yanında azda olsa öğretmenlik mesleği (%5), müfredat çalışması (%3), öğretmen eğitimi (%3) gibi farklı konular üzerine çalışmalar

da bulunmaktadır. En sık uygulanan öğretim yöntemleri 5E öğrenme modeli (18) ve kavramsal değişim yaklaşımı (18) olmuştur. Tez çalışmaları sırasında yapılan uygulamaların hangi kimya konusu üzerinde olduğuna bakıldığında; en çok çalışılan kimya konusu asitler-Bazlar (16) olmuştur. Maddenin yapısı (13), farklı genel kimya konularının harmanlandığı çalışmalar (13), kimyasal denge (11), çözeltiler konusu (10), elektrokimya konusu (9), kimyasal bağlar (9), gazlar (8), reaksiyon hızı (7), Kimya deneyleri (7) üzerine yapılan tezler, fiziksel ve kimyasal değişmeler (6), çevre kimyası (5) konuları sıklıkla tercih edilen kimya konuları olmuştur. En çok kullanılan araştırma yöntemlerinin nicel yöntemler (%62) olduğu, nitel (%21) ve karma yöntemlerin (%17) daha az kullanıldığı görülmektedir. Yarı deneysel desenin (%53) bariz bir şekilde en çok kullanıldığı, daha sonra nitel durum çalışmasının (%18) tercih edildiği ve karma desenlerden de çeşitleme desen (%9) ile araştırmaların sıklıkla yürütüldüğü görülmüştür. Araştırmacıların en çok tercih ettikleri örneklem grubu lise (%49) düzeyi olmuştur. İkinci olarak önemli oranda üniversite (%35) düzeyi örneklem grubu sıklıkla çalışılmıştır. En sık çalışılan örneklem büyüklüğü 31-100 (83) arası grup olmuştur. Bunu 101-300 arası (46), 11-30 arası (21) gruplar takip etmektedir. İçerik analizi yapılan 162 tezde toplam 635 veri toplama aracı kullanıldığı tespit edilmiştir. En çok kullanılan veri toplama aracı mülakat (%17,8) olmuştur. Derse yönelik tutum ölçeği (%12,8), gözlem (%10,4) ve ders başarısını ölçmek için kullanılan kavram testi (%11) ile başarı testi (%10,4) sık kullanılan ölçekler olmuştur. Çalışmalarda en çok 3 çeşit veri analiz yöntemi (%43) tercih edilmiştir. İkinci olarak 2 çeşit veri analiz yöntemi (%27), üçüncü olarak ise 4 ve üzeri veri analiz yöntemi (%19) kullanılmıştır. Araştırma kapsamında incelenen doktora tezlerinde sıklıkla kullanılan veri analiz yöntemleri açısından en çok kestirimsel (%51) istatistikten yararlanılmıştır. Nitel veri analiz yöntemlerinden %25, betimsel istatistikten ise %21 oranında faydalanılmıştır. Kestirimsel istatistikî yöntemlerden en çok t testi (72) kullanılmış hemen sonra anova/ancova (70) yöntemi tercih edilmiştir. Mann-Whitney U/Wilcoxon işaretler Testi (33) ve manova\mancova (31) da sıklıkla kullanılan kestirimsel istatistiki yöntemler arasındadır.

Araştırmanın Sonuçları ve Önerileri: Araştırma sonuçları bütün olarak değerlendirildiğinde araştırma yöntemlerinin tezlerde yeterince uygun bir biçimde tanımlanamadığı görülmüştür. Bundan dolayı lisansüstü derslerde araştırma yöntemleri derslerine daha fazla ağırlık verilerek uygulamalı örnek dersler yapılması tavsiye edilebilir. Uluslararası trende uygun şekilde karma yöntem araştırmalara daha çok önem verilmesi ve eğitim ortamlarını doğal biçimde değerlendiren nitel çalışmaların artırılması gerekmektedir. Tez yürütücülerin kolay ulaşılabilir örnekleme yöneldiği görülmüştür. Farklı örnekleme yöntemleri ile çalışmaların yapılması yerinde olacaktır. Veri toplama araçları ve analiz yöntem sayısı olarak tezlerin geçerlilik ve güvenilirlik açısından yeterli olduğu söylenebilir. Ancak nitel bulguların sıklıkla frekans-yüzde şeklinde nicelleştirildiği görülmüştür. Nitel verilerin daha farklı analizine yoğunlaşılmasına ve verilerin birbiri ile entegre edilmesine daha çok özen gösterilmelidir.

Anahtar Sözcükler: Kimya eğitimi, içerik analizi, doktora tezi, eğilim

Appendix 1. *Thesis Classification Form*

Information about Thesis	
Title:	
Author:	**Adviser:**
Date:	**University:**
Subject of The Thesis	
1. ◯ Instruction	5. ◯ Teacher education
2. ◯ Learning	6. ◯ Material development
3. ◯ Teaching as a profession	7. ◯ Determining attitude/interest/motivation
4. ◯ Curricula work	8. ◯ Other ……..
Applied Instruction Approaches	
1. ◯ 5E Learning model	7. ◯ Cooperative learning
2. ◯ Conceptual change approach	8. ◯ Problem-based learning
3. ◯ Argumentation-based instruction	9. ◯ Computer-assisted instruction
4. ◯ Context (life) based learning	10. ◯ Inquiry-based learning
5. ◯ Active learning methods	11. ◯ Project-based learning
6. ◯ Concept maps	12. ◯ Other ……
Chemistry Subject	
1. ◯ Acids-Alkalis	7. ◯ The Structure of Matter
2. ◯ Chemical Balance	8. ◯ Reaction Rate
3. ◯ Solutions	9. ◯ Thermodynamics
4. ◯ Chemical Bonds	10. ◯ Atoms and the Periodic System
5. ◯ Electrochemistry	11. ◯ Environmental Chemistry
6. ◯ Gases	12. ◯ Other ……
Research Methods/Designs	
1. ◯ True-experimental	7. ◯ Case study
2. ◯ Quasi-experimental	8. ◯ Action research
3. ◯ Weak experimental	9. ◯ Explanatory mixed design
4. ◯ Document review	10. ◯ Exploratory mixed design
5. ◯ Descriptive survey	11. ◯ Triangulation mixed design
6. ◯ Relational survey	12. ◯ Embedded design
	13. ◯ Other ……..
Data Collection Tool	
1. ◯ Concept Testing	7. ◯ Questionnaire
2. ◯ Achievement Test	8. ◯ Scientific Attitude Test
3. ◯ Course-Based Attitude Scale	9. ◯ Logical Reasoning Test
4. ◯ Method-based Attitude Scale	10. ◯ Written Reflections
5. ◯ Interview	11. ◯ Attitude Scale on Nature of Science
6. ◯ Observation	12. ◯ Other ……
Sample	**Sample Size**
1. ◯ Middle School	1. ◯ Between 1-10
2. ◯ High School	2. ◯ Between 11-30
3. ◯ University	3. ◯ Between 31-100
4. ◯ Teacher	4. ◯ Between 101-300
5. ◯ Other ……	5. ◯ Above 300
Data Analysis	
1. ◯ frequency and percentage tables	6. ◯ Correlation
2. ◯ t-tests	7. ◯ Regression
3. ◯ ANOVA/ANCOVA	8. ◯ Content analysis
4. ◯ Mann-Whitney U/Wilcoxon Signed-Rank Test	9. ◯ Descriptive analysis
	10. ◯ Others ……
5. ◯ MANOVA/MANCOVA	

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Relationship of Servant Leadership and Organizational Citizenship Behavior with Mediation of Psychological Empowerment

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ABSTRACT

Purpose: The purpose was to investigate the relationship between servant leadership and teachers' organizational citizenship behavior with mediating role of psychological empowerment. **Research Methods:** This study was an applied and correlation research method based on structural equation modeling. 281 teachers of Zahedan city were studied by stratified random sampling method. To collect information, three questionnaires were used: servant leadership (Gholipur et al., 2009), organizational citizenship behavior (Podsakoff & MacKenzie, 1990) and psychological empowerment (Spreitzer, 1995). For data analysis the Pearson correlation coefficient and structural equation modeling were used.

Findings: The amount of correlation coefficient of servant leadership with psychological empowerment ($r=0.616$, $p<0.01$), servant leadership with organizational citizenship behavior ($r=0.667$, $p<0.01$), and psychological empowerment with organizational citizenship behavior ($r=0.724$, $p<0.01$) was significant. The direct effect of servant leadership on organizational citizenship behavior ($\beta=0.27$, $t=3.96$), direct effect of servant leadership on psychological empowerment ($\beta=0.71$, $t=9.72$), and direct effect of psychological empowerment on organizational citizenship behavior ($\beta=0.67$, $t=8.03$) was significant. The indirect effect of servant leadership on organizational citizenship behavior was also significant with the mediator role of psychological empowerment ($\beta=0.475$).

Implications for Research and Practice: Therefore, it can be concluded that servant leadership has a positive and significant relationship, directly and indirectly, through the psychological empowerment mediation variable with the organizational citizenship behavior.

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Introduction

Servant Leadership Theory was introduced first by Robert Greenleaf 1977 in the paper entitled "Servant as Leader". He believed that servant leadership is based on the philosophy of presenting service and serving their followers, meeting their needs, as well as developing and nurturing employees have top priority for servant leaders. Their ultimate purpose is the creation of the servant community (Kuick, 1996). Servant leadership is the leader's understanding and action in a way that prioritizes the interests of others over his or her personal interest (Laub, 2004). It emerged as a desirable way of leadership, responding to the growing need for employees in the field of work, creativity and participation among colleagues, as well as a social demand for the development of ethical behavior in organizations. Its main characteristic is to promote honesty, help others, and maximum use of staff power (Liden, Wayne, Meuser, Junfeng & Liao, 2015). To develop organizational effectiveness, leaders need to strengthen their subordinates to reach their potential capacities. This is precisely what servant leaders do by respecting dignity of individuals, building mutual trust, and influencing their followers (Liden, Wayne, Zhao & Henderson, 2008). Servant leadership has incorporated the ideas of empowerment, inclusive quality, teamwork, participatory management, and service ethics into leadership philosophy. Therefore, servant leaders prefer empowerment, mutual trust, cooperative spirit, ethical use of power, and the value of serving followers than everything else in the organization (Jennine, 2007).

Although the theory of servant leadership was put forward by Greenleaf in 1977, Brewer (2010) argues that the concept of servant leadership is not a new concept, and the philosophical foundations of servant leadership have existed for thousands of years. However, with the emergence of organizations and the prevalence of traditional and authoritarian methods of leadership, researchers have been struggling to find a new way to lead in new organizations. According to Laub (1999), a new leadership, which is not fashionable and unstable and rooted in moral and spiritual teaching, is needed. Thus, some of the most creative contemporary thinkers are writing and speaking about servant leadership that has emerged as a leadership paradigm in the 21st century (Spears, 1996). Servant leadership is the solution to the traditional power and authority model that is still the most common leadership model in today's organizations. Servant leadership can bring about positive change in organizations as opposed to traditional authoritarian methods (Brewer, 2010). Traditional leadership theories have usually been based on a type of hierarchical model that an absolute power was dictating in the organization from top to bottom and followers at the lower levels have been required to follow these instructions as an organizational member (Buchen, 1998). Individuals in traditional structures are seen as servants of leaders while leaders in the "inverted pyramid" model, which is taken into account as the essence of servant leadership, are considered to be servants of their followers (Spears, 1996).

In the servant leadership style, morality has been at the core and it is grounded on honesty and trust (Van Dierendonck, 2011). Servant leaders are role models for their followers and others. They have very deep and strong relationships with employees

and help them to discover their potential talents (Reave, 2005). Servant leadership has the potential to affect and enhance organizational performance and motivation in a variety of areas such as productivity, organizational commitment, organizational citizenship behavior, trust, team effectiveness, organizational effectiveness, financial performance, employees' motivation and performance, empowerment, motivation, and effectiveness of teachers (Rezaee Manesh & Sadeighi, 2017). Researchers attribute the characteristics of service leaders to the areas of effective listening, empathy, healing, awareness, foresight, stewardship and supervision, commitment to growth and development, and focusing on individuals and communication (Sun & Anderson, 2012); value for people, development of people, building relationships, trust, desire to learn from others, and maintaining honesty and trust (Laub, 1999); presenting service, influence, credibility, trust, and insight (Farling, Stone & Winston, 1999); pioneering, appreciation of others, and empowerment (Stone, Russell & Patterson, 2004); empowerment, supervision, credibility, guidance, humility, and interpersonal acceptance (Van Dierendonck & Patterson, 2015); serving, humility, reliability, and compassion (Gholipour, Pourezzat & Hazrati, 2009).

Different models and theories of leadership have been presented so far, among which servant leadership theory is more adaptable to the current situation of organizations and can be of great help to managers and leaders. In addition, it can provide appropriate solutions to problems such as; low rate of employee motivation, conflict between staff and management, public dissatisfaction with the provided services, and climate of distrust and uncertainty in the organization (Patterson, 2003). Although, in recent years, research on servant leadership has increased significantly and many conceptual models and questionnaires have been developed, there is still little knowledge in the management texts about the conditions and backgrounds of the emergence of servant leaders and their consequences. It is important to examine the relationship between servant leadership and organizational citizenship behaviors as well as psychological empowerment as the main issue of this study.

One of the categories that can help employees perform their job duties better is organizational citizenship behaviors. The word organizational citizenship was first proposed by Organ et al. in 1983.The development of this concept stems from Barnard's 1938 essay on the desire to cooperate; Katz's studies of performance, and spontaneous and innovative behaviors in the years 1964-1978 (Castro, Armario & Ruiz, 2004). In the early definition of organizational citizenship behavior introduced by Batman and Organ in the 1980s, those behaviors are generally considered that there is no obligation on the part of the organization to do so, although performing such behaviors by employees has some benefits for the organization (Kwantes, 2003). In the 19th century, many terms such as prosocial behaviors, extra-role behavior, spontaneous behaviors and contextual performance were used to describe organizational citizenship behaviors (Podsakoff, Mackenzie, Paine & Bachrach, 2000). In the 1920s, organizational citizenship behavior was initially defined as the role-related activities that are done beyond the duty expectations of the individual which are also called extra-role behaviors. These types of behaviors which are, in some cases, considered by some writers as citizenship behaviors (Adebayo, 2005), and are

eventually completed by Lambert (2010) as follows: The extraordinary efforts made by an organization's staff beyond what is expected which are not explicitly stated in the job description and are not generally appreciated by the organization.

Organizational citizenship behaviors have been defined as individual behaviors that are voluntary and have not been expressed directly or explicitly by the organization's formal reward system but overall, it improves the efficiency of the organization (Organ, 1988). Citizenship behaviors are referred to behaviors that employees do to help others without the need for supervisors (Dekas, Bauer, Welle, Kurkoski & Sullivan, 2013). The ever-evolving conditions of organizations, the increasing competition and the necessity of their effectiveness, reveal their need for a valuable generation of employees who are called "organizational soldiers" (DiPaola, Tarter & Hoy, 2005). Undoubtedly, the noted employees are the key to distinguish effective organizations from ineffective ones because they see the organization as their home and go beyond their formal and determined duties to accomplish its goals. Moreover, they do not hesitate to make any effort (Podsakoff et al., 2000).

Different dimensions have been proposed for organizational citizenship behavior. Altruism and public acceptance as its dimensions are proposed by Smith, Organ and Near (1983). Altruism, conscientiousness, sportsmanship, courtesy and civic virtue have been proposed as dimensions of organizational citizenship behavior by Organ (1988). Cooperative behaviors, sportsmanship and goodness of citizenship were discussed by Podsakoff and MacKenzie (1994). Based on past classifications, a comprehensive and seven-dimensional structure were finally introduced by Podsakoff et al. (2000) as follows: dedication, masculinity, organizational loyalty, conscientiousness, organizational initiative, civic virtue, and self-development. It must be said that some citizenship behaviors are targeted at individuals and others at the organization. Altruism and respect are behaviors that are positioned in the first class whereas sportsmanship, civic virtue, and conscientiousness are consistent with the second class (Chen, Niu, Wang, Yang & Tsaur, 2009).

Organizational Citizenship Behavior is a set of aids of an individual employed in the workplace such as altruism, conscientiousness, sportsmanship, courtesy, and civic virtue which contributes to maintaining and improving the social and psychological context of the workplace as a type of organizational behavior and support job performance. Today's competitive business environments require employees to be good citizens, in a way that they are willing to extend assistance to colleagues, employers, and clients. Despite the importance and critical role of organizational citizenship behavior in all organizations, the existing evidence suggests that it has received less attention in schools (DiPaola et al., 2005). Among the articles and books, only a limited number of them have addressed the issue of teachers' organizational citizenship behavior (Oplatka, 2006) which indicates significance of studying such matter.

Empowering human resourceces as a new, intrinsic motivational approach to work means freeing up internal staff strengths and providing the contexts as well as opportunities for individuals to develop their talents, abilities and competencies.

Psychological empowerment begins with changes in employees' beliefs, thoughts, and attitudes. That is, they must believe that they have the ability and competence to perform their tasks successfully and feel that they are capable of influencing and controlling their career outcomes. In addition, they should feel that they are pursuing meaningful and valuable career goals as well as believing that they are treated honestly and fairly (Barari & Jamshidi, 2015). Empowerment is considered to be one of the most useful tools for enhancing the quality of employees and increasing organizational effectiveness (Safari, Omidi, Sajadi & Khabiri, 2016).

There are two mechanical and organic approaches in definition and concept of empowerment. From a mechanical perspective (before the 1990s), empowerment means delegating power and authority to subordinates; but based on the organic approach (since the 1990s), empowerment is not what the manager does for employees, but it is the way employees perceive their role in the job and the organization while managers can provide the context for empowerment. This approach includes motivational and cognitive empowerment (Conger & Kanungo, 1988). Empowerment is the process of empowering individuals to strengthen their self-esteem and overcome their feelings of powerlessness and helplessness which mobilizes people's inner motivations (Whetten & Cameron, 2000). It is as a motivational construct which means increasing strength, i.e., the creation of the necessary conditions to enhance the motivation of individuals to perform their duties by nurturing self-sufficiency or reducing their sense of powerlessness (Ergeneli, Ari & Metin, 2007).

The dimensions of psychological empowerment are as follows: competence, autonomy, impact, meaning, and confidence (Spreitzer, 1995). Competence refers to the degree to which a person can perform their job duties skillfully and individual's beliefs to perform the tasks successfully. If a person is able to perform their duties using their skills, a sense of competence and self-sufficiency has a positive effect on them. Competent people feel they have the required capability and skill to do a job successfully (Bandura, 1991). Impact means believing in the ability to influence with personal control over the results of activities (Whetten & Cameron, 2000). Thomas and Velthouse (1990) argue that "effect" is the degree to which one's behavior seems to make a difference in pursuit of career goals. Autonomy involves the individual's sense of self-determination that a person considers themselves at the center of causation and believes that their behaviors stem from themselves, not others. In an other sense, autonomy, or the right to choose, is referred to the freedom of action and independence of employees in determining the necessary activities to perform their job duties (Thomas & Velthouse, 1990). Meaning is an opportunity for individuals to feel that they are pursuing important and rewarding career goals (Spreitzer, 1995). According Whetten and Cameron (2000), empowered people have a sense of trust. Such sense assures them that they will be treated fairly and honestly, and even in the subordinate position, the ultimate result of their actions will be justice and intimacy, not harm.

Powerful employees will be able to save the organization from the crisis and show their commitment and loyalty to the organization by creating golden opportunities in business. Since human resources are the most important and essential asset of any

organization, they have the highest contribution to achieve goals. In addition, evaluating and adopting useful and productive strategies enhances the empowerment process and increases the utilization of their capabilities. Using the potential capabilities of human resources for any organization is a great advantage (Khalesi, Ghaderi, Khoshgam, Borhaninejad, & Toroski, 2011). Department of Education needs to empower its teachers more than any other organization for its survival by implementing appropriate teaching methods. Empowering teachers or instilling a sense of belonging to the organization in them in a way that they are an important element for an organization and some responsibilities are entrusted to them, results in enhancements in their professional ethics and confidence. However, the delegation of authority to teachers is unfortunately less frequent. This reduction in teacher empowerment has led to a decrease in teachers' job satisfaction and motivation, which results in lower teacher effectiveness. Traditional school management in which the principal controls and the teachers are under control is no longer effective; the school environment needs to be transformed from the mental framework of command and control to a supportive and empowering environment for teachers.

One of the influential factors on empowering employees is leadership style. Servant leaders seek to develop and grow with unique attributes such as valuating the employees, focusing on their needs, establishing friendly relationships, and valuing the differences among their colleagues. The schools, which are benefitted from servant leaders, have people who share their perspectives in order to create a new and shared horizon. In such schools, the leader shares power with others, leading to a sense of empowerment among teachers. In addition, teachers know that the school horizon does not belong to one person (e.g. a leader); however, it is shared among all school staff. The needs of everyone throughout the school should be acknowledged (Laub, 1999). These attributes make teachers feel that their leader is thinking about improving their working conditions. Therefore, they seek to compensate it, which increases teachers' organizational citizenship behavior for the teachers who perform their duties more precisely. Due to the vast changes taken place in societies and eventually in the organizations, servant leadership can play a vital role in the future of corporate leadership. Although studying in the field of servant leadership has increased significantly in recent years and many conceptual models and questionnaires are provided, it is worth noting that most studies conducted in servant leadership have been in the direct effect method. The present study aims to evaluate the effects of independent servant leadership variable on the dependent variable of organizational citizenship behavior by introducing a mediation variable (psychological empowerment). Therefore, this study mainly aimed to survey the direct effect of servant leadership on organizational citizenship behavior, as well as the indirect effect of this relationship through the mediation variable of psychological empowerment. Hypotheses were set as follows: Studies over the past half-century have shown that employees' readiness to perform their formal duties does not sufficiently predict organizational effectiveness. Rather, it is the voluntary aspects and organizational citizenship behaviors, which predict organizational effectiveness and empower managers and leaders. The studies related to organizational citizenship behavior in educational settings show its impact on organizational effectiveness and promote the

development and management of educational organizations (Shapira-Lishchinsky & Tsemach, 2014). One of the most important findings from collaborative studies related to organizational citizenship behavior indicated that leadership has a significant impact on employees' organizational citizenship behavior (Vigoda-Gadot, 2007). Further, Wheaton (1999) found that the leadership behavior of managers, as one of the positive factors affecting organizational citizenship behavior, is the educational and executive factors in the schools. Considerations and sympathies of the educational factors in the school have further highlighted emergence and development of the servant leadership. Servant leadership can improve teachers' organizational citizenship behaviors. Therefore, the first hypothesis is presented as follows: Hypothesis 1: Servant leadership has a positive and significant effect on organizational citizenship behaviors.

Spreitzer (1995) believes that organizations always take a global approach to empowerment and its application in every situation. However, they should empower their employees psychologically before any action. He views empowerment more broadly as an intrinsic and job-related motivational state, and proposed five dimensions of significance, competence and adequacy, self-determination, effectiveness and a sense of trust. These five areas along with the feeling of growth and development provide a more general construct called psychological empowerment to the education. Buchen (1998) called Greenleaf the father of the empowerment movement and believes that empowerment is considered as one of the most important attributes and qualities of servant leadership and that it is at the heart of servant leadership leading to a sense of justice and equity. In this way, Bennet (2001) mentions that servant leaders empower their followers through their training, and the servant leader's satisfaction derives from the growth and development of others. In addition, Patterson (2003) maintains that empowerment, trust, service, honesty, truthfulness, and appreciation of others, which are considered among the variables emphasized in servant leadership, help shape the culture of the organization. Empowerment is the fruit of the modeling and vision of the leader. Therefore, the second hypothesis is presented as follows: Hypothesis 2: Servant leadership has a positive and significant effect on psychological empowerment.

Organizational citizenship behavior is a new term in the field of human resources, which is very important for all organizations today. It is defined as all the voluntary behaviors of employees in the workplace, which go beyond their essential professional requirements. These behaviors are voluntary, conscious, and optional, which are not part of the official duties of employees and increase the overall effectiveness of the organization. By voluntary and conscious, it means that these behaviors are not described in the job description or individual role, and the person is not compelled to do them because they will not be reprimanded for not doing so (Lin& Lin, 2001). The psychological empowerment of employees is considered as one of the factors, which plays a key role in emerging these behaviors and the superiority of organizations, which has attracted the attention of many management elders in recent years (Aghajani, Samadi Miarkolaei, & Samadi Miarkolaei, 2013). Bogler and Somech (2004) found that organizational citizenship behavior could be considered as one of the most

important consequences of employee empowerment. In addition, the results of Safari et al (2016) indicated that psychological empowerment has a direct and positive impact on teachers' citizenship behavior and an indirect and positive impact on the teachers' citizenship behavior through the mediation variable of organizational commitment. In addition, Ioannidou, Karagiorgos, and Alexandris (2016) found that there is a relationship between psychological empowerment, organizational commitment, organizational citizenship behavior, and transactional leadership style. Therefore, the third hypothesis is presented as follows: Hypothesis 3: Psychological empowerment has a positive and significant effect on organizational citizenship behavior.

The texts written on theoretical leadership indicate that the direct supervisor plays a key and effective role in emerging organizational citizenship behavior. In addition, leadership support is reported as a predictor of organizational citizenship behavior (Podsakoff, et al., 2000). In the high-quality relationships, leaders create opportunities to experience the skill, serve as role models, and provide verbal support for those who have a positive relationship with them, helping to the subordinates make them feel effective and empowered (Schyns, Torka, & Gossling 2007). Baijuka (2008) found that the empowerment climate in the workplace may lead to employee's involvement in organizational citizenship behaviors. In addition, Khodadad Hoseinii, Minaey, and Davoodi (2019) found that implementing servant leadership style improves employees' organizational citizenship behavior. Further, the higher the level of organizational citizenship behavior, the more capable they are to give some services. The results of Baharlou, Beshlideh, Hashemi Sheykhshabani and Naami (2014) indicated that there is a direct and positive impact in the leader-member exchange model on organizational citizenship behavior and a positive and indirect impact of this variable through psychological empowerment and organizational commitment on organizational citizenship behavior. In addition, the results of Taheri, Mohammadi and Jafarinia (2015) showed that there is a significant and positive relationship between transformational leadership and employees' structural and psychological empowerment, as well as organizational citizenship behavior. Further, the mediation role of empowerment variable in the relationship between transformational leadership and organizational citizenship behaviors was significantly confirmed. Therefore, the fourth hypothesis is presented as follows: Hypothesis 4: Servant leadership has a positive and significant effect on organizational citizenship behavior through the mediation of psychological empowerment.

Method

Research Design

The current study is experimental in terms of the objective and correlational based on structural equation model in terms of methodology. Structural equation modeling is a method for examining causal non-experimental relationships among the variables. This method is used to study the direct and indirect effects of the cause-supposed variables on the effect-supposed variables (Kareshki, 2011). Structural equation modeling was used since the present study aimed to investigate the direct impact of servant leadership on organizational citizenship behavior, as well as the indirect effect

of this relationship through the mediation variable of psychological empowerment. The study model is shown in Figure 1.

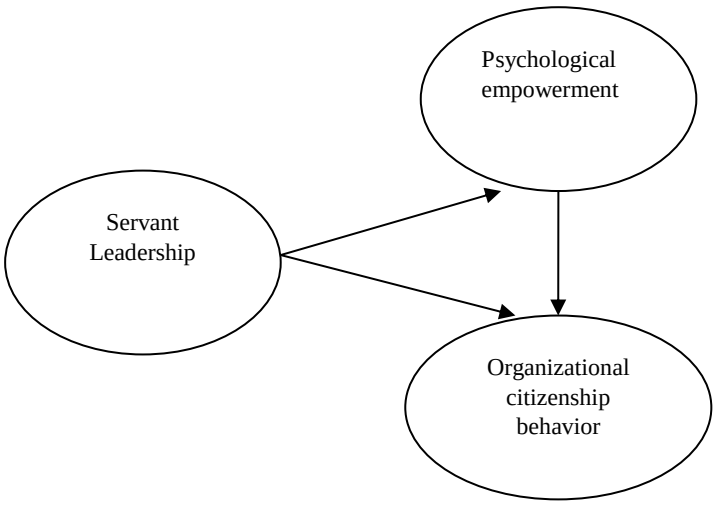

Figure 1. *Model of the research*

Research Sample

The statistical population included 756 teachers (262 males and 494 females) in secondary high schools in Zahedan city in the educational year 2018-2019. Given that the individuals' gender was not equal in number (34.65% male and 65.35% female), 281 teachers, consisting of 130 males and 151 females, were randomly selected in proportion to the gender and Cochran's sampling formula. Although there is no general agreement on the sample size needed for structural modeling, the minimum sample size is 200 according to many researchers (Hoe, 2008, Sivo, Fan, Witta & Willse, 2006). Because the methodology of structural equation modeling is largely similar to some aspects of multivariate regression, the sample size determination principles can be used in multivariate regression analysis to determine sample size in the structural equation modeling. In multivariate regression analysis, the ratio of sample number (observations) to independent variables should not be less than five. Otherwise, the results from the regression equation cannot be very generalizable. The more conservative ratio is 10 observations per independent variable. Even considering 15 observations per each predictor variable in multiple regression analysis with the standard least squares method is a good rule of thumb (Halinski & Feldt, 1970). Further, Kline (2010) believes that 10-20 samples are required for each variable. Similarly, Jackson (2003) indicates that about 20 samples will be required for each factor (hidden variable) when structural equation modeling is used. Thus, the sample size of 281 considered for evaluating the relevant theoretical model in this study is

scientifically reliable, efficient, and desirable. Table 1 provides the demographic information of the participants.

Table 1

Demographic Information of the Participants

Variable		Frequency (percent)	Variable		Frequency (percent)
Gender	Male	130 (46.3%)	Educational Degree	Bachelor	185 (65.83%)
	Female	151 (53.7%)			
Marital Status	Married	142 (74.3%)		Master	96 (34.17%)
	Unmarried	63 (22.4%)			
Employment Status	Permanent	224 (79.71%)	Work Experience (years)	<11	69 (24.55%)
	Contractual	57 (20.29%)		11-20	125 (44.48%)
				>20	87 (30.96%)

Research Instrument and Procedures

Three questionnaires *incl*uding servant leadership, organizational citizenship behavior, and psychological empowerment were employed for collecting the data.

A) Servant leadership Questionnaire (Gholipour et al., 2009): The questionnaire evaluates servant leadership using 28 items and four dimensions including serving (six items), humility (seven items), reliability (ten items) and compassion (five items). It was organized on 5-point Likert scale ranging from "quite disagree" to "quite agree", being represented by scores 1 to 5. The minimum and maximum scores in the questionnaire were 28 and 140, respectively. The closer to 140 the score is, it is a sign of more use of servant leadership style. Two of the items are: 1. serving employees is one of the main duties of principal. 2. The principal tends to serve rather than being served by others.

B) Organizational citizenship behavior Questionnaire (Podsakoff & MacKenzie, 1990): The questionnaire contained 24 items and five micro-scales of altruism (five items), conscientiousness (five items), sportsmanship (five items), courtesy (five items) and civic virtue (four items). It was organized on the 5-point Likert scale ranging from "quite disagree" to "quite agree", being represented by scores 1 to 5. The minimum and maximum scores of the questionnaire were 24 and 120, respectively. The closer to 120 the score is, it is a sign of more organizational citizenship behavior. Two of the items were: 1. my presence at work is more than usual. 2. I help people with high workloads.

C) Psychological empowerment Questionnaire (Spreitzer, 1995): The questionnaire consisted of 15 items and five dimensions of competence (three items), self-determination (three items), impact (three items), meaning (three items) and confidence (three items). It was organized on the 5-point Likert scale ranging from "quite disagree" to "quite agree", being represented by scores 1 to 5. The minimum and maximum scores were 15 and 75, respectively. The closer to 75 the score is, it is a

sign of more psychological empowerment. The following expressions were among the items: 1. I'm sure of my ability to do the job. 2. I have a great deal of independence in doing my job.

Validity and Reliability

Formal and content validity were used to determine the validity of the questionnaires. For this purpose, the questionnaires were approved by expert professors. Cronbach's alpha coefficient was used to assess the reliability of the questionnaires, and its value was 0.936 for servant leadership, 0.827 for organizational citizenship behavior and 0.839 for psychological empowerment.

Data Analysis

For data analysis, the Pearson correlation coefficient and structural equation modeling were used by SPSS and Lisrel softwares.

Results

Structural equation modeling was used to investigate the hypotheses of the study. Table 2 represents descriptive indexes of variables including mean, standard deviation, and skewness and kurtosis.

Table 2

Descriptive Statistics for the Study Variables

Variable	Mean±Sd	Skewness	Kurtosis	Servant leadership		Organizational citizenship behavior		Psychological empowerment	
				r	sig	r	sig	r	sig
Servant leadership	110.01±17.69	-0.327	0.382	1	.000	0.667	0.000	0.616	0.000
Organizational citizenship behavior	92.28 ±12.55	-0.041	-0.782	0.667	0.000	1	0.000	0.724	0.000
Psychological empowerment	57.87 ±9.12	0.141	-0.857	0.616	0.000	0.724	0.000	1	0.000

In causal modeling, the distribution of variables should be normal. Thus, the absolute value of the skewness and kurtosis of the variables should not be greater than 2. As shown in Table 2, the absolute value of the skewness and kurtosis of all variables was in line with the desired standard. Thus, the assumption of the causal modeling means the normality of variable. In addition, before designing structural equation modeling, the relationship between variables of the study was investigated by Pearson correlation coefficient test. Further, a significant relationship was observed between servant leadership with psychological empowerment and organizational citizenship behavior (r=0.616 and 0.667, respectively), while psychological empowerment was positively related to organizational citizenship behavior (r=0.724). Structural equation model was used for evaluating the relationship between the variables of the study.

Model fit was assessed before investigating the assumptions of the study. The size of model fit was utilized in determining the relationship between overt and covert variables. According to researchers, fit indexes include Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Root Mean Residual (RMR). Regarding the last three indexes, the appropriate amounts of fit are less than 0.8, 0.08, and 0.05, respectively. As shown in Table 3, the fit results are appropriate.

Table 3

Fit Indexes of the Theoretical Model of the Study

Index	Amount achieved in the model
Goodness of Fit (GFI)	0.92
Root Mean Residual (RMR)	0.037
Comparative Fit Index (CFI)	0.94
Root Mean Square Error of Approximation (RMSEA)	0.072

To analyze the data, the theoretical model for each assumption should be processed to determine the amount the collected data can support the theoretical model. To answer this question, the quantitative indexes of model fit (CFI, GFI, SRMR…) were used. If the general indexes are acceptable or in other words, the theoretical model is approved, and then in-model relationships are assessed. These mutual relationships are the regression coefficients related to assumption and factor loads of each item. Figures 2-5 displays all relationships of covert variables and factor loadings of each item.

Hypothesis 1: Servant leadership has a positive and significant effect on organizational citizenship behaviors. Figure 2 displays the findings of this hypothesis.

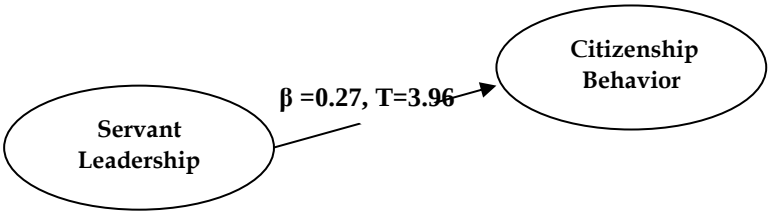

Figure 2. *Impact of servant leadership on organizational citizenship behaviors*

As shown in Figure 2, the value of the β-coefficient of servant leadership on organizational citizenship behaviors was 0.27. The research hypothesis was confirmed because the obtained t-value was 3.96 and was greater than the standard value of 1.96. So it can be accepted that servant leadership has a positive and significant effect on organizational citizenship behaviors.

Hypothesis 2: Servant leadership has a positive and significant effect on psychological empowerment. Figure 3 displays the findings of this hypothesis.

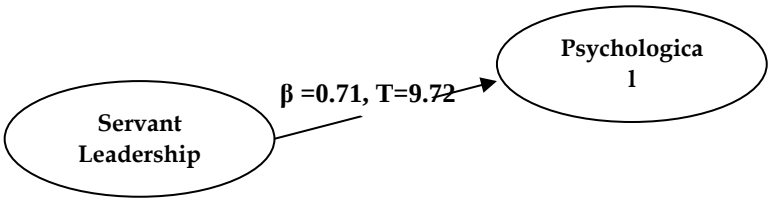

Figure 3. *Impact of servant leadership on psychological empowerment*

As shown in Figure 3, the value of the β-coefficient of servant leadership on psychological empowerment was 0.71. The research hypothesis was confirmed because the obtained t-value was 9.72 and was greater than the standard value of 1.96. So it can be accepted that servant leadership has a positive and significant effect on psychological empowerment.

Hypothesis 3: Psychological empowerment has a positive and significant effect on organizational citizenship behaviors. Figure 4 displays the findings of this hypothesis.

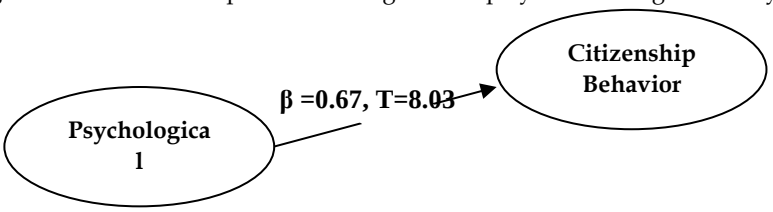

Figure 4. *Impact of psychological empowerment on organizational citizenship behavior*

As shown in Figure 4, the value of the β-coefficient of psychological empowerment on organizational citizenship behaviors was 0.67. The research hypothesis was confirmed because the obtained t-value was 8.03 and was greater than the standard value of 1.96. So it can be accepted that psychological empowerment has a positive and significant effect on organizational citizenship behaviors.

Hypothesis 4: Servant leadership has a positive and significant effect on organizational citizenship behavior through the mediation of psychological empowerment. Figure 5 displays the findings of this hypothesis.

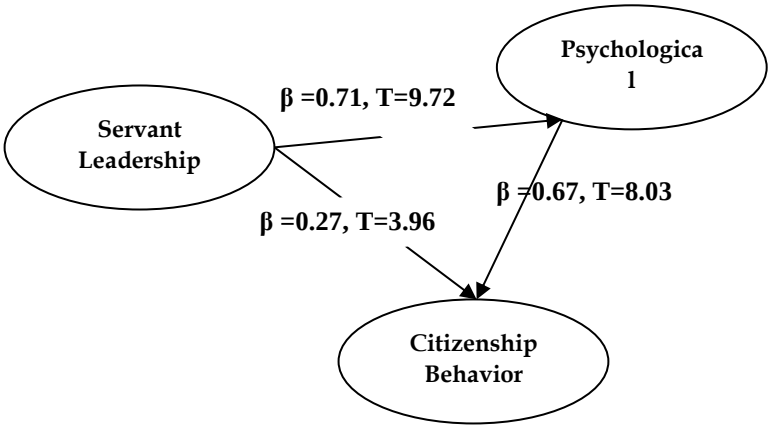

Figure 5. *Fitted model of the study*

Based on the findings, the value of the β-coefficient of servant leadership on organizational citizenship behaviors through the mediation of psychological empowerment was 0.475. The research hypothesis was confirmed because the obtained t-value was 8.03 and was greater than the standard value of 7.15. So, it can be accepted that servant leadership has a positive and significant effect on organizational citizenship behavior through the mediation of psychological empowerment.

Discussion, Conclusion and Recommendations

The present study aimed to investigate the relationship between servant leadership and organizational citizenship behavior with mediating role of psychological empowerment. This study is an applied and correlation research method based on structural equation modeling. The finding indicated a positive and significant relationship between servant leadership and organizational citizenship behavior. It can be accepted that servant leaders are acceptable and legitimate role models who draw their employees' attention to their own altruism and appropriate behavior. Servant leaders in this field set themselves a role model for dealing with others. Thus, followers also imitate such leaders, exemplify their behaviors, and display citizenship behaviors in the organization. Traditional approaches to leadership have created obstacles in the research of productive staff in organizations, when empowerment is taken into account as a central factor in new approaches to leadership, especially servant leadership (Piccolo, Greenbaum, Hartog, & Folger, 2010). The impact of leadership on organizational citizenship behaviors is much more important than its impact on intra-role behaviors (Podsakoff, et al., 2000) because servant leaders tend to motivate followers to be engaged in chivalrous and urbane behaviors such as paying attention to the impact of their actions on others, respecting others' rights in shared resources, and not complaining about minor issues. Another the example of the impact of servant leadership on citizenship behavior is the leader's position as a model. In fact, leaders define themselves as role models, and followers tend to imitate them. Leaders need to have a good portraiture management, not just focus on the work itself in order to be considered as servants and promote citizenship behaviors of the followers. If the followers can regard leader-serving behaviors as extra-role behaviors, they are more likely to be engaged in extra-role behaviors in their workplace (Montakhab Yeganeh, Beshlideh, & Baharlou, 2015). The relationship between servant leadership and organizational citizenship behavior is consistent with the results of previous studies (Bambale, 2014; Harwiki, 2013; Zehir, Akyuz, Eren, & Turhan, 2013).

The second finding showed that there is a positive and significant relationship between servant leadership and psychological empowerment. It can be accepted that traditional approaches to leadership have created barriers to productivity research in organizations and when new approaches to leadership, especially servant leadership are considered; empowerment is a central factor (Patterson, 2003). Therefore, one of the consequences of servant leader is psychological empowerment of employees (Nel, 2013). Servant leaders are known as always altruist, respecting the dignity of followers and giving authority to them. They care about individual development and subordinate development and they seek to maximize staff capacity, which enhances employees' empowerment. Having a servant leader with the qualities of listening,

empathy, awareness, persuasion, conceptualization, foresight and providence, stewardship and supervision, commitment to people's growth, and group building help build trust in the organization, support the interests of the organization, define people's expectations and roles in the organization, prioritize the tasks, participate people in the organization, make decisions as a group, and emphasize the teamwork which r result in employee empowerment (Zorlu, Avan & Baytok, 2019). Therefore, the employees consequently will show behaviors such as acting based on organizational goals, adapting to organizational values, acquiring the skills necessary to do the job, striving to improve performance, and being useful and empowered for their organization if the manager represents some behaviors such as kindness, servitude, trust building, seriousness in doing their tasks, performing their duties, as well as considering the interests of employees and the organization and supporting the organization (Gholipour et al., 2009). The relationship between servant leadership and psychological empowerment is consistent with the results of previous studies (Gholipour et al., 2009; Mehrara & Bahalo, 2013; Jones, 2011; Nel, 2013).

The third finding showed that there is a positive and significant relationship between psychological empowerment and organizational citizenship behavior. It can be accepted that empowered employees demonstrate an active orientation towards the work role in relation to the psychological empowerment received by the organization, and they are more likely to perform beyond their duty and improve their desire to help their organizations (Bowen & Lawler, 1992). Enabled or empowered employees are encouraged and able to initiate and practice organizational citizenship behaviors (Chiang & Hsieh, 2012). In fact, employees should have freedom in how they perform their job responsibilities to emerge organizational citizenship behaviors. Empowerment enhances the sense of self-efficacy among organization members, and they may be compensated by performing organizational citizenship behaviors (Bogler & Somech, 2004). The employees may exhibit organizational citizenship behaviors if they believe that they have the ability and competence to perform their tasks successfully and feel that they have the independence and freedom to do their tasks. Further, they pursue meaningful and valuable career goals and are treated honestly if they believe that they are able to control and influence the job outcomes (Kosar, 2017). The relationship between psychological empowerment and organizational citizenship behavior is consistent with the results of previous studies. For example, Bogler and Somech (2004) concluded that in case the level of empowerment is higher in each dimension of empowerment, the level of organizational citizenship behavior is also high. According to VanYperen, Berg and Willering (1999), the organizational citizenship behavior of their extra-role expectations increases in teachers who participate in the process of making educational decisions. Somech (2005) perceived that organizational citizenship behavior in teachers who have a good sense of competence and effectiveness is better.

The fourth finding showed that there is a positive and significant relationship between servant leadership and organizational citizenship behavior with mediating role of psychological empowerment. It can be accepted that servant leadership is based on the philosophy of service and servant leaders prefer empowerment, mutual trust,

spirit of cooperation, ethical use of power, and the value of serving followers than everything else in the organization (Greenleaf, 1977). Leaders, followers, and staff need to strengthen themselves to reach their potential capacities for developing organizational effectiveness, and this is exactly what servant leaders do by respecting individuals, building up mutual trust, and empowering their followers. Servant leaders empower their followers by training them, and their satisfaction stems from the growth and development of others (Bennet, 2001). Empowered employees, in turn, participate in organizational citizenship behavior as a means of dealing with the organization with a strong likelihood as well as compensating for the benefits the organization has brought to them. Based on Greasley et al.'s argument (2008), empowerment can lead to organizational citizenship behaviors by enhancing employees' self-confidence and self-efficacy. Baijuka (2008) stated that the empowerment atmosphere in the workplace is likely to lead to employee involvement in extra-role behaviors. Morrison (1994) believes that empowered employees are able to initiate and practice organizational citizenship behaviors.

In summary, servant leadership is positively and significantly associated with organizational citizenship behavior both directly and indirectly with the mediating role of the psychological empowerment. Servant leaders always strive to drive employees to flourish and maximize their talents through identifying, stimulating, and activating a higher level of followers' need and motivation. Then, they will modify their behavior and performance if an appropriate feedback is observed and received from the followers' performance. Because servant leadership is based on the service philosophy, servant leaders prefer empowerment, mutual trust, cooperation spirit, ethical use of power, and service value to followers in the organization more than anything else. Such leaders consider their employees as the most valuable asset in the organization; and therefore, they have a positive mindset to nurture and improve their employees. They train their employees in all aspects and provide the necessary educations to empower employees. In addition, according to the theory of social exchange, it seems logical that once individuals benefit from the activities and actions of any entity, they are committed for reimbursement and seek compensation and reciprocity. Servant leaders cultivate a sense of commitment, reimbursement, and self-esteem through their service, humility, trust-building and sympathy. These leadership qualities and behaviors, in turn, make employees feel responsible beyond what their job requires to do and exhibit more spontaneous, cooperative, supportive, and transcendent behaviors, as well as being more active in serving the organization. In general, servant leaders can empower their followers to find their own future, and instead they help others find the best paths. In fact, these leaders motivate their employees to actively participate in the workplace through empowering and motivating followers due to their behaviors and perspectives. Naturally, followers behave beyond the requirements set by the organization under the influence of such characteristics in their workplace, i.e. they show more citizenship behaviors. Thus, it is recommended that school principals should consider some characteristics such as honesty, spirit of participation, teamwork, humility, transparency in day-to-day work, fulfilment of the covenant and commitments, trustworthiness, love, compassion and kindness, appreciation of the hard work of teachers, cheerfulness and most

importantly provision of service on how to use servant leadership in an organization and its impact on teachers' psychological empowerment as well as organizational citizenship behaviors. One of the limitations of the present study was the restriction of scope of research to a specific part of Iran. Obviously, the opinions of teachers in Zahedan city may not be a complete representative of the views of staff across the country, and this issue confines the spatial generalization of research. To increase the power of generalizing the results, similar research should be conducted in other cities and on other teachers.

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