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The Mediating Role of Organizational Hypocrisy in the Relationship Between Organizational Silence and Organizational Rumor: A Study on Educational Organizations

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ABSTRACT

Research on organizations operating in different fields has shown that organizational hypocrisy has negative impact on employees' organizational behaviors. In terms of educational organizations, the studies show that organizational hypocrisy has a negative relationship with organizational silence, organizational rumor, organizational happiness, organizational commitment etc. Thus, these situations suggest that organizational hypocrisy may have a mediating role between organizational silence and organizational rumor. Based on this thought this study aims to examine the mediating role of organizational hypocrisy in the relationship between organizational silence and organizational rumor in educational organizations. The study was conducted with a total of 323 teachers, 236 females (73%), and 87 males (27%). The data were collected by using the "Organizational Silence Scale", "Organizational Rumor Scale" and "Organizational Hypocrisy Scale." In analyzing the data, descriptive statistics, Pearson product-moment correlation coefficient, path analysis, and bootstrapping method were used to test the significance of the mediating effect. The results of the study showed that there was a positive significant relationship between organizational silence, organizational hypocrisy, and organizational rumor. The bootstrapping results showed that organizational hypocrisy had a partial mediating role in the relationship between organizational silence and organizational rumor. It is considered that the results obtained can be used to reduce organizational rumor at schools. In addition, it can be said that the results obtained from the study will be a guide for future studies.

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Keywords:

Organizational silence, organizational rumor, organizational hypocrisy, mediation effect

1. Introduction

Organizations are social structures formed by people who come together to achieve a specific goal (Etzioni, 1964; Gurtvitch, 2017; Ritchie, 2020). A healthy and effective communication system established among the members of the organization plays an important role in the effective and productive activities of these social structures (Baron & Greenberg, 1990). Numerous studies have also revealed the importance of communication between organization members (Ince & Gül, 2011; Agarwal & Garg, 2012; Hargie, 2016). However, it is possible to experience communication problems for various reasons within the organization (Adu-Oppong & Agyin-Birikorang, 2014). As a result, members of the organization are unable to communicate effectively and may be reluctant to express their opinions and suggestions. Thus, a climate of silence begins to prevail within the organization. This situation, which is called organizational silence and was first included in Morrison and Milliken's study in 2000, was defined as the employees' not sharing their knowledge and thoughts about the organization intentionally (Morrison & Milliken 2000, p. 719). Although the behavioral tendency of employees

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to remain silent is perceived as an indicator of compliance, it is a fundamental element that should be considered as a reaction and withdrawal behavior within the organization (Çavuş, Develi & Sarioğlu, 2015, p.12). However, a silent structure interrupts the sense of creativity and excitement, and the basic indicators of the organization such as performance and efficiency are negatively affected (Perlow & Williams, 2003). In addition, the deterioration of morale and motivation of employees who prefer organizational silence causes an increase in behaviors that negatively affect individual and organizational efficiency such as absenteeism, being late for work, and quitting the job. On the other hand, employees, who are experiencing anxiety and stress, increasingly enter the spiral of silence (Morrison & Milliken, 2000). This silence process reveals many communicative negativities in the organization over time (Pinder & Harlos, 2001). One of these negativities is what is called organizational rumor in the literature.

Organizational rumor is an informal communication network conducted by the members of the organization implicitly regarding the events within the organization, and it is generally considered as an adverse situation for the organization (Kapferer, 1992; Difonzo & Bordia 2007). There are many reasons for rumors to emerge in organizations. Research has shown that one of the main factors which are the sources of rumors among employees in organizations is the lack of information provided to employees on subjects they need (Guirdham, 2015; DiFonzo, Bordia & Rosnow, 1994), uncertainties about a subject concerning employees (Brown and Napier, 2004), deficiencies or blockages in official communication channels (Zhao, Yin & Zong, 2016; Huo & Ma, 2017), employees' fears and worries (Fine & Ellis, 2010; Boyer & Parren, 2015), organizational changes taking place (Brown & Napier, 2004; Rivero, 2013), and employees' distrust towards the organization (Stewart & Strathern, 2004; DiFonzo & Bordia, 2007). In an organization where organizational rumor is widespread, assumption-based, unproven information flow among members is dominant, and organization members are reluctant to establish open communication (Guirdham, 2015; Zhao, Yin & Zong, 2016; Huo & Ma, 2017). Therefore, it is considered that there may be a significant relationship between organizational silence and organizational rumor. In addition, it is considered that organizational hypocrisy (Simons, 2002; Effron, Lucas & O'Connor, 2015), which is a concept that expresses the inconsistency between the discourses and actions of the members of the organization -especially the members in managerial positions- can play a mediating role between these two variables in organizations where interpersonal relationships are prevalent. In the literature, hypocrisy is defined as inconsistencies between discourses, decisions, and actions to ensure the support of the environment (Brunsson, 1989). Hypocrisy can be considered at the individual level or the level of organizations formed by people coming together around a certain purpose (Kılıçoğlu, 2017). The hypocrisy in the organization is that employees and managers act or claim to have feelings, thoughts, virtues, values and characteristics that they do not have; they try to show themselves to employees, managers, and society in a different way from what they know, believe and who they are (Konan & Taşdemir, 2019).

Organizational hypocrisy has significant direct and indirect effects on business results (Kılıçoğlu & Yılmaz-Kılıçoğlu, 2019). Research on organizations operating in different fields has shown that organizational hypocrisy decreases employees' performance, organizational commitment, and job satisfaction (Brunsson, 1989; Philippe & Koehler, 2004; Cha & Edmondson, 2006) and increases their intention to quit the job (Philippe & Koehler, 2005; Greenbaum et al., 2015). In terms of educational organizations, the limited number of studies conducted show that organizational hypocrisy, according to teachers' perceptions, has a negative relationship with organizational happiness (Konan & Taşdemir, 2019), organizational justice (Kılıçoğlu, 2015; Kahveci, Kandemir & Bayram, 2019), organizational citizenship behavior (Kılıçoğlu & Yılmaz-Kılıçoğlu, 2019) and organizational commitment (Karagül-Kandemir & Kahveci, 2020). Additionally, Kılıçoğlu, Kılıçoğlu & Hammersley-Fletcher (2019) revealed in their extensive research on educational organizations that hypocrisy causes trust problems between teachers and school administrators, weakens communication between members of the organization and increases rumors within the organization, and negatively affects teachers' motivation, job satisfaction, commitment to school and performance. Therefore, it can be said that organizational hypocrisy is an adverse situation for organizations.

There are explanations in the literature that organizational silence, which is a clear indication that there is no healthy communication environment in organizations, triggers organizational rumor (Zhao, Yin & Zong, 2016; Huo & Ma, 2017; Beheshtifar, Borhani & Moghadam, 2012). As a matter of fact, in an organization dominated by organizational silence for many different reasons, the members of the organization refrain from expressing their views and thoughts openly. As a result, it can be considered a situation where communication within the

organization is expected to occur in a covert way through rumors (Kimmel, 2004). Although organizational managers say that they have a strong and healthy communication system and emphasize that they adopt a democratic management approach, it is possible to see that these discourses do not turn into action from time to time (Cha & Edmondson, 2006). Studies have indicated that this situation, which is called organizational hypocrisy is associated with both organizational silence (Pinder & Harlos, 2001; Bowen & Blackmon 2003; Mayhew et al., 2006; Çakıcı, 2008) and organizational rumor (Fernandez-Revuelta Perez & Robson, 1999; DiFonzo & Bordia, 2007; Kılıçoğlu, 2017). However, there is no study in the literature in which these three variables have been studied together. Thus, the main problem of this study is to examine the mediating role of organizational hypocrisy in the relationship between organizational silence and organizational rumor. The study was conducted with teachers working in schools, which are organizations where human relations are most intense. , the study aimed to fill the gap in the field and provide recommendations for practitioners and researchers in line with the findings of the study.

1.1. Purpose of the Research

This study aimed to examine the relationship between organizational silence, organizational rumor, and organizational hypocrisy according to teachers' views. In the direction of the study's aim, the hypotheses of the study are as below:

1. Organizational silence has a positive and significant effect on organizational rumors.
2. Organizational silence has a positive and significant effect on organizational hypocrisy.
3. Organizational hypocrisy has a positive and significant effect on organizational rumors.
4. Organizational silence has a positive and significant effect on organizational rumors mediated by rumors.

2. Method

2.1. Research Model

This study examining the mediating role of organizational hypocrisy in the relationship between organizational silence and organizational rumor in educational organizations was designed using the relational survey model, which is one of the quantitative research methods. Relational survey models are a research model that aims to determine the existence and/or degree of change between two or more variables (Karasar, 2010). In this study, the mediating role of organizational hypocrisy in the relationship between organizational silence and organizational rumor was tested using structural equation modeling.

2.2. Population and Sample

The population of the study consisted of 3,657 teachers working in the Kartal district of Istanbul in the 2019-2020 academic year. An unbiased random selection and a representative sample are important in drawing conclusions from a study's results (Sharma, 2017). In simple random sampling, the probability of choosing each element as a sample is equal. Therefore, it is unbiased (Singh, 2015). Based on this information, simple random sampling method was used to determine the sample. In determining the sample, it is considered sufficient that the sample which can represent the population in the 2,000-5,000 range with 5% error rate is between 322-357 (Yazıcıoğlu & Erdoğan, 2004, p.50). In light of this information, the study was conducted with 323 teachers. Table 1 includes the distribution of teachers who participated in the study according to their demographic characteristics.

According to Table 1, 236 of the teachers were female (73%) and 87 were male (27%). In addition, 39 of the teachers had professional seniority of 0-5 years (12%), 62 had 6-10 years (19%), 73 had 11-15 years (23%), 60 had 16-20 years (19%) and 89 of them had professional seniority of 21 years or more (27%). It was observed that 8 of the teachers had an associate degree (3%), 271 undergraduate (84%), and 44 had a postgraduate degree (13%). When the educational levels in which the teachers worked were examined, it was observed that 120 of the teachers worked in primary schools (37%), 125 in secondary schools (39%), and 78 in high schools (24%).

Table 1. Data on Demographic Characteristics of the Participants

Demographic Variable	Groups	Frequency (n)	Percentage (%)
Gender	Female	236	73
	Male	87	27
	Total	323	100
Professional seniority	0-5 years	39	12
	6-10 years	62	19
	11-15 years	73	23
	16-20 years	60	19
	21 years or more	89	27
	Total	323	100
Graduation	Associate degree	8	3
	Undergraduate degree	271	84
	Postgraduate degree	44	13
	Total	323	100
Level of Education to Work	Primary school	120	37
	Secondary school	125	39
	High school	78	24
	Total	323	100

2.3. Data Collection Tools

2.3.1. Organizational Silence Scale

The Organizational Silence Scale, was developed by Kahveci and Demirtaş (2013). This 5-point Likert scale consists of 18 items and five sub-dimensions. The total variance explained by the 5 dimensional structure is 57%. The Organizational Silence Scale has 4 items in the "school environment" dimension, 3 in the "emotion" dimension, 5 in the "source of silence" dimension, 3 in the "administrator" dimension and 3 in the "isolation" dimension. The scale is graded as "I do not agree at all (1) - I completely agree (5)". A total score can be obtained from the points of the scale. The increase in the scores obtained from the scale indicates that the perception levels of participants on organizational silence increased, while the decrease in the scores indicates that the organizational silence perception levels decreased. As a result of the second-level confirmatory factor analysis, it was determined that the scale preserved its original 5 factor structure. It was found that the fit values for the analysis were within acceptable limits. According to the CFA findings, $\chi^2/df = 3.13$, RMSEA = .069, GFI = .91, CFI = .92, NFI = .88, TLI = .91 and AGFI = .88 values were obtained. The Cronbach's Alpha internal consistency coefficient is .89 for the total score of the scale. In addition, the reliability coefficients, which were calculated for each factor, are .79 for administrators, .81 for emotion, .83 for isolation, .74 for the school environment and .80 for the source of silence. According to the results obtained, it can be said that the scale is valid and reliable.

2.3.2. Organizational Rumor Scale

The Organizational Rumor Scale, was developed by Dağlı and Han (2018). The 5-point Likert scale consists of 24 items and three sub-dimensions. The total variance explained by the 3 dimensional structure is 61%. The Organizational Rumor Scale has 8 items in the "acquiring knowledge" dimension, 6 items in the "socialization" dimension, and 10 items in the "cynic effect" dimension. The scale is graded as "I do not agree at all (1) - I completely agree (5)". A total score can be obtained from the points of the scale. The increase in the scores obtained from the scale indicates that the perception levels of participants on organizational rumor increased, while the decrease in the scores indicates that the organizational rumor perception levels decreased. As a result of the confirmatory factor analysis, it was determined that the scale preserved its original 3 factor structure. It was found that the fit values for the analysis were within acceptable limits. According to the CFA findings, $\chi^2/df = 2.73$, RMSEA = .074, GFI = .84, CFI = .91, NFI = .87, IFI = .91 and AGFI = .81 values were obtained. The Cronbach's Alpha internal consistency coefficient is .80 for the total score of the scale. In addition, the reliability coefficients, which were calculated for each factor, are .89 for acquiring knowledge; .93 for socialization, and .91 for cynic effect. According to the results obtained, it can be said that the scale is valid and reliable.

2.3.3. Organizational Hypocrisy Scale

The Organizational Hypocrisy Scale, was developed by Kılıçoğlu, Yılmaz-Kılıçoğlu, and Karadağ (2019). The 5-point Likert scale consists of 17 items and 3 sub-dimensions. The total variance explained by the 3 dimensional structure is 59.44%. The Organizational Hypocrisy Scale has 5 items in the dimension of "keeping promises", 7 items in the dimension of "harmony between internal structure and environment" and 5 items in the dimension "inconsistencies in practices". The scale is graded as "I do not agree at all (1) - I completely agree (5)". A total score can be obtained from the points of the scale. The increase in the scores obtained from the scale indicates that the organizational hypocrisy perception levels of the participants increased, while the decrease in the scores indicates that the organizational hypocrisy perception level decreased. As a result of the confirmatory factor analysis, it was determined that the scale preserved its original 3 factor structure. It was found that the fit values for the analysis were within acceptable limits. According to the CFA findings, $\chi^2/df = 1.95$, RMSEA= .075, GFI= .94, CFI= .97, IFI= .93, NFI= .93, TLI= .96 and AGFI= .91 values were obtained. The Cronbach's Alpha internal consistency coefficient is .75 for the total score of the scale. In addition, the reliability coefficients, which were calculated for each factor, are .86 for keeping the promises, .87 for harmony between internal structure and environment, .74 for inconsistencies in practices. According to the results obtained, it can be said that the scale is valid and reliable.

2.3.4. Personal Information Form

The personal information form prepared by the researcher included questions about gender, professional seniority, education level of the participants, and the grade levels in which they work.

2.4. Procedures and Data Analysis

During the data collection process, permission from the Ethics Committee for the scales and the legal permission required for the implementation of the scales were obtained from the Istanbul Provincial Directorate of National Education. , Next, interviews were held with the administrators of the schools where the study would be conducted about the implementation of the scales. The scale links prepared via Google forms were delivered by the school administration to the teachers who wanted to participate in the study voluntarily. The data obtained from 323 teachers who responded to the survey were analyzed. Descriptive statistics related to variables were calculated in the analysis of the data obtained within the scope of the study, and the relationships between variables were determined using the Pearson product-moment correlation coefficient. Then, mediation analyses were completed using the structural equation model and the path analysis in line with the model proposed by Baron and Kenny (1986). In the study, the data were analyzed by conducting path analyses with the latent and observed variables. In the model, the sub-dimensions of organizational silence and organizational hypocrisy, which are the predictive variables, and the sub-dimensions of organizational rumor, which is the predicted variable, were included as observed variables. In the path analysis, χ^2 , df , χ^2/df , RMSEA, CFI, GFI and NFI values were taken as the criteria for the suitability of the model. The acceptance of the goodness of fit values of the model was based on the views of Hu & Bentler's (1999), Brown's (2006), Çokluk, Şekercioğlu & Büyüköztürk (2016), Sümer's (2000), Marcoulides & Schumacher (2001) and Tabachnick & Fidell (2001). Within the framework of these views, $\chi^2 / df \leq 5$; RMSEA $\leq .10$; CFI $\geq .90$; GFI $\geq .85$; NFI $\geq .90$ values were considered acceptable limits for the model's suitability. The bootstrapping procedure was completed to examine the significance of the indirect effects. The confidence intervals calculated as a result of the bootstrapping process do not include zero, which indicates that the indirect effect is significant (Hayes, 2013). In this study, the bootstrapping coefficient and confidence intervals (CI) were determined through 10,000 resamplings. SPSS 25 and AMOS 20 programs were used in the analysis of the data collected. Before the analysis, it was examined whether the data showed one-way and multi-directional normality assumptions. For this purpose, the skewness and kurtosis values of the data and Q-Q graphs were examined. It was found that the scores of organizational silence (-.17 to .42), organizational hypocrisy (-.71 to .88), and organizational rumor (.10 to -.02) scales were within normal distribution limits. According to Kalaycı (2014, p. 8), the value of kurtosis-skewness between -2 and +2 shows that the data have a normal distribution. In addition, when the Q-Q graph is examined, the fact that the data are in the form of an ellipse around the line with an angle of 45 degrees supports the normality assumption. Lastly, the existence of the multicollinearity problem was examined with correlation values (Tables 2 and 3). The fact that the correlation values between variables are lower than .85 is an indication that there is no multicollinearity

problem (Pallant, 2005). In the interpretation of arithmetic means in the study, the range of 1.00-1.79 is evaluated as "very low", 1.80-2.59 interval is "low", 2.60-3.39 interval is "medium", 3.40-4.19 interval is "high" and 4.20-5.00 range is "very high" in 5-point Likert type scales. In addition, in the interpretation of the correlation analysis, the range of .00-.30 was accepted as "low", the range of .31-.70 as "medium" and the range of .71-1.00 as "high" (Büyüköztürk, 2011). The study's first question was investigated by the arithmetic mean, the second question by Pearson product-moment correlation analysis, and the third question by structural equation modeling (SEM).

3. Findings

Teachers' levels of perception of organizational silence, organizational hypocrisy, and organizational rumor were examined in the study. In addition, correlation analysis results between variables were given, and then the structural equation model for the role of organizational hypocrisy in the relationship between the organizational silence and the organizational rumor was tested.

3.1. Descriptive Statistics and Correlations

The correlation values between the study's latent variables and the descriptive statistics for these variables are presented in Table 2.

Table 2. Correlation Values between Latent Variables of the Study and Descriptive Statistics

	1	2	3
1. Organizational Silence	1		
2. Organizational Hypocrisy	.51**	1	
3. Organizational Rumor	.18**	.31**	1
Mean	3.30	2.33	2.47
Standard Deviation	.58	.46	.48
Skewness	-.17	-.71	.10
Kurtosis	.42	.88	-.02

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

When the descriptive statistics in Table 2 are examined, it is seen that teachers' perception levels of organizational silence (M=3.30) were relatively medium, organizational hypocrisy (M=2.33) and organizational rumor (M= 2.47) perception levels were relatively low. In addition, when the skewness and kurtosis values of the variables discussed in the study are examined, it is seen that the distribution displays a normal distribution. When the correlation coefficients between the variables in Table 2 are examined, there is a positive, moderately significant relationship between organizational silence and organizational hypocrisy (r= .51; p<.001). Also, a positive, low-level significant relationship was found between organizational silence and organizational rumor (r = .18; p<.001). , Finally, it was determined that there was a positive and moderately significant relationship between organizational hypocrisy and organizational rumor (r = .31; p<.001).

The mediating effect of organizational happiness in the relationship between teachers' job commitment and their life satisfaction was examined in line with the model proposed by Baron and Kenny (1986). According to this model, to test the mediator variable model, there should be a significant relationship between dependent, independent and mediator variables. When the findings in Table 2 were examined, it was seen that all variables had significant relationships among themselves. Furthermore, when the variable in which the mediating effect is investigated is added to the model in a significant relationship between variables, if the relationship between variables decreases, this indicates the mediating effect. When the variable that is considered to play a mediating role is added to the model, if the relationship between dependent and independent variable is not significant, it is considered as "full mediation"; while the significance of the relationship and the decrease in the effect level are considered as "partial mediation". In this study, it was examined whether organizational happiness had a mediating role in the relationship between job commitment (independent variable) and life satisfaction (dependent variable).

3.2. Findings on the Mediating Role of Organizational Hypocrisy in the Relationship Between Organizational Silence and Organizational Rumor

The relationships between organizational silence, organizational rumor, and organizational hypocrisy, which is considered as the mediator variable, was examined with path analysis. Moreover, bootstrapping was used to examine the statistical significance of indirect effects. The mediating effect of organizational happiness between job commitment and life satisfaction is shown in Figure 1 and Table 3.

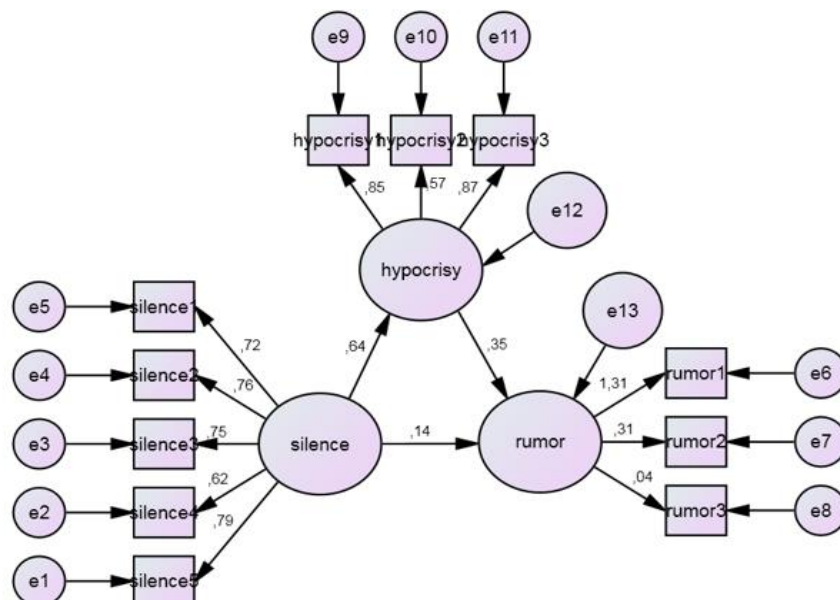


Figure 1. Path Analysis Diagram for Predicting Organizational Rumor (Mediation Effect)

When the goodness of fit values of the model are examined, it can be said that it meets the required goodness of fit values [$\chi^2 = 185.477$, $df = 41$, $\chi^2/df = 4.52$, $IFI = .90$, $CFI = .90$, $GFI = .90$, $NFI = .87$]

Table 3. Findings Regarding The Mediating Effect of Organizational Happiness in the Relationship between Job Commitment and Life Satisfaction

Predictive (Exogenous)	Predicted (Endogenous)	B	Se	t	β	P
Direct Effects						
Organizational Silence →	Organizational Rumor	.46	.06	7.72	.36	.000
Organizational Silence →	Organizational Hypocrisy	.68	.74	9.24	.64	.000
Organizational Hypocrisy →	Organizational Rumor	.69	.11	6.29	.35	.000
Indirect Effects						
Organizational Silence →	Organizational Rumor	.29	.12	2.50	.14	.013

As seen in Table 3, organizational silence positively and significantly predicts organizational rumor ($\beta = .36$, $t = 7.72$, $p < .000$) and organizational hypocrisy ($\beta = .64$, $t = 9.24$, $p < .001$). In addition, organizational hypocrisy predicts organizational rumor significantly and positively ($\beta = .35$, $t = 6.29$, $p < .001$). Kline (2015) suggested critical values for the evaluation of standardized effect sizes. If these are less than .10, it is a low-level effect, if they are around .30, it is a medium effect, and if they are .50 and above, it is a high-level effect. Accordingly, organizational silence and organizational hypocrisy have a medium effect on organizational rumor. It was found that organizational silence and organizational hypocrisy together predicted 20% of the variance of organizational rumor ($R^2 = .20$, $p = .000$). The regression values' significance between variables was interpreted as the assumptions of the mediation test were met. After the addition of organizational hypocrisy as a mediator variable in the model, it was observed that the relationship between the organizational silence and the organizational rumor was significant ($\beta = .14$, $t = 2.50$, $p < .05$). However, when the relationship between variables occurred directly, it was determined that the β value was .36 (Table 3), while the value of β decreased to .14 (Figure 1) with the addition of organizational hypocrisy to the model. These findings indicate that organizational hypocrisy plays a partial mediating role in the relationship between organizational silence and organizational rumor. For this reason, bootstrapping was performed to evaluate the significance of the indirect

effect. In order to support the research hypothesis in this analysis, the values obtained at the 95% confidence interval (CI) as a result of the analysis should not include the zero (0) value (Hayes, 2013; Gürbüz, 2019). According to the results of bootstrapping performed through 10,000 resamplings, it was seen that the indirect effect of job commitment (bootstrapping coefficient = .22, Se = .07, 95% CI = .093, .378) was significant since the confidence interval values did not include zero. According to these findings, it can be said that organizational hypocrisy has a partial mediating role in the relationship between organizational silence and organizational rumor.

4. Discussion, Conclusion, and Recommendations

In this study, the perception levels of organizational silence, organizational rumor, and organizational hypocrisy were examined in line with the views of 323 teachers working in public schools in the Kartal district of Istanbul during the 2019-2020 academic year. In addition, the relationships between variables and the mediating role of organizational hypocrisy in the relationship between organizational silence and organizational rumor were examined.

Study findings showed that teachers' perception levels of organizational hypocrisy were relatively low. In similar studies conducted on educational organizations, it was found that teachers' perception levels of organizational hypocrisy were low (Kılıçoğlu, 2017; Konan & Taşdemir, 2019; Kahveci, Karagül-Kandemir & Bayram, 2019; Snelson-Powell, Grosvold & Millington, 2020) and moderate in others (Kılıçoğlu, 2015; Kılıçoğlu, Yılmaz-Kılıçoğlu & Karadağ, 2019). Both inputs and outputs of educational organizations are human beings; therefore, it is considered that negative attitudes and behaviors among the members of the organization may negatively affect the organizational climate and prevent the provision of a qualified education service. Another finding of the study was that teachers' perception levels of organizational silence were relatively medium. In many similar studies, it was also found that teachers' perception levels of organizational silence were at a medium level (Kahveci & Demirtaş, 2013; Karabağ-Köse 2014; Demirtaş, Özdemir, Küçük, 2016; Okeke-James, Igbokwe, Anyanwu & Obineme, 2020; Ngozi, Okeke-James & Igbokwe, 2021). On the other hand, some studies found that teachers' perception levels of organizational silence were low (Helvacı & Çetin, 2012; Çavuşoğlu & Köse, 2016; Alqarni, 2020). Kahveci (2010), on the other hand, found that teachers' perceptions of organizational silence were high. Organizational silence is the employees' unwillingness to express problems at work intentionally or unintentionally (Eroğlu, Adıgüzel & Öztürk, 2011). Therefore, employees may prefer to remain passive in their organizations because they think they will be harmed if they talk about issues that are sensitive to the organization (Milliken, Morrison, & Hewlin, 2003). Besides, employees tend to remain silent for fear of being fired or not getting promoted, in order not to be seen as a complaining person and so that their social relations are not damaged (Çakıcı 2008). Findings showed that teachers' perception levels of organizational rumor were relatively low. Han (2019) found in his research that the perception levels of teachers regarding organizational rumor were not high. Rumor is defined as unproven and unreliable information that circulates through word of mouth or electronic communications (Fearn-Banks, 2007). Therefore, teachers' low level of organizational rumor perception indicates a healthy communication process in their organizations (Bursalıoğlu, 2005). Studies have revealed that the most common reactions of teachers who are exposed to the rumor mechanism are sadness and anger (Arabacı, Sünkür & Şimşek, 2012). , it is stated that such a situation may negatively affect the performance of employees and negatively affect work productivity (Xueming 2013; Artaç, 2017). In light of this information, the low perceptions of organizational rumors of teachers participating in the study can be considered as a positive situation.

Based on reviewing 4 hypotheses, -there were positive and significant relationships between organizational hypocrisy, organizational silence, and organizational rumor. There is no study in the literature in which all three variables have been studied together. However, in the literature, it has been emphasized by various researchers that organizational silence increases organizational rumor (Morrison & Milliken, 2000; Pinder & Harlos, 2001) and that organizational hypocrisy can also be related to both organizational silence (Milliken et al., 2003; Çakıcı, 2008) and organizational rumor (Stewart & Strathern, 2004). Employees working at an organization dominated by silence will avoid expressing their thoughts openly, so the flow of information will take place informally in the form of rumors (Stewart & Strathern, 2004). Research findings showed that the effect of organizational silence on organizational rumor was partly through organizational hypocrisy. In other words, it was concluded that organizational silence increased organizational hypocrisy, and as a result, organizational rumor was positively affected. Therefore, reducing organizational silence in schools can be

interpreted as reducing organizational hypocrisy and organizational rumors. In this context, steps can be taken towards less hypocritical behaviors of all school staff, especially school administrators, to reduce rumors in schools.

This study has some limitations. The study was conducted in public schools in Turkey's largest city, Istanbul. A similar study can be conducted with teachers working in rural or private schools with fewer teachers, and the results can be compared. In collecting data, tools based on self-report were used. Therefore, the data obtained are limited by the participants' responses to the measurement tools and the scope of the measurement tools. Considering this limitation, it is thought that it may be beneficial to use different methods such as observation and interview besides self-report measurement tools in future studies.

In the light of the results obtained from the study, some recommendations can be made for researchers and practitioners. Many factors cause rumors in organizations as an informal form of communication. Extensive research to include different types of organizations can be conducted to determine the impact of these factors on organizational rumor. Among teachers' perceptions of organizational silence and organizational rumor, the mediating effects of variables such as education level, age, and expertise can be examined. While a quantitative research method was used in the research, qualitative or mixed research methods can also be used in similar studies to have more detailed information about the relationship of variables. In addition, some recommendations can be provided for practitioners in line with the results obtained from the research. School administrators should adopt a democratic management approach in which teachers can clearly express their opinions and suggestions to minimize the organizational silence in their schools. In-service training on effective communication can be given to teachers in order to minimize teachers' organizational silence behaviors. Request and complaint boxes can be placed in schools to get the views of all parties. In order to avoid the negative effects of rumors emerging as a form of informal communication, it can be suggested to adopt an open communication in schools. Also, school administrators can eliminate the concerns of teachers and the uncertainty of the situation by organizing meetings on the rumored issue in order to minimize the negative effects of rumors and convey the information they need directly to them. In reducing organizational hypocrisy, it can be suggested that school members adopt organizational integrity, which is defined as being consistent in their discourse and actions. It can be ensured that more consistent and feasible decisions are made in terms of administration by avoiding an over-centralized understanding of schools and by transferring more authority to school administrators. , Finally, school administrators can minimize hypocritical behaviors by creating a sincere, honest and transparent organizational structure in their schools.

5. References

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An Investigation into the Relationship between Nomophobia and Social and Emotional Loneliness of Turkish University Students

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ABSTRACT

This research was conducted to measure the relationship and effects of social and emotional loneliness levels of university students to nomophobia levels. The sample of this study consisted of 692 university students who attended Trakya University in Edirne province of Turkey. The findings obtained in this study showed that it was observed that there was a significant relationship between the level of nomophobia of the university students and the loneliness in the familial relations, one of the sub-dimensions of social and emotional loneliness Scale. In addition, no significant relationship with nomophobia was observed regarding loneliness in social and emotional relations. In conclusion, an increase in the sense of loneliness experienced by university students in familial relationships may suggest that it increases the risk of nomophobia.

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Keywords:³

Nomophobia, loneliness, smartphone, mobile technologies, university students

1. Introduction

Today, the rapid technological improvements of the 21st century are slowly becoming the center of attention in most fields of social sciences. The growing interest in emerging mobile communication technologies is particularly increasing. This is not surprising, as although they are a very new phenomenon, mobile phones have become a significant part of human lives. Renowned for their affordances of enabling instant communication without physical boundaries, mobile phones today have evolved into the so-called smartphones, hand-held supercomputers with their software applications that benefit human lives in many different aspects (Karaarslan & Budak, 2012). Research shows that there will be approximately 4,78 billion mobile phone users around the world in 2020 and that 3,8 billion of them will be communicating using smartphones (Statista, 2019). This figure is projected to keep increasing in the coming years (Statista, 2019). As a reflection of this global trend, The Global Digital report published in 2019 by We are Social (2019) revealed that the number of GSM subscribers in Turkey had shown an upward trend. While the ratio of mobile phone ownership to population was 73% in 2018, this figure climbed to 93% in 2019. This can be attributed to the market-oriented development and thus reduced cost of mobile communication technologies, the proliferation of mobile applications and the increasing overall number of people becoming familiar with information technology. Mobile devices today are indeed used widely and intensively, not just for communication purposes but leisure, shopping, or social media access. Social media has been especially popularized among the younger generations thanks to connectivity afforded by mobile devices (Hong, Chiu & Huang, 2012; Gezgin & Cakir, 2016; Kanmani, Bhavani & Maragatham, 2017; Lee, Chang, Lin & Cheng, 2014; Lepp, Li, Barkley & Salehi-Esfahani, 2015). The popularity of mobile devices, over which most young people access

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their social media accounts, has in fact risen to such levels that, according to a study conducted by Park and Kaye (2019), they are seen by some users as a *raison d'être*, whereas a few of them regarding it as one of their limbs or organs. However, there has been a significant increase in the number of problems associated with smartphones' heavy and problematic use (Lin, Griffiths & Pakpour, 2018), as may be extrapolated by such remarks. One of the novel social problems brought about by the technological sublime of the 21st century is regarded to be Nomophobia, a fear of being left without a mobile phone, typically arising from heavy and problematic use of smartphones (Aboujaoude, 2019) which, in turn, causes patterns similar to addiction (Tams, Legoux & Léger, 2018; Kara, Baytemir & Inceman-Kara, 2019). Nomophobia may affect an individual's health both physically and mentally (Yildirim and Correia, 2015). In this context, we can refer to nomophobia as a disorder that has an adverse effect on the individual, causing psychological problems and behavioral changes (Rodríguez-García, Moreno-Guerrero & López Belmonte, 2020).

Nomophobia (No Mobile Phone Phobia) is described as an involuntary fear and a state of panic that occurs when an individual is out of contact with his or her mobile device or fails to communicate via the mobile device (Dixit et al., 2010; King et al., 2010; Yildirim & Correia, 2015). Since smartphones have become a symbol of status among and a characteristic feature of the young generation (Choliz, 2012), this definition alludes to smartphones under the umbrella term "mobile device". Failure to communicate both offline and online is one of the basic symptoms of nomophobia. Thought to affect the young generation in particular (Gutiérrez-Puertas, Márquez-Hernández & Aguilera-Manrique, 2016), nomophobia is referred to as a novel and predominant phobia of the modern age. Hence, the number of studies conducted into nomophobia is increasing rapidly in the literature. To investigate the factors leading to and reveal the variables associated with nomophobia, academic studies have frequently analyzed demographic features (Burucuoğlu, 2017; Yildirim, Şumuer, Adnan & Yildirim, 2016; Farooqui, Pore & Gothankar, 2018; Yıldız Durak, 2019; Guler and Veysikarani, 2019; Gurbuz & Ozkan, 2020), one's different ways of using one's smartphone (Walsh, White and Young, 2010; Kalaskar, 2015; Bivin, Mathew, Thulasi & Philip, 2013; Gezgin, Şahin & Yıldırım, 2017; Gezgin, Şumuer, Arslan & Yıldırım, 2017; Hoşgör et al., 2017; Yıldırım et al., 2016; Sirakaya, 2018), nomophobic behaviour patterns (Dixit et al., 2010; Bragazzi and Del Puente, 2014; Kaplan Akıllı & Gezgin, 2016; Tavolacci et al., 2015) and psychological problems (King et al., 2013; Uysal, Özen & Madenoğlu, 2016; Yıldız Durak, 2018; Gezgin, Hamutoglu, Sezen-Gultekin & Ayas, 2018; Ozdemir, Cakir & Hussain, 2018; Yaman & Kavuncu, 2019; Kara, Baydemir & Inceman-Kara, 2019; Apak & Yaman, 2019; Buyukcolpan, 2019; Kirac, 2019). In the light of information obtained through these scientific studies, some conclusions have been drawn about nomophobia. The widespread use of smartphones and a rise in the period dedicated to smartphone use for the particular purpose of accessing social networks can be said to increase the risk of developing nomophobia. Among participants of many studies, younger people are more susceptible than older adults to nomophobia and females also running a higher risk of developing nomophobia than males. In addition, it has been reported that nomophobic frequently manifest signs of this disorder when they fail to switch off their smartphones at night, use their phone right before going to sleep by carrying a charger and a power bank with them to bed. Another striking conclusion that has been drawn from studies is that individuals suffering from loneliness are at risk of developing nomophobia.

Loneliness is an emotion that the individual tries to avoid in some way, as the individual is a social entity and is not inherent in nature. Jung (2012) defined loneliness as the experience that occurs when the factors that are important to the individual cannot be delivered to other people or when they have opinions that are not suitable for other people. Studies have reported that there may be a general feeling of loneliness as well as different feelings of loneliness related to parental and friendship relationships (Hortaçsu, 2003). Weiss (1973) categorized loneliness in two ways as emotional loneliness and social loneliness. On the other hand, McWhirter (1990) categorized loneliness in five different ways: interpersonal, psychological, social, cultural and cosmic. The loneliness that arises because different parts of the self-do not relate to each other is defined as psychological loneliness. The situation of moving away from the group or society is called social loneliness. An individual's distancing away from others because of cultural changes is called cultural loneliness. The state of alienation or departure from God due to the disappearance of the religious bond is expressed as cosmic loneliness. Finally, an individual's perceiving of him/herself distancing away from others is defined as interpersonal loneliness. Interpersonal loneliness involves a lack of sense of belonging, especially from friends and family members (DiTommaso & Spinner, 1993). Studies emphasize that the feeling of loneliness, which can be seen in every period of life, is mostly seen during adolescence and youth. It is claimed that loneliness

is a fundamental problem, especially among young people (Orzeck & Rokach, 2004; Roscoe & Skomski, 1989). It is stated that permanent and persisting loneliness prepares the ground for actions and behaviors that will endanger psychological health, increasing the risk of depression, suicide, and other actions (Perlman & Peplau, 1984). When the literature is examined, it is stated that tools, such as computers, the internet, and phones are used primarily, especially among young people, to avoid this negative emotion, and it is stated that the individual uses virtual environments to get rid of loneliness and develop social connections (Anderson, 2001; Morahan & Schumacher, 2003; Turkle, 1995). Young people, who spend too much of their daytime online on the internet, on social networking sites trying to socialize, and who have moved away from his/her environment may suffer from loneliness in the future, even if they do not have a problem at first. Social and emotional loneliness also decreases subjective satisfaction (Salimi, 2011). Individuals who feel loneliness intensely in their lives as time goes on can turn to technological addictions to get rid of this feeling and feeling of restlessness (Mert & Özdemir, 2018).

One of the concepts that are closely related to the feelings of loneliness is the sense of belonging. The sense of belonging enables the individual to see himself as a part of society by satisfying the needs such as love, acceptance, and attention. Therefore, the sense of belonging is a part of social participation. However, today, recent technological developments affecting people affect the sense of belonging adversely, too. Individuals have emotional and social relationships with different frequency and intensity to satisfy the sense of belonging. Also, the first means of satisfying the sense of belonging of people is communication. However, the individual tries to eliminate this communication with technological tools when he cannot satisfy this feeling with real healthy social relations. Nowadays, with the rapid development of communication technologies, communicating via personal computers, tablets and mobile phones is becoming increasingly common, as well as face-to-face communication. Mobile phones are seen as an element that increases social communication, especially among young people, and they are used to make new friends and develop their current relationships. Using mobile phones too much owing to these reasons may cause some problems. It is nomophobia that is thought to become widespread due to the effects of smartphone addiction (Kwon, Kim, Cho, and Yang, 2013), one of the technology addictions, and it has an impact on especially young people (Chen, Yan, Tang vd., 2016; Drouin, Kaiser & Miller, 2015; Hill, 2006; King, Valença, Silva vd., 2010).

There are studies in the literature arguing that lonely and weak sense of belonging individuals has a higher risk of developing smartphone addiction and that they are prone to experiencing other certain problems triggered by this addiction (Casey, 2012; Bian & Leung, 2015; Enez Darcin et al., 2016; Jeong, Kim, Yum & Hwang, 2016; Aktaş & Yılmaz, 2017; Kim, Cho & Kim, 2017; Kim, Park & Choi, 2017; Jiang, Li & Shypenka, 2018; Mahapatra, 2019; Taghizadeh et al., 2019; Shen & Wang, 2019). In a study conducted by Durak (2018) involving 786 secondary school students, it was reported that there was a significant correlation between nomophobia and loneliness and that increasing levels of loneliness played a role in accelerating the risk of developing nomophobia. In another study by Ozdemir, Cakir and Hussain (2018) conducted with 729 university students in Turkey and Pakistan; researchers found positive correlations between nomophobia and self-esteem and loneliness; whereas a negative correlation was found to exist between subjective happiness and nomophobia. However, the strongest positive correlation in the study was found between loneliness and nomophobia. Khosravi and Farah (2019) found a positive correlation between loneliness and nomophobia in another study from Iran, claiming that spiritual well-being plays a mediating role between these two variables. Given that Iranian girls have higher nomophobic scores, it has been reported that improving the sense of spiritual well-being could play a part in reducing loneliness and nomophobia. According to a study conducted by Gezgin, Hamutoğlu, Sezen-Gültekin and Yildirim (2019), undergraduates with a high score on nomophobia reported deprivation and loneliness as metaphors they associated with nomophobia. Kara, Baytemir and Inceman-Kara (2019) reported that teenagers who spend a long time with their smartphones during the day run the risk of developing nomophobia, which is strongly mediated by the loneliness variable. The report also shows that as daily smartphone uses increases, teenagers feel lonelier and more anxious, thereby displaying more nomophobic behaviours.

Although several studies are available in the literature regarding loneliness and nomophobia, little research has been conducted into the correlation between nomophobia and different aspects of loneliness, such as social or emotional loneliness. Therefore, revealing the extent of nomophobia among undergraduates and determining the level of social and emotional loneliness, which is considered to be correlated with

nomophobia, might be important in proposing solutions to nomophobia. In this context, the following questions were posed in this study:

1. What is the level of nomophobia and social and emotional loneliness (social, familial, and emotional) in university students?
2. Is there a significant correlation between the level of nomophobia in undergraduates and the scores of their social and emotional loneliness (social, familial, and emotional)?
3. Do undergraduates' scores of their social and emotional loneliness (social, familial, and emotional) predict their levels of nomophobia?

2. Method

This study was conducted as a correlational research study. The correlational research method aims to reveal the relationships between variables and to determine the levels of these relationships (Fraenkel & Wallen, 2006).

2.1. Sample

The universe of the research consisted of university students studying in different departments of the Faculty of Education at Trakya University during the 2018-2019 academic year. Convenience sampling method (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2016) was used for sample selection. In order for the sample to represent the universe, the sample size was determined according to the 95% confidence level. In this case, the sample size consisted of 692 university students to represent the universe. The number of participants obtained was found appropriate for the study. 20.4% (141 people) of the participants were studying in the first grade, 13.4% (93 people) in the 2nd grade, 14.6% (101 people) in the 3rd grade, and 51.6% (357 people) in the 4th grade, respectively. 58.7% (406 people) of the students were women and 41.3% (286 people) were men. The average age of the participants was 21.13.

2.2. Data Collection Tools

2.2.1. Nomophobia Scale (NMP-Q): In this study, Nomophobia Scale (NMP-Q), which was developed by Yıldırım and Correia (2015) and adapted to the Turkish language by Yıldırım, Şumuer, Adnan and Yıldırım (2016) was used to measure the level of nomophobia in university students. The scale is itemized according to the 7-point Likert type and consists of 20 items and four sub-dimensions. The scale has four sub-dimensions; Not Being Able to Access Information (four items), Losing Connectedness (five items), Not Being Able to Communicate (six items), and Giving up Convenience (five items). The reliability coefficient of the original scale calculated using Cronbach's alpha was .95 and the reliability coefficient of the scale adapted to Turkish was given as .92. The reliability coefficient was .94 in this study.

2.2.2. Social and Emotional Loneliness Scale for Adults (SELSA-S): To measure the level of social and emotional loneliness of university students, Social and Emotional Loneliness Scale for Adults (SELSA-S) developed by DiTomasso, Brannen and Best (2004) adapted to Turkish by Çeçen (2007) was used. On the scale consisting of 15 items, there is a 7-point Likert-type structure ranging from "not completely suitable for me" to "totally suitable for me". The scale has three sub-dimensions: loneliness in social, romantic and familial relationships. Social loneliness dimension of the scale consisted of five items (2, 5, 7, 9 and 13.), the romantic loneliness dimension consisted of five items (3, 6, 10, 14 and 15.) and the loneliness dimension consisted of five items (1, 4, 8), respectively. Cronbach's alpha values ranging from .74 to .88 were obtained in the reliability/validity studies for the scale. In this study, Cronbach's alpha coefficients of sub-dimensions of SELSA-S were .81, .82, .78.

2.3. Data Collection and Analysis

The data were collected by the researcher through a research questionnaire within one class hour during December 2018. Firstly, the participants were informed about this study and then data were collected from participants on a voluntary basis. The data obtained were analyzed with SPSS 23 software package. In the analysis process, the normality distribution assumption of the data was first examined. Skewness and Kurtosis values calculated for the total scores of the nomophobia, social and emotional loneliness scales were between -1.96 and +1.96 (Tabachnick & Fidell, 2007). Thus, the data were considered to be normally distributed. The

kurtosis and skewness values have been shown in Table 1. Understanding that its assumptions have been met, the parametric statistical test of Pearson Correlation Analysis was used to examine the relationship between nomophobia and social and emotional loneliness scale. In addition, a simple linear regression analysis was used to figure out whether the independent variables predict the nomophobia variable.

3. Results

What are nomophobia, social loneliness and emotional loneliness levels of university students?

Descriptive statistics obtained from the sub-factors of the nomophobia, social and emotional multidimensional loneliness scale as a result of the first research question in this study are shown in Table 1. According to Table 1, we can say that university students have a moderate level of nomophobia. (M=3.91, SD=1.297). In addition, concerning descriptive statistics obtained from the sub-factors of the multi-dimensional loneliness scale, it can be said that loneliness in family relationships (M = 4.11, SD = .987), loneliness in romantic relationships (M = 3.83, SD = 1.225) and loneliness in social relationships (M = 4.09, SD =.911) levels are moderate as a result of scale scoring.

Table 1. Descriptive Statistics of Nomophobia And Sub-Dimensions of Social and Emotional Loneliness Scales

Variables	N	Min.	Max.	Mean	Std. deviation	Skewness	Kurtosis
NMP-Q	692	1,05	7	3.91	1.297	.249	-.502
Familial loneliness	692	1	7	4.11	.987	-1.123	1.293
Romantic loneliness	692	1	6,80	3.83	1.225	-.520	1.333
Social loneliness	692	1	7	4.09	.911	-.878	-.352

Is there a significant relationship between university students' level of nomophobia and their loneliness in the social, familial and emotional contexts?

The related findings obtained as a result of Pearson correlation coefficient technique analysis conducted to reveal the existence of a relationship between the nomophobia level of university students and loneliness in family, romantic and social relationships are shown in Table 2. When Table 2 was analyzed, it was seen that there was a weak positive relationship between the nomophobia level of university students and loneliness in family relations ($r = .151$; $p < .01$). In addition, it was revealed that there was no statistically significant relationship between nomophobia level and loneliness in romantic and social relationships.

Table 2. Correlation Matrix between Nomophobia and Loneliness in Familial, Romantic and Social Relations

Variables	1	2	3
1. NMP-Q	1		
2.Familial Loneliness	.151**	1	
3.Romantic Loneliness	.023	.335**	1
4.Social Loneliness	.069	.489**	.392**

* $p < .05$, ** $p < .01$, $n = 692$

Does the university students' loneliness in social, familial and romantic relations predict their levels of nomophobia?

Simple linear regression analysis was conducted to demonstrate to what extent loneliness in familial, romantic and social relationships predict nomophobia. When the correlation matrix in Table 2 is examined, regression analysis was performed only through loneliness in family relationships since there was a significant relationship between nomophobia and loneliness in familial relationships. Therefore, simple linear regression analysis was performed between nomophobia and loneliness in familial relationships. When the simple linear regression analysis results conducted were analyzed in Table 3, it was seen that the level of loneliness in the familial relations of university students explained 2% of the university students' nomophobia levels.

Table 3. Simple Linear Regression Analysis Results of Loneliness in Familial Relations Predicting Nomophobia

Variables	B	Std. Error	Beta	t	p	Partial (R)	Part (R)
Constant	3.101	.209		14.829	.000		
Familial Loneliness	.198	.049	.151	4.002	.000	.151	.151

$R = .151$; $R^2 = .023$; Adjusted $R^2 = .021$; $F(1-690) = 16.017$; $p = .000$

4. Discussion and Conclusion

This study, which investigates the correlation between the nomophobia levels of Turkish university students and their levels of social and emotional loneliness, has found that undergraduates display moderate levels of nomophobia along with social and emotional loneliness. Studies conducted into nomophobia in the literature have revealed similar conclusions concerning the prevalence of nomophobia among undergraduates (Oksman & Turtiainen, 2004; Szpakow, Stryzhak, Prokopowicz, 2011; Kaur & Sharma, 2015; Gezgin & Adnan, 2016; Burucuoğlu, 2017; Hosgor, Tandogan & Gunduz Hosgor, 2017; Gezgin et al., 2017; Yildirim et al., 2016; Sirakaya, 2018; Eren et al., 2020). Worldwide, nomophobia among undergraduates is becoming more widespread, and Turkey is no exception. In a recent study conducted by Gurbuz and Ozkan (2020), it has been reported that the number of nomophobic students is on the increase. In yet another study involving a significant number of participants, more than half of all the undergraduates have reported missing something when they do not have their phones with them (Ay, 2008)

Another finding obtained from the research questions of this study is that there is a significant correlation between nomophobia and sub-dimensions of the loneliness scale. There is a significant yet weak correlation between nomophobia and the familial loneliness variable. However, no correlation has been found between nomophobia and the other two sub-variables, namely, loneliness in social and romantic relationships. Academic studies have revealed that lonely individuals are more inclined towards electronic media use and that they are associated with problematic Internet and smartphone use (Davis, 2001; Moody, 2001; Engelberg & Sjöberg, 2004; Morahan-Martin, 2005; Park, 2005; Townsend, 2000; Erol & Cirak, 2019; Shen & Wang, 2019; Kim, Park & Kang, 2020). However, this study asserts that nomophobia has become a part of this condition. In this context, upon the evaluation in the integrity of all the gathered data, young people can be said to be at risk of experiencing more nomophobia as their levels of perceived loneliness from their familial relations increase. In a study undertaken by Gezgin, Ummet and Hamutoglu (2020), involving 407 undergraduates, a positively significant correlation has been found between smartphone addiction and loneliness in familial and romantic relationships. Another study conducted by Gezgin and Ozdamli (2019), involving 277 undergraduates of Turkish origin in the Northern Cyprus Turkish Republic, revealed that the higher the undergraduates' perceived level of loneliness in familial, social and romantic relationships, the greater their risk of developing smartphone addiction. One study involving teenagers found a significant correlation between the level of social and emotional loneliness and Internet addiction (Gezgin, Cakir & Yildirim, 2018), which is reported to be associated with nomophobia (Anli, 2018). Since an increase in Internet addiction brings about a rise in nomophobia risk (Gezgin Cakir & Yildirim, 2018), it is thought that any increase in social and emotional loneliness plays a role in nomophobia. The use of social networking sites is known to be instrumental in the occurrence of nomophobia (Gezgin, Şahin & Yildirim, 2017). As a similar finding, Ummet and Eksi (2016) report that loneliness highly predicts internet addiction among university students. It can be said that this finding is consistent with this research finding, given that internet addiction is a variable highly associated with nomophobia. This conclusion is supported by a study that revealed that loneliness in romantic and familial relationships significantly increases the use of social networks (Dogan and Karakas, 2016).

We can draw certain conclusions about how widespread nomophobia is by looking at the findings of the study and the academic studies that support this study in the literature. The first of these conclusions is that undergraduates are faced with the risk of nomophobia (Sharma, Sharma, Sharma & Wavare, 2015). We can attribute the feelings of loneliness and alienation among undergraduates to the rapid development of technology, its widespread use and the effect of virtual environments. Another conclusion drawn from the study is that the risk of nomophobia increases as undergraduates' level of loneliness in familial relationships increases. The study cites two reasons for this. Firstly, that university students, as opposed to teenagers, receive education in different cities away from their families increases their feelings of loneliness. To overcome this loneliness, university students spend more time with their smartphones, which increases the risk of developing phone addiction and nomophobia as a result of excessive and involuntary uses. Additionally, differences in mentality between university students and their parents have the potential to trigger such loneliness. The gap between baby boomers and generations X and generations Y and Z in social, psychological and cultural terms has widened due to the developments in technology and social media, economic developments and globalization. The world is changing rapidly. Those who cherish this change the most are members of generation Z. Parents who fail to keep up with this change may have communication problems

with generation Z, who live fast and are good at multi-tasking. A predilection for technology and the adoption of individualism as a way of life in generation Z may create conflicts with generation X and baby boomers, who were raised in a more traditional way. Therefore, parents should establish an efficient and genuine communication with their children from infancy to adolescence. It has been demonstrated that individuals who fail to establish close relationships with their parents and peers during childhood will tend towards loneliness in adulthood (Wiseman, Maysless & Sharabany, 2005). Individuals who have developed smartphone addiction are increasingly having disruptions in their familial, social and emotional lives. As a result of these disruptions, individuals are becoming lonelier, using more smartphones in a way that is discordant and thus finding themselves in a spiral of addiction, behaving nomophobically. In light of all these results, this study concludes that individuals who experience loneliness in their familial relationships may be more inclined towards nomophobia.

Research findings indicate that there is a positive relationship between nomophobia and loneliness in family relationships, which are sub-dimensions of social and emotional loneliness. As a result of this finding, some suggestions can be given within the context of this study. Seminars or awareness-raising activities can be conducted to explain the significance of the relationship between university students and their families in terms of nomophobia. At the same time, awareness training about nomophobia can be given to the parents of the students. It is thought that conducting the awareness training in a comfortable and harmonious manner between generation Z and their families will prevent the development of nomophobia through loneliness in family relationships. In addition, to raise awareness of university students and to support students suffering from nomophobia, the units of universities that will provide psychological support should work actively. With the collaborative studies to be conducted between universities and the Higher Education Institution, courses under the themes of "Combating Technology Addiction" or "Awareness against Problematic Technology" should be included in the curriculum. In addition, universities' activating club activities can improve the social aspects of students and keep them away from any sense of loneliness. Finally, in the literature, within the scope of the idea that nomophobic behaviors may be a factor of social media addiction (Kuss & Griffiths, 2017), a model study is recommended to examine the possible relationships among the variables of nomophobia, loneliness and social media addiction.

There are some limitations to this study. Since the nomophobia scale used in this study was not in a cross-section scale structure, the levels of university students concerning nomophobia could not be determined clearly. In some studies, although this situation is solved by cluster analysis, the original scale is not cross-sectional, and comments were made according to the average score from the scale. Finally, this study was conducted with a limited sample that did not represent the entire universe. As another suggestion, it is thought that universities' computer technologies departments will carry out their work on developing new technologies through group work and contribute to the socialization of students. In summary, all these studies will strengthen the social aspects of students and decrease their nomophobia levels. On the other hand, this study was conducted with a university sample. Similar studies can be conducted with university students in other geographical regions of the country, and comparisons can provide a better understanding of the subject. Finally, it is thought that the studies to be conducted with other variables besides loneliness in the nomophobia characteristics of university students will enrich the literature.

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Item Response Theory-Based Psychometric Investigation of SWLS for University Students

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ABSTRACT

Life satisfaction is an important factor for mental health and has many positive effects on people. Considering its importance, different measurement tools were developed over the last 5 years. Among these tools, the Satisfaction with Life Scale (SWLS) is the most prominent and adapted to diverse populations, including university students. On the other hand, all these studies were conducted using the classical testing approach, while item response theory was rarely preferred. Regarding this gap, this study aimed to evaluate the psychometric properties of the Turkish version of SWLS by using a graded response model (GRM), which is a member of a broader family of the modern psychometric approach called Item Response Theory (IRT). For this purpose, the data were collected from 471 university students (male = 83, female = 388) aged between 17 and 37 years ($M = 21.23$, $SD = 2.32$). IRT based analysis provided satisfactory results on the psychometric properties of the SWLS. It was found that the scale's reliability was acceptable across a wide range of ability spectrums and items fit the GRM well and did not show gender-based differential item functioning. As a result, the psychometric quality of SWLS was further proved in the IRT context.

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Keywords:

item response theory, satisfaction with life, differential item functioning

1. Introduction

In the modern psychology literature, psychopathology-oriented views and studies have been replaced with the ones that focused mainly on positive aspects of human beings. This new branch is called positive psychology, and the researchers' growing interest has reinforced its place in psychology (Masten, 2001). Positive psychology focuses on strengths and is interested in developing these aspects that acts as a buffer against psychopathological problems (Veenhoven, 1988). As positive psychology comes to the fore, life satisfaction concepts have become more popular topics in psychology literature.

Life satisfaction is a determinative factor on individuals' mental health (Diener & Suh, 1997). Pavot and Diener (1993) described life satisfaction as a critical process whereby individuals question the extent to which their life cycle meets their expectations based on their subjective criteria. Life satisfaction of individuals is primarily related to the level of well-being in the society, quality of health services and educational opportunities (Diener & Seligman, 2004). Appleton and Song (2008) suggest that life satisfaction has six different components: (1) income level of the person, (2) occupation and social status, (3) opportunities and social mobility, (4) welfare, (5) existing state policies and, and (6) environment, family and social relations.

Life satisfaction is also closely related to subjective well-being and regarded as its cognitive component (Dorahy et al., 2000). A higher level of life satisfaction has many positive effects on people. Individuals who

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have positive emotions and perceptions of their lives have more effective problem-solving skills and are more resilient to stressful life events (Matheny et al., 2002). Additionally, life satisfaction is seen as a determinative of life quality (Iwasa et al., 2006). In general, individuals with higher life satisfaction are more compatible with and productive in society.

There is an increase in the number of studies dealing with different aspects of life satisfaction in the last few decades, considering the importance of this construct (Baird et al., 2010). valid and reliable measurement tools were needed during the data collection process. As a result of this growing interest, many different scales have been developed to measure life satisfaction to increase the validity of studies: The Satisfaction with Life Scale (SWLS: Diener et al., 1985); The Brief Life Satisfaction Scales (Lubin & Van Whitlock, 2004); The Temporal Satisfaction with Life Scale (Pavot et al., 1998); The Riverside Life Satisfaction Scale (Margolis et al., 2018); Student's Life Satisfaction Scale (Huebner, 1991); and Life Satisfaction Measure based on Judgment Theory (Meadow., 1992).

Among them, the SWLS is the most prominent one. It has already been adapted to various populations worldwide: Brazilian university students (Zanon et al., 2014); Turkish university students and elderly adults (Durak et al., 2010); Hong Kong university students (Sachs, 2003); Spanish adults (Vázquez et al., 2013); Mexican adults (López-Ortega et al., 2016); and people with Parkinson's disease (Lucas-Carrasco et al., 2014) etc. All these studies have unanimously reported good psychometrical properties of the SWLS.

On the other hand, including the first development study of SLWS (Diener et al., 1985), more conventional statistical methods were preferred in all of these studies to unveil psychometrical characteristics of SLWS. These methods belong to the traditional test development approach called Classical Test Theory (CTT). The most important advantage of the classical approach is the familiarity of the concepts by the researchers.

According to Embretson (1996), studies based on the CTT approach have some limitations. First, it is assumed that reliability in the CTT approach is usually fixed for all possible ability scores (ability is generic term to refer to the trait being measured). Secondly, measurement characteristics are considered to be related to the sample group. Therefore, for each study carried out with different samples, validity and reliability need to be investigated again. On the other hand, the IRT scales both items and person's latent trait level on the same metric and provide sample free statistics: item statistics are independent of the sample group and person-level statistics are independent of a specific set of items (Hambleton et al., 1991). Thanks to this approach's superiority, IRT's use has become widespread in test development, validity and reliability studies.

IRT was first noted in the 1970s when it was used to develop standardised tests, such as Scholastic Aptitude Tests-SAT. It has become a widely used psychometric method in the validity studies of measurement tools (Samejima, 1969). The IRT is based on the idea that a person's response to test items depends on only two factors: the person's ability level (denoted as θ) and the item's characteristics (Bond & Fox, 2001). Regarding the superiority of IRT, it is assumed that the psychometric evaluation of SLWS will enrich our insights on the construct of life satisfaction and further support the well-proven psychometric quality of SLWS in this new and promising framework. Based on this reality, the current study aimed to evaluate the psychometric properties of SLWS with IRT for university students.

1.1. Overview of IRT

In IRT literature, many different models characterise the item properties. The earlier models were proposed to model dichotomously scored achievement tests. One, two and three parameter logistic models were proposed for such tests (Birnbaum, 1968). Simultaneously, the models belonging to the Rasch analysis family were also developed (Rasch, 1960). In the following years, the two-parameter logistic model has been generalised to scale items with multiple response categories, resulting in polytomous response models. Among these models, the most popular ones are the Graded Response Model (Samejima, 1969), Partial Credit Model (Masters, 1982), the Generalized Partial Credit Model (Muraki, 1992; 1993), and the Rating Scale Model (Andrich, 1978a; 1978b). When conducting IRT based estimation, model fit indices of these models are compared, and the best fitting model is selected to estimate the data. These models provide similar outputs and when one model fit the data well, the other usually fit well (Maydeu-Olivares et al., 1994). On the other hand, for the items with Likert type ordered response categories, Graded Response Model (GRM) is usually preferred.

In the GRM models, the item's properties are depicted by the discrimination parameters (a) and the difficulty parameters and (d) by using category response functions. The difficulty parameter is also referred to as the location or intersection parameter. The precision of these estimated parameters is also indicative of information obtained for the respondents. Statistically, how precisely the parameters are estimated is related to the variance of the predicted parameters. The variance of these values is expressed as σ^2 . Information is expressed with "I" and the amount of information is determined as $1/\sigma^2$. From a psychometric perspective, information indicates how much a parameter is predicted.

The amount of information is also closely related to the discrimination parameters: the higher the the item's discrimination parameter, the more information it provides. The amount of information is calculated at the item level. By assessing the amount of information of each item, good working items could be specified. Additionally, item information could be depicted with item information functions (IIFs). Having pre-knowledge of the amount of item information, better measurement tools could be constructed. The information functions at the test level can also be obtained by summing up the item information functions. Item information functions and test information functions enable graphical investigation of tests. Those graphs show which ability levels items and tests provide most information (and more precise estimation). As underlined above, the amount of information is directly related to the a parameter. The higher the discrimination parameter, the greater the amount of information item provides. The item's difficulty level also indicates ability spectrum's the location where the maximum information can be obtained (Hambleton et al., 1991).

Theoretically, GRM is an extension of the two-parameter logistic model (Birnbaum, 1968). In the GRM framework, the number of dichotomies corresponds to the number of categories minus one. For example, there are four different dichotomies for a 5-point Likert-type item. These dichotomies are progressively compared: category 1 is compared with 2, 3, 4 and 5; categories 1 and 2 are compared with 3, 4 and 5; categories 1, 2 and 3 are compared with 4 and 5 and categories 1,2,3 and 4 are compared with category 5. The category boundary response function (CBRF) is calculated for each dichotomy using the generalised 2PLM. They are also known as item trace lines. Finally, the item characteristic response functions (ICRF) values are calculated using the obtained CBRFs which depicts the probability of responding to any response options' category. The respondent's performance and the characteristics that underlie item performance can be described by these monotonically increasing functions (Henard, 2000). ICRFs are usually sigmoid curves that describe a change in the likelihood of the response based on the individual's latent trait level. The shape of the ICRFs is determined by the item characteristics predicted in the model. Item characteristic curves provide important information about the properties of items. These curves graphically show the likelihood of item responses throughout different ability levels. As a result of examining the graphs, it is possible to determine weak and overlapping item categories.

IRT-based models have three basic assumptions about the data: (a) unidimensionality, (b) local independence, and (c) the IRT model fitting to the data (Reeve & Fayes, 2005). Unidimensionality means that there is only one factor affecting an individual's performance on an item. That is, the model has a single θ value for each individual. Violating this assumption will result in an incorrect estimation of the standard error and parameters (DeMars, 2010). Unidimensionality could be tested with exploratory factor analysis and confirmatory factor analysis. When using exploratory factor analysis, the first factor's amount of variance is evaluated for possible unidimensionality. If the first dimension explains more than 20% of the variance, an underlying dominant factor's existence can be justified (Hattie, 1985). Additionally, confirmatory factor analysis could be performed to test one dimensional model. Also, the violation of unidimensionality can be caused by the differentiation of the item properties across demographic groups. When this occurs, the response patterns become a function of both the underlying trait and the group membership. This problem is difficult to diagnose with a factor analytic approach. There are many methods available for determining whether items show differential item functioning (DIF). For further reading on these methods, please see Holland and Wainer (1993). Among these methods, the logistic regression method was used in the current study because it allows detecting both uniform and non-uniform DIF for polytomous data (Swaminathan & Rogers, 1990). This method is based on the likelihood ratio χ^2 statistics. With this approach, three hierarchical nested models are created and DIF is classified as uniform or nonuniform and total. Uniform DIF can be detected by comparing Model 1 and Model 2, non-uniform DIF can be detected by comparing Model 2 and Model 3 and

total DIF can be detected by comparing Model 1 and Model 3. Statistics. Pseudo R^2 statistics could evaluate the magnitude of the DIF. Zumbo (1999) stated that the following threshold values of R^2 could be used for evaluation of DIF: negligible DIF (<0.13), moderate DIF (between $0.13 - 0.26$), and large DIF (> 0.26).

Local independence indicates that there is no relationship between item responses when θ is kept constant. Specifically, for any ability level, the probability of responding to an item is independent of the probability of the response to any other items. For the current study, the Q3 statistics proposed by Yen (1984) were used to test the local dependence because it is similar to and interpreted as the same with well-known Pearson correlations. If Q3 is found to be 1, the items are considered perfectly dependent, and 0 means perfect independence.

2. Method

2.1. Participants

The current study data were selected via an online data collection tool due to the 2020 pandemic outbreak. Because it is not easy to apply probability-based sampling techniques when using online platforms, the convenience sampling technique was preferred to collect the data. In the sample group, there are 471 university students (388 females and 83 males). Students were enrolled in 4 different faculties (Faculty of Science and Literature, Faculty of Economics and Administrative Sciences, Faculty of Health Sciences and Faculty of Fine Arts). The participants' ages ranged between 17 and 37 years ($M = 21.23$, $SD = 2.32$).

2.2. Measurement tools

The SWLS, was used to collect the data. It was developed by Diener et al., (1985). The SWLS was adapted to the Turkish population by Köker (1991) and the re-evaluation of the scale's validity was performed by Dağlı and Baysal (2016). They found that the internal consistency coefficient of SWLS was 0.88 and test-retest reliability was 0.97. Additionally, both EFA and CFA results suggested that the SWLS is a unidimensional scale, and the dimensional structure was compatible with the original scale. The scale consisted of five Likert type questions. Higher scores imply a higher level of life satisfaction levels.

2.3. Analysis

As the first step of the data analysis process, assumptions of IRT were tested. Unidimensionality was assessed with both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) was used to perform EFA and MLUS 6 (Muthén & Muthén, 1998-2011) was used to perform CFA. The remaining analyses were performed in R statistical environment (R Core Team, 2017). Further, gender based DIF was assessed using the "lordif" package, developed by Seung, Gibbons & Crane (2016). Finally, the "mirt" package, developed by Chalmers (2012), was used to conduct IRT-based model estimation, and evaluate the local independence assumption. The model fit statistics, item-fit statistics (Kang & Chen, 2007), item parameters, the amount of information each item yields, test information statistics, and test reliability function were estimated during the model estimation process.

3. Results

3.1. Checking the IRT assumptions

This study aims to examine the psychometric properties of the SWLS using GRM and to obtain further evidence for its validity by performing analysis in the IRT context. Before starting, IRT assumptions (unidimensionality and local independence) were tested. Testing of the unidimensionality was carried out in two steps.

In the first step, explanatory factor analysis was conducted. For this analysis, the amount of variance explained by the first factor and factor loadings of each item were investigated. It was revealed that the variance explained by the first factor was 56% and the factor loadings of the items ranged from 0.71 to 0.80. These findings supported that there is a dominant underlying factor explaining the variance of the SWLS items. Also, Cronbach's alpha coefficient was estimated as 0.80. It showed that the internal consistency of the items was sufficiently high. In the second step, one dimensional CFA was fitted to the data to test the unidimensionality

of the SWLS. The findings showed that the unidimensional structure of SWLS was confirmed [$\chi^2(5) = 10.765$, $\chi^2/df = 2.15$, CFI = 0.99, TLI = 0.98, RMSEA = 0.049 (95% CI = 0.001-0.091), SRMR = 0.018].

The unidimensionality assumption was further investigated by investigating DIF. Lord's chi-square (χ^2) test statistic was calculated to determine whether the items showed differential item functioning based on the gender variable. The results were given in Table 1 below. The table contains the statistics obtained by comparing three models (Model 1 vs. Model 2 for uniform DIF, model 1 vs. model 3 for non-uniform DIF and model 2 vs. model 3 for total DIF). The pseudo R^2 values (Cox, & Snell, 1989; Nagelkerke, 1991) showed no statistically significant χ^2 differences $p < 0.05$ level. These findings indicate that no item showed DIF based on the gender variable and can be considered additional proof for the scale's unidimensionality. Additionally, DIF is also related to the validity of the scale. Therefore, findings related to DIF can be regarded as supporting evidence to the validity of the scale.

Table 1. Lord's Chi Square Test Statistics to Investigate Differential Item Functioning of SWLS

χ^2 values			Pseudo R^2 Values					
			Nagelkerke			CoxSnell		
χ^2 1-2	χ^2 1-3	χ^2 2-3	1 vs 2	1 vs 3	2 vs 3	1 vs 2	1 vs 3	2 vs 3
0.663	0.898	0.874	<0.000	<0.000	<0.000	<0.000	<0.000	<0.000
0.365	0.345	0.253	0.001	0.002	0.002	0.001	0.002	0.001
0.081	0.097	0.204	0.002	0.003	0.001	0.002	0.003	0.001
0.078	0.049	0.086	0.003	0.006	0.003	0.003	0.006	0.003
0.429	0.091	0.041	0.001	0.005	0.005	0.001	0.005	0.005

The second assumption of IRT models is local independence which was investigated by calculating Q3 statistics. The findings were given in Table 2 below. Although there is no agreed threshold value to interpret Q3 values in the literature, Christensen and his colleagues (2017) stated that local independence is quite unlikely for values of 0.3 and lower. When 0.3 threshold value is taken when deciding whether or not item pairs show local dependence, the table's values implied a possible local dependence between items 1 and 3. This finding requires further investigation and needs to be cleared because local dependence was not observed for multiple pairs; this result was regarded not deteriorating the local independence assumption.

Table 2. Q3 Local Dependence Statistics between the Items of SWLS

Items #	item 1	item 2	item 3	item 4	item 5
item 1		-0.17	-0.32	-0.13	-0.16
item 2			-0.14	-0.32	-0.16
item 3				-0.28	-0.21
item 4					-0.12
item 5					

3.2. Fitting the GRM to SWLS

After checking the assumptions, the GRM was tested. According to the findings, it can be said that the fit of the unidimensional GRM model fits well [$M^2(5) = 8.86$, $p = 0.115$, RMSEA = 0.041 (95% CI = 0.029-0.083), SRMR = 0.029]. Also, reliability was again estimated in the context of IRT. The result showed that the IRT based empirical (marginal) reliability value of SWLS was 0.82.

Later, each item's fit to GRM was evaluated with Orlando and Thissen's (2003) S-X² statistics. Significant S-X² values are considered as a misfit for a given item. The values on item fit statistics and information amounts are given in Table 3 below. The results revealed that all the items' fit values were not significant at $p > 0.05$ level. Additionally, it was found that the highest amount of information was obtained from the 3rd item while the least amount of information obtained from the 5th item.

Table 3. S-X² Item Fit Statistics, Item Information Values and Total Information Value

Items	S- χ^2	df	p	Item Info.	Total Info.
item 1	62.43	52	0.153	6.54	31.34
item 2	43.57	57	0.905	5.93	
item 3	44.67	54	0.813	7.95	
item 4	71.46	56	0.080	6.56	
item 5	80.27	62	0.059	4.35	

The item parameters and IRT based factor loadings of the GRM were given in Table 4 below. As shown in the table, the factor loadings varied between 0.66 and 0.79 and the difficulty parameters varied between -3.07 and 2.44. The highest value of the difficulty values belonged to the 1st item and the lowest value belonged to the 4th item, the difficulty parameters of the items spread over a wide range of ability levels. Although the discrimination parameters are the only factor that determining the level of information an item provides, a wide range of difficulty parameter values is a prerequisite for these items to provide measurement accuracy across different levels of θ . The discrimination parameters of items varied between 1.51 and 2.19. According to Baker (2001), values between 1.35 and 1.69 have “high discriminating power” while values at and above 1.7 have “very high discriminating power”. Based on that criteria, it can be said that items 2 and 5 have a “high” level of discrimination while other items have a “very high” level of discrimination.

Table 4. Item Parameters and Factor Loadings Extracted From GRM

Item	F1	a1	d1	d2	d3	d4	d5	d6
item 1	0.73	1.80	-3.07	-2.07	-1.43	-0.59	0.18	2.06
item 2	0.70	1.67	-2.74	-1.48	-0.86	0.17	0.89	2.42
item 3	0.79	2.19	-2.19	-1.47	-0.94	-0.15	0.45	2.03
item 4	0.74	1.85	-2.79	-1.70	-0.98	-0.35	0.32	1.96
item 5	0.66	1.51	-1.54	-0.59	-0.13	0.64	1.34	2.44

In Figure 1 below, the category response functions (also known as item trace lines) of the items belonging to SWLS were given. These category functions allow the evaluation of each item's response options and show which categories are more likely to be preferred at which θ levels. The ideal response categories should be selected in a particular part of the ability being measured. Additionally, category response functions must not overlap and the order of them should not change. From this point of view, it shows that the probability of endorsement of all items for response category 3 and 5 never reached the highest probability at any point on the θ spectrum other response options even have the highest response probability in some range of abilities. This result implies that when the respondents select response categories of SWLS items, they probably find the adjacent options of the 3th and 5th response categories more attractive. These results put the existence of these categories into question.

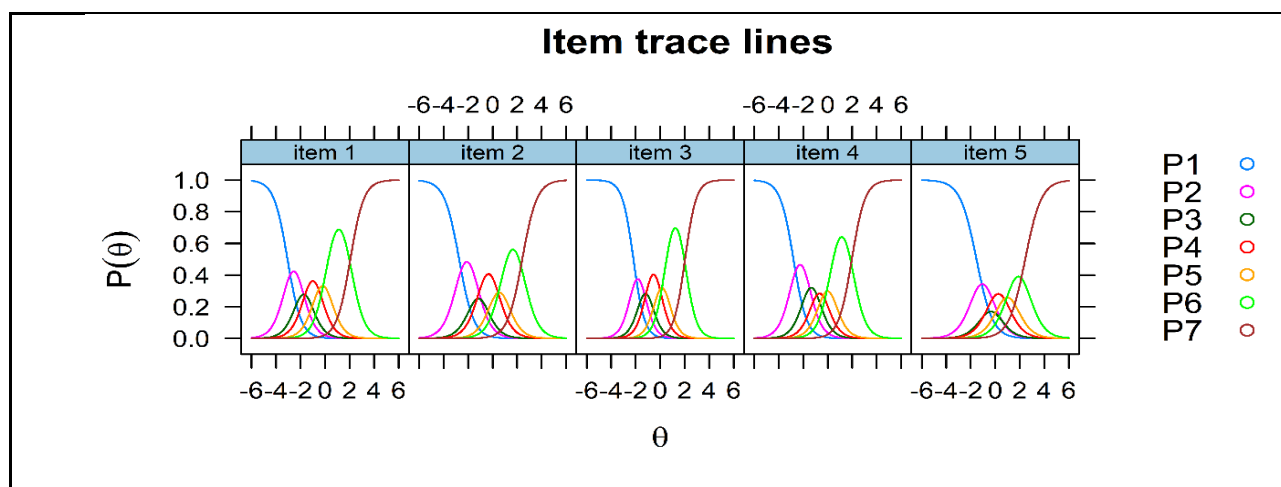


Figure 1. Category Response Functions and Information Traces of SWLS

Test information and reliability functions of SWLS were given in Figures 2a and 2b below. In the figure, the x-axis corresponds to the predicted life satisfaction score (θ), the left side of the y-axis shows the amount of information given by the test while the right side shows the amount of standard error. The information function's peak shows the level of ability that the SWLS yields the most information (enable the most precise estimation of ability). When the shape of the function was examined, the highest amount of information can be obtained in the range of -2 to 0 ability levels. On the other hand, the amount of information given in the range of -3 to 2 ability levels did not change considerably. This finding implies that the SWLS provides information in a wide range of ability level. As to the amount of standard errors, the figure showed that, standard errors minimised at the ability levels where the most information was yielded.

Another advantage of the IRT is that it can give the amount of reliability for different ability levels. The reliability function of the SWLS was shown in Figure 2a below. The reliability function and the information function goes fairly parallel. Figure 2b below also includes a reference line to provide information about the range of ability where reliability is greater than .8. The given reference line was drawn based on the acceptable level of reliability suggested by Shavelson (2004). Accordingly, it is seen that SWLS has a reliability of .8 and above in the range of -3 to 3 ability levels and the reliability level decreases for more extreme ability levels. Such a wide range of acceptable level of reliability can be regarded as a strength of SWLS.

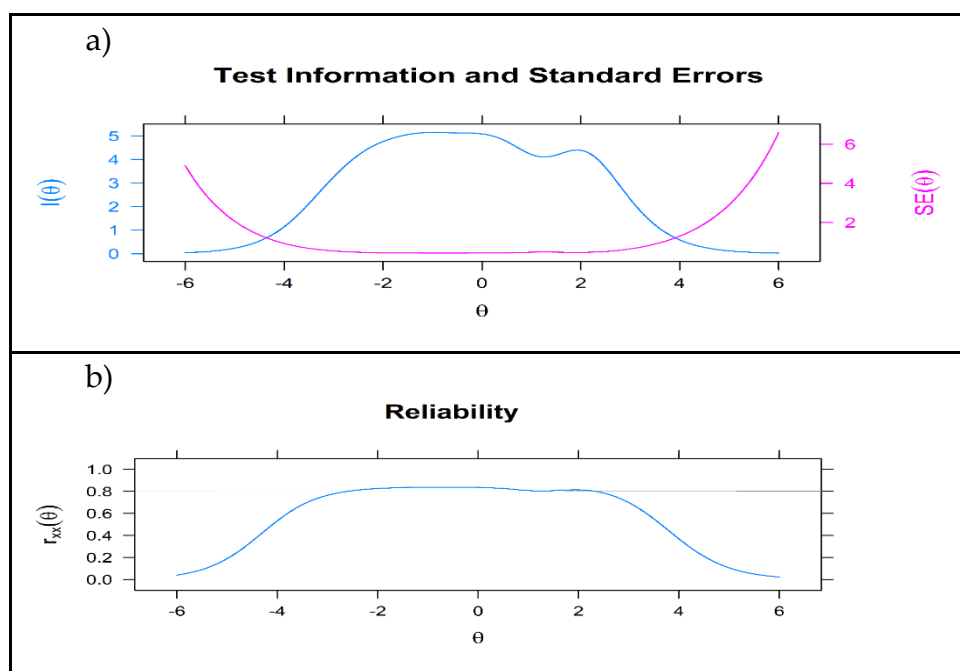


Figure 2. Test Information Function, Standard Error Function and Reliability Function of SWLS

4. Discussion

In this study, psychometrical properties of SWLS were assessed by IRT based approach with university students. The data were collected in a large Metropolitan. For preliminary analysis, both exploratory and confirmatory factor analysis were conducted to test the unidimensionality of SWLS and results support the unidimensional structure. Additionally, the obtained Q3 statistics provided satisfactory evidence of the local independence assumption. Furthermore, Lord's χ^2 statistics provide evidence that SLWS items did not show gender-based DIF. This finding is significant because it implies that the scale items function similarly for men and women and do not give biased estimations for different gender groups. This result also supports the validity of the SWLS.

Later, GRM was applied to the SWLS data and fit indices provided evidence that GRM can be used in future studies by the researchers. When the items' discrimination parameters were examined, it was seen that the items have "high" and "very high" discrimination values. Furthermore, it has been found that the predicted difficulty parameters of the items cover a wide range of ability spectrum. As a result, the SLWS reliability level did not fall below 0.8 in a wide range. In parallel, the standard error level remained low in the same range of ability. Although the reliability value obtained with the classical approach is 0.8, it is only an assumption that this level of reliability does not change across the ability spectrum. The results obtained with the IRT approach

provided evidence for this assumption; they showed that 0.8 or a higher level of reliability could be obtained for individuals for a wide range of ability. On the other hand, the results revealed that, for extremely higher and lower levels of ability, the reliability level of the SWLS drop.

Although CTT approach was used to assess validity and reliability of SWLS in different populations (i.e. Amtmann et al., 2017), no study benefited from using IRT approach to investigate psychometric properties of SWLS. In this respect, this study is the first one using IRT approach to evaluate the validity of SWLS. As cited in the first part, modern IRT techniques provide many advantages over CTT (Reeve & Fayers, 2005). In this way, we believe that the current study helps researchers obtain deeper insights into the item and measurement properties of SWLS. The findings presented in this study were similar to the findings obtained by Amtmann et al. (2017) in a way that, both studies provided evidence for the unidimensionality of SWLS.

Furthermore, in this study, it was found that the third and fifth response categories had a lower probability of endorsement compared to the adjacent response categories. The endorsement likelihoods of those categories are not higher than the alternative categories at any part of the talent trait spectrum. One of the possible causes of this disturbance is that participants may find it difficult to distinguish between adjacent category labels. In this case, it may be better to use category labels that can be more easily distinguished or reduce the number of response categories. Hence, it may be better to combine these categories with adjacent ones. Amtmann et al. (2017) also suggested that the seven response categories for SWLS are too high and should be reduced to five. Hence, future studies need to be carried out to see how the measurement precision will be affected when the response categories of the SWLS are reduced. Additionally, Amtmann recommended the removal of fifth item. This recommendation was partially supported in the current study as it provided the least amount of information, item fit statistics supported keeping of it in the scale. For this reason, instead of removing it from the scale, 5th item could be revised and the possible effect of this revision on the psychometric properties of SWLS could be studied.

5. Conclusion

It can be concluded that even the number of items of the SWLS is small; it can provide a high level of reliable measurement quality in a wide range of ability spectrum. On the other hand, it should be taken into consideration that these findings are limited because the sample size was not large, and the sample group consisted only of university students. In future studies, this study could be replicated with diverse sample groups.

In conclusion, readers should be aware of one important point that IRT approach's findings should not be perceived as an alternative to the CTT. Although the findings obtained by the IRT approach can be beneficial and help in gaining new insights, it is necessary to compare the findings obtained in CTT and IRT approaches. At the same time, beyond statistical findings, content experts' opinions regarding the practical impacts of any kind of revision made on SWLS should be considered. Readers should never forget that integrating the IRT into the classical approach would be more beneficial instead of replacing it. Finally, this study used the IRT approach, which included modern psychometric procedures to measure life satisfaction. Hoping that this study will contribute to the measurement and evaluation of life satisfaction considering the infrequent use of modern techniques in validating life satisfaction.

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An Analysis of the Impact of the Values Education Class Over the University Students' Levels of Acquisition of Moral Maturity and Human Values

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ABSTRACT

This study aims to analyze the impact of the "Curriculum of Values Education" over the university students' levels of acquisition of moral maturity and human values. This study was planned as a quasi-experimental design, defined as the "Pretest/Post-test Control Group Design". The study group of the study consisted of 77 students, studying in the Child Development Program of the Department of Child Care and Youth Services at the Vocational School of Healthcare Services of Mus Alparslan University throughout the 2019-2020 academic year. The "Moral Maturity Scale" and "Human Values Scale" were employed as data collection tools. The curriculum was administered on the experimental group for 80-90 minutes in 1 session in the training classroom, at 15:00 on Mondays for 13 weeks. The independent samples t-Test and Two Way Anova for Repeated Measurements were utilized in order to analyze the data obtained from this study. As a result of the study, it was revealed that the "Curriculum of Values Education" increased the levels of acquisition of moral maturity and human values of the students in the study group. A literature-backed discussion was held in line with the results obtained, which was followed by several recommendations on the use of the crafted curriculum of values education by the academicians to teach the values education class.

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Keywords:

Value, values education, moral maturity, human values, university students.

1. Introduction

In today's world, the rapid developments in the fields of science, technology, economics, industrialization, and urbanization have affected human beings both positively and negatively. The developments in question have increased the financial wealth of people, while devastating them in respect of morality (Öztürk & Seyhan, 2016). This swift change in the material culture has led to certain disintegrations in the moral culture, which failed to keep up with the change as it did, as well as in the society, deeply affecting the moral principles of the society as a consequence (Kurtkan, 1974). The disintegrations taking place in the society have negatively affected the peace and serenity of the individuals living in that society. The preservation and maintenance of the existence of the moral values in that society are important for the tranquility of the society and individuals. How would moral values preserve and maintain their existence in a society? This would solely be possible by handing down the values education, moral values included, to next generations. What meaning do morality, moral values, moral maturity, value, and values education have, which are significant concepts for a society?

In general terms, morality is a set of principles and rules, set forth to regulate any and all kinds of behaviors and relations of an individual in the society (Kaya & Aydın, 2011). Morality stands for behavioral patterns that individuals abide by in interpersonal relations in a society, along with the standards of judgment and code of conducts that we name "good" or "right", "bad" or "wrong" (Aktan, 2009). Moral norms, however, are the

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norms that are introduced in order to regulate any and all kinds of behaviors, attitudes, and interpersonal relations of an individual in a society (Kaya & Aydın, 2011). Moral development is a process, through which individuals acquire the norms that would enable them to manage their own behaviors to help them assess what is right or wrong in the face of the events going on around them (Yeşilkayalı, 2014). Moral development brings along moral maturity.

Moral maturity is a state, where individuals are competent and are at high levels in their feelings, opinions, attitudes, and behaviors in respect of compliance with morality (Çekin, 2013). An individual with moral maturity is expected to be a responsible, fair, reliable, highly empathetic, self-controlling, people-sensitive, respectful, and law-abiding citizen (Lickona, 1991). Morally mature individuals are the ones who are aware of what they are (Mathieson, 2003). There is a harmony in all desires, wishes, and behaviors of such individuals. Individuals do not feel an obligation in regards to their behaviors; doing what is good and right, and avoiding what is bad and wrong, are a matter of life style for them. Hence, these are the individuals who take pleasure out of what they do, and who are capable of curbing their wishes and desires (Kardaş, 2013). These morally mature individuals have integrated moral values into their conscience and internalized it; they do not think of acting against moral values, even when they are alone. These individuals, who are capable of internalizing moral values, believe that violating morality is as dangerous as losing the human dignity (Şengün, 2008).

How can moral development and moral maturity be achieved in individuals living in a society? When analyzed in theoretical terms, different theories made different explanations for this matter. According to the psychoanalytic theory, moral development is contingent upon the state of balance between id, ego, and super ego (Kağıtçıbaşı, 1996). As per the cognitive theory, moral development takes place in phases, and this development occurs in parallel with mental development (Çileli, 1986). According to the behavioral and social learning theories, however, moral development occurs through methods of learning, such as rewarding by conditioning, punishment, consolidation, being a model, or imitation (Bakioğlu, 2013). Individuals take someone as a model or learn their moral norms and values through rewards-punishment (Bandura, 2001). Different theories associate the moral maturation in individuals with different concepts. Upon the analysis of the studies conducted, however, it can be observed that the dominant judgment is that moral maturation can be solely possible by handing down the moral values to next generations through education (Güven, 2014; Ryan & Bohlin, 1999; Yaman, 2012). The values education, which harbors the moral values in itself, is of paramount importance in order to hand down the moral values to next generations by means of education.

Value is scale that is used in order to express the behaviors of individuals, to identify and approve such behaviors, and to assess situations and incidents (Aydın, 2011). According to Schwartz (2006), however, value is defined as the guiding principles that bear different statuses of importance in the life or other social relations of an individual to reach any desired situation or objective. Human values, on the other hand, are the values that separate humans from other living beings, and that give them virtue and glorify them (Güngör, 1992). All aspects of our daily lives are affected by human values (Pakizeh et al., 2007). Human values give respect and meaning to life. Individuals with human values are the individuals that bear an abundance of good aspects, such as honesty, tolerance, kindness, and mercy (Dilmaç & Aydoğan, 2010).

Various theories have been proposed regarding the classification of values. Spranger value theory, Allport, Vernon and Lindzey value theory, Rokeach value theory and Schwartz value theory are among the most prominent value theories. The values have been classified into six different groups as theoretical, economic, aesthetic, social, political and religious values that are defended as the main force driving behaviors in the Spranger theory of value. In this theory, it is argued that the dominant value of the individual shapes his personality (Asar, 2019). The views put forward in Spranger value theory were developed and detailed in Allport, Vernon and Lindzey value theory. According to this theory, values were classified in six different groups as theoretical, economic, aesthetic, social, political and religious values that are adopted in individuals to a certain extent and the exploration of the dominant value becomes important. The dominant value in individuals deeply affects person's emotions, thoughts and behaviors and directs lives (Kulich, 2010). According to the Rokeach value theory, there is a certain amount of values (18 objective values and 18 tool values) and the amount of adoption of these values can be measured in various forms (Rokeach, 1973). Goal values are related to the targets that form the basis of life, and instrumental values are related to the behaviors that ensure the achievement of the basic goals (Bilgin, 1995). In this theory, emphasis is placed on values' place within the system of values rather than their meaning alone. The amount of adoption of this value by two

people with the same value may differ from each other. Because value systems that include elements such as the society and culture in which the individual is located may be different from each other and different meanings can be attributed to the same value. Therefore, when examining a value, the origin of value and its relationship with social and cultural ties should also be looked at (Bacanlı, 2017). According to this theory, values are culturally derived and ensure the continuity of the society by maintaining the order of the society (Rokeach, 1973). In the Schwartz value theory, there are a total of 56 values classified in 10 groups. This theory argued that values are identified with beliefs and that individuals make sense of what they believe as values (Schwartz, 1992). Individuals' beliefs develop in line with their needs and different values come to the fore in each individual to meet these needs. The higher the motivation of a value to meet the needs of the individual, the more that value is adopted (Bardi & Schwartz, 2003).

Individuals can acquire human values and moral values solely by means of a values education. Values education is a form of education that is implemented in order to ensure that individuals become aware of the values, have specific values that they are in need of, and actually implement such values by accepting them (Yaman, 2012). The societies maintaining their existence is contingent upon each and every society's ability to preserve the values they have and to hand such values down to next generations. Values education ensures the continuity of the presence of the nations, as well as the continuance of the moral development of the social community they are a part of, and the transfer of the human values from generation to generation (Güven, 2014).

According to Berkowitz (2011), values education is an initiative that applied in educational institutions to create positive ethical tendencies and skills, including creating pedagogy and supportive structures and strengthening academic skills. There are four prominent approaches in the implementation of values education in educational institutions. These are the approach of inculcating values, moral reasoning approach, value analysis approach and value disclosure approach. On the basis of the suggestion approach, educators directly instill the values, beliefs and attitudes that they want to gain (Akbaş, 2008). Methods and techniques such as narration, discussion method, modeling, positive and negative reinforcement, exercise-repetition, manipulating alternatives, asking didactic questions, playing games, telling stories, imitation, role playing can be used in the application of this approach (Aktepe, 2010; Bacanlı, 2017; Halstead & Taylor, 2000). In this approach, students are tried to be persuaded and to internalize the given values with such methods and techniques. In this approach, the active participation of the student and the realization of value education in a pleasant atmosphere are important in terms of the efficiency of the process (Senemoglu, 1997).

Moral Reasoning Approach was developed by Kohlberg based on the ideas put forward by Piaget (Bacanlı, 2015). In this approach, students are left in dilemmas to make judgments on given events, and in this way, students' moral development levels are tried to be improved. The more discussions and solutions are made about an event, the more the moral development levels of the students improve (Akbaba, 2009). In this approach, methods and techniques such as moral dilemma, case study, short story narration, small group discussions, reasoning, questioning, structured discussion can be used (Superka et al., 1976). In this approach, the role of the educator is important in helping students to look at events from different angles, to see their own problems in the face of case studies and to find solutions to these problems and to help them resolve their dilemmas (Leming, 2000).

The value analysis approach developed by many researchers is based on the students' ability to analyze the values they adopt, make proper choices and make appropriate decisions by providing them to think logically and rationally about the issues or problems they face (Seefeldt, Castle, & Falconer, 2010). In this approach, events involving social problems are examined directly or through stories. The analysis and similarities and differences in the social events are systematically analyzed through why-how questions. As a result of this analysis, values are tried to be reached by showing the evidence (Aktepe, 2010). In this way, students are convinced about why they should care about values and act accordingly by adapting scientific problem solving steps to social problems (Akbaş, 2008). In this approach, methods and techniques such as structured discussion, individual and group work, field research with the library, rational class discussions, test principles, similar case studies, differential analysis and research can be used (Keskin, 2008). In this approach, the educator actively helps students to think critically about values, to use scientific research methods, to conduct research, to analyze the value problem and to develop their own values (Huitt, 2004). For the

effectiveness of this approach in values education, it is important to develop students' analytical skills and attention competencies (Tahiroğlu, Yıldırım, & Çetin, 2010).

The value disclosure approach has also been developed by many researchers, and the values of students are based on the ability to freely choose themselves after researching alternative and possible options, not with the suggestions and direct instruction of others (Yel & Aladağ, 2014). In this approach, values are explained first and by this way students are made aware of values. Later, accordingly their thoughts, students freely choose the values which are appropriate for them and become aware of the consistency and inconsistency regarding the values they adopt (Ziebertz, 2007). In this way, students take ownership of their values more because they reflect on and construct themselves (Helstead & Pike, 2006). This approach includes classroom games, exhibitions, group discussion about values, role plays, thinking papers, open-ended questions, autobiography, interviews, quotes, student reports, factual or fictional case studies, songs, cartoons, pictures, films, stories, interviews and numerous methods and techniques such as diaries can be used (Kupchenko & Parsons, 1987). In this approach, the educator does not try to inculcate values to the students; By simply explaining the values, they help students to realize the values they have or can adopt. The educator supports the students so that they can reveal their own values, makes them think by asking questions, and listens effectively to the students (Yiğittir, 2012). In this study, the value explanation approach was used while transferring the values education curriculum to the students.

In Turkey, with National Education Basic Law No 1739, value education was first published in 1973, since then that date related training in place and given the humanitarian and moral values have been given in some courses on-site, such as Life Science and Social Sciences Studies (Hökelekli, 2010). With the education reform carried out in 2005, values education has continued to be applied in some courses based on the constructivist approach since then (Aydın & Gürler, 2014). In line with the recommendations taken at the 18th National Education Council held between 1-5 November 2010, the Ministry of National Education initiated a study with a circular issued, and the "Values Education Project" was put into practice for the acquisition of national and spiritual values in primary and secondary schools. Since this date, values education project executive committees have been established in provinces, districts and schools, and guide books have been prepared to be implemented in schools (Aydoğan, 2018). Since 2010, activities such as in-class, in-school and family-oriented activities for the students to gain the values specified in the curriculum of each course and in-school activities (preparing a board ...) for the value of the relevant month have been carried out (Aydoğan, 2018; Yiğittir & Kaymakçı, 2012). Finally, in order to put an end to the confusion of value concepts, 10 root values were determined in the 2018 National Education program, and these values were first tried to be acquired by students (Yaşaroğlu, 2018). Today, in the Turkish education system, it is seen that students are trying to gain values not within a program, but by sprinkling them into other courses such as Social Studies. When the researches were examined, it was stated that this method was not effective enough in gaining values to students and that values education should be given to students as a separate course within a program (Akan, 2020; Çakıroğlu, 2013; Elbir & Bağcı, 2013). Values education called "Values Education and Character Development" or "Values Education" has been taught as a compulsory course for teacher candidates in universities in recent years. Likewise, it is thought that it would be beneficial to provide students with values education as a separate course within a program in schools affiliated to the Ministry of National Education.

The future of a society is determined by characterful and well-educated generations, and everyone knows about the fact that having a good character is not solely contingent on individuals themselves. Thus, the fundamental purpose of all educators and educational institutions is characterized by the process of ensuring that all individuals, from the preschool period to the life in university, acquire the values needed in order for them to make healthy moral decisions and to implement such decisions by internalizing them (Ryan & Bohlin, 1999). A compulsory moral values education has been provided in England since 1906, in Germany since 1881, and in France since 1882 (Tozlu, 1992). A number of countries agree on the fact that the values should be handed down to next generations through schools, and this great responsibility is given to teachers (Ryan & Bohlin, 1999).

What methods, techniques, and strategies can be used to teach the students about the values in a better way, which are greatly emphasized to be taught in schools by teachers? In order to find an answer to this question to some extent, a curriculum of values education was developed, and an analysis was made regarding its effects over the moral maturity and human values of university students. Values education is being provided

to students in the form of compulsory courses in many programs being taught in universities. The results obtained from this study will help this class be lectured in a more effective and more efficient manner. Furthermore, this study is significant in that it is one of the rare studies, which have developed a curriculum of values education and which analyze the effects of such curriculum over moral maturity and human values.

This study aims to analyze the effects of the “Curriculum of Values Education”, which is implemented for the university students studying in the Child Development program, over the levels of moral maturity and human values that these students have. The accuracy of the following hypotheses was tested in line with this objective: (i) “The Curriculum of Values Education” affects the “Moral Maturity” levels of the students. (ii) “The Curriculum of Values Education” affects the “Human Values” levels of the students.

2. Method

2.1. Research Design

This study was planned as a quasi-experimental design, defined as the “Pretest/Post-test Control Group Design”. Table 1 shows the research design.

Table 1. Research Design

Groups	Neutrality	Measurement 1 (Pretest)	Experimental Implementation	Measurement 2 (Post-test)
Experimental	R	X	X	X
Control	R	X		X

As shown in Table 1, the study included an experiment that was conducted with two groups, one experimental group and one control group, assigned neutrally. The researcher subjected both groups to a pretest before the implementation, and to a post-test following the implementation. While the “Curriculum of Values Education” was implemented for the experimental group of the study, the control group did not undergo any process. The “Curriculum of Values Education” constituted the independent variable of the study, while the dependent variables included the students’ levels of moral maturity and human values.

2.2. Study Group

The study group of the study consisted of 77 students, studying in the Child Development Program of the Department of Child Care and Youth Services at the Vocational School of Healthcare Services of Mus Alparslan University throughout the 2019-2020 academic year. Of the non-random sampling methods, the purposive sampling method was used to create the experimental and control groups. The sophomores of the child development program, taking the values education class, constituted the experimental group, while the control group included the freshmen who did not take the values education class. Table 2 shows the data regarding the experimental and control groups of the study.

Table 2. Demographic Data of the Study Group of the Study

Variables		n	%
Gender	Female	72	93.5
	Male	5	6.5
Group	Experimental	39	50.6
	Control	38	49.4

As analyzed in Table 2, of those included in the study group, 50.6% (n=39) formed the experimental group, while 49.4% (n=38) created the control group. Of the study group, 93.5% (n=72) were female, while 6.5% (n=5) were male. The experimental group of the study included 39 students (36 female, 3 male), while the control group had 38 (36 female, 2 male) students. The mean age of the experimental group was calculated as 19.33 (Ss=1.59; age range = 18-25), while the mean age of the control group was found as 18.94 (Ss=1.31, age range = 18-23). The university students, who studied in the Child Development Program, constituted the samples of the study, and this department is mainly preferred by females. This was among the limitations that this study had.

2.3. Data Collection Tools

Moral maturity scale: This is a scale that was developed by Şengün and Kaya in 2007, which consists of 66 items and which is of the 5-point Likert type. Of the items of the scale, 52 were specified as positive, and 14 as negative. The highest possible score that one can achieve in the Moral Maturity Scale is 330, and the lowest 66. Any high points to be obtained from this scale indicate a high level of moral maturity, while any low points imply low levels of moral maturity. The Cronbach's alpha reliability coefficient of the scale was found to be 0.93. The high reliability coefficients obtained showed that the scale was a reliable one.

Human values scale: It was developed by Dilmaç (2007). The scale consists of 6 sub-scales (Responsibility, Friendship/Camaraderie, Peacefulness, Respect, Honesty, and Tolerance) and 42 questions. The internal consistency coefficients (Cronbach's Alpha) were found as .92 for the entire scale, and as .73, .69, .65, .67, .69 and .70 respectively for the sub-scales of the scale, as to the reliability study of the HVS. In regards to the stability-oriented reliability of the HVS, the reliability coefficients were calculated, using the test-retest method, by administering the HVS twice on a group of 150 secondary school students at an interval of 20 days. These stability coefficients were found as .87 for the entire scale, and respectively as .73, .91, .80, .88, .75, and .79 for the sub-scales of the scale. This is a 5-point Likert type scale, applicable individually or in groups. Any possible increments/decrements in the scores show that individuals have/do not have higher levels of human values.

2.4. Procedure

The curriculum was implemented with 77 students, studying in the Child Development Program of the Department of Child Care and Youth Services at the Vocational School of Healthcare Services of Mus Alparslan University throughout the 2019-2020 academic year, after an Ethical Board Resolution, and the permissions needed were obtained from the Board of Scientific Research and Publication Ethics of Mus Alparslan University. Prior to the implementation of the curriculum, all groups were subjected to a pretest, after they were briefed about the objective and importance of the study. Following the decision given regarding the experimental and control groups, preliminary interviews were held with 39 students from the experimental group, during which they were given explanatory information, such as the objective, place of implementation, time, and duration of the curriculum. The implementation of the curriculum took place between September 23, 2019 and December 23, 2019. The curriculum was administered on the experimental group for 2 course hours (80-90 minutes) in 1 session in classroom MAE 209, between 15:00 and 16:45 on Mondays for 13 weeks. The control group, however, underwent no such processes. Finally, all groups were subjected to the post-test, as soon as the practices were finished.

Curriculum of values education

This study included the use of the curriculum of values education that was developed. Principally, the literature was reviewed, which was followed by the analysis of relevant studies and different curricula, in order to craft the curriculum. Subsequently, the outlines of the curriculum adopted in this study were prepared, taking the opinions of two experts. Table 3 gives the weekly schedule of the curriculum of values education.

Table 3. *Weekly Outlines of the Curriculum of Values Education*

Week	Subjects
1	The importance of the class in our lives, and its repercussions in our lives
2	Kohlberg's theory of moral development, and the discussion of moral dilemmas over examples
3	Psychoanalytic theory of personality development, and moral conflicts (Freud, Adler, and Jung)
4	The effects of Erikson's theory of psychosocial development over moral development
5	Factors affecting the moral development in behaviorist-social learning theories
6	The effects of preposterous beliefs and cognitive mistakes over moral maturity
7	Moral maturity in humanistic and existentialist theories
8	Learning the values of Righteousness-Honesty and Faithfulness-Trust, and a discussion on such values under the light of the theoretical-semantic knowledge absorbed
9	Learning the values of Mercy-Conscience and Justice-Right, and a discussion on such values under the light of the theoretical-semantic knowledge absorbed
10	Learning the values of Kindness-Generosity, and Love, and a discussion on such values under the light of the theoretical-semantic knowledge absorbed

11	Learning the values of Freedom-Honor and Courage-Self-confidence, and a discussion on such values under the light of the theoretical-semantic knowledge absorbed
12	Learning the values of Humility-Being Yourself, and Austerity, and a discussion on such values under the light of the theoretical-semantic knowledge absorbed
13	Learning the values of Patience, Good Morals, and Unity of Family, and a discussion on such values under the light of the theoretical-semantic knowledge absorbed

As seen in Table 3, the curriculum was formed to consist of 13 weeks. As to the examples on the sessions, the first session was implemented as follows: The curriculum was explained, and specific information was given on the importance of the class and on its repercussions in our lives. Explanations were made on concepts, such as value, types of values, human values, morality, and moral maturity. A brainstorming process was held with the students in regards to the problems of today’s world. The role that the family and school have in the values education was explained. A brief information was provided as to the subject of Kohlberg’s theory of moral development that will be lectured next week. The session was summarized at the end of the session, which was finalized by assigning the students to keep notes on human-specific problems that they would come across throughout the week.

2.5. Data Analysis

Assumptions of normality were checked in order to decide on what statistical tests would be used for the analysis of the data. During this assessment, the skewness (-.680 and .267)and kurtosis (-.725 and .940) values, and the results of the Kolmogorov-Smirnov test were analyzed. As a consequence of this analysis, it was observed that the data of the study had a normal distribution. The independent samples t-Test and Two Way Anova for Repeated Measurements were utilized in order to analyze the data obtained from this study. The data were analyzed, using the SPSS Statistics 22.0 software package.

3. Findings

The pretest and post-test scores of the experimental and control groups of this study were calculated. Table 4 demonstrates the pretest and post-test scores of the experimental and control groups.

Table 4. T-Test Results of the Experimental and Control Groups

Scale	Group	Pretest			Post-test		Mean Difference (Pre-post)
		n	X	ss	X	ss	
Moral Maturity	Experimental	39	278.97	41	280.10	22.94	+1.13
	Control	38	276.28	23.73	260.84	23.01	-15.44
Human Values	Experimental	39	161.87	12.78	164.43	12.77	+2.56
	Control	38	162.94	15.24	157.81	15.78	-5.13

Upon the analysis of Table 4, it can be seen that the mean moral maturity pretest scores were calculated as 278.97 in the experimental group, and as 276.28 in the control group. No significant difference could be found between the mean moral maturity pretest scores of the experimental and control groups ($t[75]= -5.22, p= .604$). The mean human values pretest scores were calculated as 161.87 in the experimental group, and as 162.94 in the control group. No significant difference could be found between the mean human values pretest scores of the experimental and control groups ($t[75]= .336, p= .738$). The levels of the groups were equal prior to the implementation.

Upon the analysis of the data in Table 4, it is possible to observe an increase in the mean moral maturity scale scores of the experimental group ($X_{post}280.10 - X_{pre}278.97= +1.13$), as well as a decline in the mean scores of the control group ($X_{post}260.84- X_{pre}276.28= -15.44$), in between the pretest and post-test. It is possible to observe an increase in the mean human values scale scores of the experimental group ($X_{post}164.43 - X_{pre}161.87= +2.56$), as well as a decline in the mean scores of the control group ($X_{post}157.81- X_{pre}162.94= -5.13$), in between the pretest and post-test.

Whether the difference between the mean scores of the pretest and posttest is significant was tested with “Two Way Anova for Repeated Measurements” and the results of the analysis are given in Table 5.

As can be seen in Table 5, the measurement*group effect for the moral maturity scale was found to be significant ($F = 15.39$; $p < .05$) and the increase in the score in the experimental group was found to be statistically significant ($p = .000$ and $p < .05$). For the human values scale, the measurement*group effect was found to be significant ($F = 7.71$; $p < .05$) and the score increase in the experimental group was found to be statistically significant ($p = .007$ and $p < .05$).

Tablo 5. ANOVA Results of the Pretest and Posttest Scores of the Experimental and Control Groups on the from Scales

	Source of the Variance	Sum of Squares	Sd	Mean Squares	F	p
Moral Maturity Scale	Pretest/Posttest	1973.16	1	1973.16	11.49	.001
	Group (Experiment/Control)	4634.60	1	4634.60	5.34	.023
	Measurement*Group	2644.01	1	2644.01	15.39	.000
	Error	12879.87	75	171.73		
Human Values Scale	Ölçüm (Öntest- Sontest)	63.43	1	63.43	.85	.357
	Grup (Deney/ Kontrol)	295.84	1	295.84	.89	.346
	Ölçüm * Grup	569.93	1	569.93	7.71	.007
	Hata	5540.96	75	73.88		

4. Discussion and Conclusion

As per the results obtained from this study, it was observed that the “Curriculum of Values Education” was effective in terms of increasing the levels of human values of the university students in the experimental group. Several studies were conducted in Turkey and other countries regards to the effects of curricula of values education over the levels of human values of the students. As a result of the domestic study, conducted by Dilmaç (2007) on science high school students, it was revealed that the activities, which were developed within the scope of the curriculum of human values implemented, led to an increase in the levels of human values that the students had. As per the results of a study titled “The Effectiveness of the Curriculum of Human Values Education at an Elementary School Level”, conducted by İşcan (2007), it was observed that the human values-oriented behaviors of the students increased as a result of the curriculum of human values education implemented. A study, conducted by Kunduroğlu (2010), investigated the effects of a curriculum of values education, integrated into a curriculum of science and technology education, over the students’ levels of acquisition of human values, and the results of the study specified that the curriculum was effective in terms of increasing the levels of acquisition of human values that the students had. Similarly, it was observed that the human values education was effective in respect of letting the students acquire human values, as per the results of a study, conducted by Herdem (2016), in regards to the effects of a curriculum of values education, integrated with the subjects of a physical sciences class, over the development of values in the students. A study, conducted by Uzunkol (2014), investigated the effects of a curriculum of values education, implemented in the teaching of social studies, over the levels of human values that the students had, such as respect, responsibility, and empathy, and it concluded that the curriculum increased the student’s levels of empathic skills. In a study, conducted by Engin (2014), it was revealed that a curriculum of values education, merged with the Curricula of Turkish and Physical Education, was effective in terms of increasing the students’ levels of showing human values. As per the results of a study that Ipekçi (2018) conducted, it was revealed that a curriculum of values education, merged with a curriculum of mathematics education implemented, helped the students acquire human values, such as carrying responsibility, being fair, and being honest. A curriculum of values education was developed by Özyurt (2015) to test its effects over elementary school students. As per the results of the study, it was concluded that the curriculum was effective in terms of helping students acquire human values, such as being determined, being patient, and being prudent.

As is observed from the study results, curricula of values education are effective in increasing the students’ levels of acquisition of human values.

As per the results obtained from this study, it was observed that the “Curriculum of Values Education” was effective in terms of increasing the levels of moral maturity of the university students in the experimental group. Several domestic studies were conducted in regards to the effects of curricula of values education over the levels of moral maturity of the students. In a study, conducted by Keskinoglu (2008), elementary school

fifth graders were subjected to activities, which were developed by utilizing the Masnavi by Rumi within the framework of the curriculum of values education, and the results of the study found that the curriculum of values education was effective in terms of increasing the levels of moral maturity of the students. According to the results of the study titled "Providing elementary school students with human values education, and testing the education via moral maturity scale", conducted by Dilmaç (1999), it was found that the curriculum of values education increased the levels of moral maturity of the students. As per the results of an experimental study that Seçer (2003) conducted over adolescent students, it was revealed that the students, who were subjected to the curriculum of values education, had significantly higher levels of moral judgment.

As is observed from the study results, curricula of values education are effective in increasing the students' levels of moral maturity.

When the studies conducted other countries on the results of the research were examined, conducted by Germine (2001) on elementary school eighth graders, an increase was found in the levels of behavior of the participating students in the experimental group, in regards to human values, such as respect, confidence, righteousness, and honesty. In another study, conducted by Lamberta (2004) on 16 students, 8 for an experimental group and 8 for a control group, who were selected out of 52 students, aged 12 to 18, residing at a psychiatric center for children, it was revealed that the curriculum was effective in terms of helping the children acquire human values. According to the results of the "Aussie Program", which was implemented on adolescent students in Australian schools and which covered the values education, it was determined that the participating adolescents showed positive progress in their moral developments (Roberts, 2006). It was seen in the study conducted by Hawkes (2006) that values education contributed to the development of students' positive attitudes and behaviors. In a study conducted on the effectiveness of the values education program, it was found that the developed values education program was successful in gaining value to the students and increased the students' level of taking responsibility (Perry & Wilkenfeld, 2006). In a similar study conducted by Lamberta (2004), it was observed that the applied values education program improved the freedom value of children between the ages of 12-18 in the experimental group. Kropp (2006) revealed in a study that the applied moral development program was effective in increasing the level of human values such as taking responsibility for the students participating in the program. Similar results were obtained in the study conducted by Karma and Kahil (2005), and the students in the experimental group of the living values education program significantly increased their self perception in scholastic, cognitive and social areas. In studies on the effectiveness of the character education program, character education improves students' positive social attitudes (respect for society, conflict resolution, communication skills, decision-making, social cohesion and personal responsibility) (Passa, 2007) and decreases negative behaviors such as violence and truancy (Skaggs & Bodenhorn, 2006).

When the studies on values education are examined both in Turkey and other countries it is seen that the programs related to the applied values education to students are effective and similar to the results obtained from this study, students develop positive attitudes and behaviors related to moral maturity and human values. In meta-analysis studies, it was seen that most of the programs developed for values education were effective (Ateş, 2017; Berkowitz & Bier, 2005). According to the evaluation results of thirty-nine studies on value / character education programs, thirty-three of these programs were found to be effective (Berkowitz & Bier, 2005).

Consequently, the "Curriculum of Values Education" increases the students' levels of acquisition of moral maturity and human values. The following recommendations were made based on the results obtained from the study: The curriculum of values education crafted can be used by academicians that would teach the values class. This study is limited to the practices made over the students, who studied in a specific department of a specific university. The effects of the curriculum can be tested over the students that study in different departments of different universities. There is a need for more studies that would analyze the development of different curricula regarding the curriculum of values education, as well as its effectiveness on the students in Turkey. It is recommended that the academicians, who would teach this class, be provided with on-the-job programs associated with the values education, and that they analyze the values education-oriented curricula crafted, as well as the books and articles written on this matter. It is believed that this study will make significant contributions to relevant fields, particularly to the fields of psychological counseling and guidance, and child development, which deal with the character development and values education of the students.

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Emotional Expressivity, Loneliness and Hopelessness Relationship in Adolescents

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ABSTRACT

In this study, the model developed to investigate the relationship between emotional expressivity, loneliness and hopelessness was tested in adolescents. The sample of this study consisted of 288 high school students, 180 of whom were women and 108 of whom were men. Data were obtained using the Berkeley Expressivity Questionnaire (BEQ), The Short-form of the UCLA Loneliness Scale (ULS-8) and the Beck Hopelessness Scale (BHS). Structural Equation Modeling (SEM) was used to analyze the data. The findings obtained in this study showed that there was a negative and meaningful relationship between emotional expression and loneliness and hopelessness in adolescents, emotional expression predicted loneliness and hopelessness, and there was a positive and meaningful relationship between loneliness and hopelessness and loneliness predicts hopelessness.

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Keywords:¹

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1. Introduction

Emotional expressivity is generally defined as various behavioral changes (e.g., facial expression and posture), such as laughter, pouting, crying or slamming doors (Gross & John, 1995). This definition emphasizes observable behavioral responses, and the level of emotional expression is determined by the degree of behavioral impulses of individuals (Gross & John, 1995).

Studies show the positive and protective structure of the emotional expression and the harmful effects of lack or suppression of emotional expression (Lavee & Adital, 2004). Emotional suppression is considered to be a negative condition given that it harms the ability of physical and psychological health and cognitive process (Mendes, Reis, Seery, & Blascovich, 2003). Emotional suppression may negatively affect mental health (Patel & Patel, 2019). Emotional suppression prevents the expression of real emotions felt. This situation may lead to a feeling of incompatibility between emotions and behaviors and may cause the person to evaluate their emotions in negative terms. Given that the individual is not open about his/her emotions results in a reduced ability to improve his/her mental state and a weak perception of his/her ability to regulate negative emotions (Gross & John, 2003). Suppression can be a risk factor for social problems, as it prevents the natural expression of emotions from building relationships (Tickle-Degnan & Rosenthal, 1990; Butler et al., 2003). In their study, their findings have shown that emotional suppression reduces communication, closeness, prevents the establishment of relationships and increases stress levels. Emotional suppression causes individuals to constantly think about the situation that reveals the current emotion, increasing the risk of developing negative mood, negative cognitive style and depression symptoms (Nolen-Hoeksema, Morrow, & Fredricson, 1993).

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Emotional expressivity plays an important role in physical (Fernandez-Ballesteros et al., 1998), psychological well-being (Buck, Goldman, Easton, & Smith, 1998), social relations (Levine & Feldman, 1997) and personality (Abe & Izard, 1999). Individuals with high emotional expression level express their positive and negative emotions clearly (Gross & John, 1995). In a study conducted by Burgin and et al., (2012), individuals with high emotional expression had higher subjective well-being and life satisfaction, be less alone, and had a better social relationship with others.

Loneliness is a complex concept that includes psychological and social aspects (Holmen, Ericsson, & Winblad, 2000). According to Perlman and Peplau (1981), loneliness is an unpleasant feeling that occurs when one's social networks are quantitatively or qualitatively lacking. According to the definition in question, loneliness is caused by the deficiencies in the social relations of the person, it is a subjective phenomenon and an undesired and distressing experience. According to Gierveld (1998), loneliness is an emotion experienced by the individual when his/her existing relationships are less than desired or accepted, or when he/she cannot achieve the desired intimacy in interpersonal relationships.

Although loneliness is a condition that can be felt in every period of life, this feeling is more experienced and quite common during adolescence. Studies showed that 21% to 70% of adolescents felt least sometimes alone (Qualter et al., 2015; Lodder et al., 2016). In this period, the peer environment is becoming more and more important, and establishing close and meaningful friendship relationships constitutes the important developmental task of the adolescent (Meeus & Deković, 1995; Steinberg & Morris, 2001). The biggest supporter of an individual in adolescence are friends with similar problems. In this period, the feeling of belonging to a group and having a voice in that group is a significant need. In adolescence, although the individual wants to be alone, s/he actually wants to be accepted by her/his peers. For this reason, adolescents who do not join a group, are excluded or do not have the ability to make friends, face a sense of loneliness in this period (Eni, 2017, p. 25). Loneliness is a risk factor for many physical and mental illnesses, such as depression, alcoholism, suicidal thoughts, aggressive behavior, social anxiety, obesity and cardiovascular diseases (Cacioppo et al., 2015). In adolescents who have to establish a close relationship in terms of their development, such negativities may be experienced more intensely as a result of loneliness (Çapan & Sarıçalı, 2016: 58). Loneliness is often reinforced with a feeling of hopelessness and increases feelings of worthlessness, helplessness, unhappiness, indecision, failure to act, not to continue their work and guilt (Şahin, 2015).

Hopelessness is a negative effect that occurs at every moment of life, as a result of believing that nothing will be good, that problems will not be solved, seeing the future in the dark, not expecting nothing from the life, thinking that goals will not be reached (Beck, Weissman, Lester, & Trekles, 1974). Synder, Wroblewski, Parenteau, and Berg (2004) described hopelessness as a lack of hopeful thought or lack of goal, path or motivation. Desperate people show some common features cognitively. These people think that bad events will not be prevented and they have no control over these events. Because of their negative lives, they also have negative thoughts about themselves. They may think that they are worthless when they fail an exam. They also believe that a bad event will bring another bad event. For example, they may think that they will never graduate when they fail an exam (Metalsky & Joiner, 1992).

Being able to control changes between feelings of hope and hopelessness is extremely critical for psychological and mental development in adolescents. While adolescents can be hopeful when they master their personality, they become hopeless in case of failure. Desperate adolescents start to focus on the day without expectation of the future, they feel weak, isolated and have no sense of belonging (Vasta, 2015). Kashani, Suarez, Allan, & Reid (1997) stated that adolescents with a high hopelessness score harm themselves and other people, behave socially inappropriately, express their anger openly and aggressively by acting more impulsively, express a series of negative emotions, such as shame, fear, guilt and enmity, and they tend to experience no positive feelings such as interest and joy.

It has been found that in high school student adolescents, the level of hopelessness decreases as the level of emotional expression and sub-dimension positive expression increases (Çelik, 2015). Similar to hopelessness, a negative relationship was found between loneliness and emotional expression (Akın, 2012). In studies that examine the relationships between emotional intelligence and loneliness, it is reported that there is a negative relationship between the two cases and loneliness level decreases as the level of emotional intelligence increases (Mercan, Demirci, Özler, & Oyur, 2015; Lee & Ko, 2018). However, it has been determined that

loneliness and hopelessness levels increase and decrease together and there is a positive relationship between them (Chang, Sanna, Hirsch, & Jeglic, 2010; Girgin, 2009; Kırımoğlu, Filazoğlu Çokluk, & Yıldırım, 2010). Emotional expressivity, loneliness and hopelessness concepts are related in adolescents, but it is believed that a study that is handled together has not been examined enough especially in our country. In this context, the present study seeks answers to the following questions:

1. Is there a significant relationship between emotional expressivity, loneliness and hopelessness in adolescents?
2. Does emotional expressivity predict loneliness and hopelessness?
3. Is there a significant relationship between loneliness and hopelessness in adolescents?
4. Does Loneliness predict hopelessness?

2. Methodology

2.1. Research Sample

The study group of this research consisted of 288 high school students, 180 of whom were women and 108 were men, who were selected through convenience sampling. Students were between the ages of 14-19 and their average age was 15.27.

2.2. Data Collection Tools

2.2.1. Berkeley Expressivity Questionnaire (BEQ)

BEQ, developed by Gross & John, (1995), was adapted to Turkish by Akın (2010). BEQ consists of 16 items and 3 sub-dimensions (positive expressivity, negative expressivity, and impulse strength). The highest score that can be obtained from BEQ is 112 and the lowest score is 16. The high scores of the individual from each subscale indicate that the individual has the characteristics evaluated by the relevant subscale. In addition, the total emotional expression score is obtained. It was seen that the internal consistency reliability coefficient of BEQ's Cronbach Alpha ranged between .74 and .84 and the test-retest reliability coefficient ranged between .67 and .81. As a result of the analyzes carried out within the scope of this research, the total and sub-dimensions of BEQ's Cronbach alpha internal consistency coefficient ranged between .71 and .83.

2.2.2. The Short-form of the UCLA Loneliness Scale (ULS-8)

The adaptation study of ULS-8, developed by Hays & DiMatteo (1987), to Turkish was addressed by Yıldız and Duy (2014). The lowest score to be received from ULS-8, which consists of 7 items, is 7 and the highest score is 28. The low scores indicate the low level of loneliness, while the increase in scores indicates that the intensity of loneliness increases. Cronbach's alpha internal consistency coefficient of ULS-8 was .74 and test-retest reliability was .84. In this study, Cronbach's alpha internal consistency coefficient of ULS-8 was .81.

2.2.3. Beck Hopelessness Scale (BHS)

BHS was developed by Beck et al. (1974). The adaptation study to Turkish was first made by Seber (1991). Then, BHS was applied to a larger sample group by Durak and Palabıyıköğlü (1994), and its validity and reliability study was carried out again. BHS consists of 20 items and three sub-scales (feelings about the future, loss of motivation and expectations). The lowest score to be achieved is 0, the highest score is 20. A high score from the subscales and the whole scale indicates that the level of hopelessness is high. The Cronbach's alpha reliability coefficient of BHS was .85. As a result of the analyzes conducted in this research, the total and sub-dimensions of BHS Cronbach's alpha coefficient ranged between .73 and .85.

2.3. Statistical Analysis

Descriptive statistics and correlation analysis were performed first. Afterwards, structural equation modeling (SEM) was performed. A SEM is a multivariate statistical method based on the definition of observable and unobservable variables in a causal and relational model based on a specific theory (Byrne, 2010). It is recommended to test the model created by variables assumed to be related to each other in SEM in two stages. First, the measurement model, in other words, confirmatory factor analysis was applied. In this model, it was aimed to investigate the relationships between observed and latent variables. Then, a structural model is

applied in which the relationships between internal and external latent variables are tested (Anderson & Gerbing, 1988; James, Mulaik, & Brett, 1982; Kline, 2015; Wetson & Gore, 2006). Since the loneliness variable in this study consists of one dimension, it has been made into two dimensions by using the parcel method. In the mentioned method, the items in the scale were divided into two groups according to the item total correlation values and the total score of both groups was included in the model as the observed variable. The parceling method was used because it contributed to the normal distribution of data and provided better fit values (Bandalos & Finney, 2001). Goodness of fit values were examined to investigate whether the model established in SEM was meaningful or not (Schumacher & Lomax, 2004). In this study, χ^2/df , CFI, NFI, GFI, AGFI, SRMR and RMSEA were used as goodness of fit values. It is suggested that the goodness of fit values obtained from the model should be $\chi^2/df \leq 5$, CFI and NFI $\geq .90$, GFI and AGFI $\geq .85$, SRMR and RMSEA $\leq .10$ (Byrne, 2010; Hu & Bentler, 1999; Marcoulides & Schumacher, 2001; Maydeu-Olivares, Shi & Rosseel, 2018; Schermelleh-Engel and Moosbrugger, 2003). In this study, SPSS 21.00 for Windows program was used for descriptive statistics and correlation analysis and IBM SPSS AMOS 22.00 program was used for analysis of SEM model.

3. Findings

3.1. Descriptive Statistics and Correlation

Before the descriptive statistics were calculated, whether the data obtained from the scales showed normal distribution was examined using skewness and kurtosis. Accordingly, the skewness value of BEQ was -.39, the kurtosis value was -.15; the skewness value of ULS-8 was -.82 and the kurtosis value was -.13. The findings showed that the skewness value of BHS was -.44 and the kurtosis value was -.74. Huck (2012) stated that kurtosis and skewness values should be less than ± 1 in a normal distribution, George and Mallery (2010) are excellent for ± 1 for skewness and kurtosis, but ± 2 is acceptable for some psychometric measurements, while some researchers reported that univariate normality would be sufficient to be ± 2 for skewness and ± 7 and below for kurtosis (Finney & DiStefano, 2006). Accordingly, the values obtained in the present study indicated that there was no significant problem in normal distribution for all variables. The results of the correlation analysis with the descriptive statistics for the variables are shown in Table 1.

Table 1. Descriptive Statistics and Correlation Analyses

	Correlation			Descriptive Statistics		
	1	2	3	Mean (SD)	Skewness	Kurtosis
1. BEQ	-			54.57 (14.12)	-.39	-.15
2. ULS-8	-.25**	-		11.26 (4.56)	.82	.13
3. BHS	-.24**	.34**	-	6.07 (4.37)	-.44	-.74

Note. ** $p < 0.01$

The findings showed that there was a negative and significant relationship between BEQ and ULS-8 ($r = -.25$, $p < .01$) and BHS ($r = -.24$, $p < .01$). A positive and significant relationship was between ULS-8 and BHS ($r = .34$, $p < .01$).

3.2. Structural Equation Modeling

3.2.1. Measurement Model

The measurement model expressed the relevant indicators of latent variables or their relationship with the measured variables. It was recommended to test the measurement model before testing the structural model (Anderson & Gerbing, 1988). Three latent variables were used in the structural equation model testing: emotional expressivity (measured by the BEQ), loneliness (measured by the ULS-8) and hopelessness (measured by the BHS). There were eight observed variables that made up these latent variables. Emotional expressivity latent variable positive expressivity, negative expressivity, and impulse strength; loneliness latent variable loneliness1 and loneliness 2; hopelessness latent variable feelings about the future, loss of motivation and expectations were the observed variables. All the road coefficients were significant and factor loadings varied between .62 and .90. The measurement model appeared to be well fitted; ($\chi^2 (11) = 29.02$; $\chi^2/df = 2.63$; CFI = .98; NFI = .96; GFI = .97; AGFI = .93; SRMR = .046; RMSEA = .056).

3.2.2. Structural Model

In the second stage of SEM, the structural model developed to determine the relationship between emotional expressivity, loneliness and hopelessness was tested in adolescents. Fit index of the model tested in the research ($\chi^2(17) = 28.65$; $\chi^2/df = 1.68$; CFI = .99; NFI = .97; GFI = .98; AGFI = .95; SRMR = .044; RMSEA = .049) and showed that the structural model had a good fit. As a result of the established model, it was determined that emotional expression negatively affected loneliness ($\beta = -.27$; $p < 0.01$) and hopelessness ($\beta = -.26$; $p < 0.01$), and loneliness positively affected hopelessness ($\beta = .35$; $p < 0.01$). When the determination coefficients (R^2) in the confirmed model were examined, 5% of the variability in loneliness was explained by the emotional expressivity variable; 20% of despair was explained by loneliness and emotional expressivity variables ($p < 0.01$).

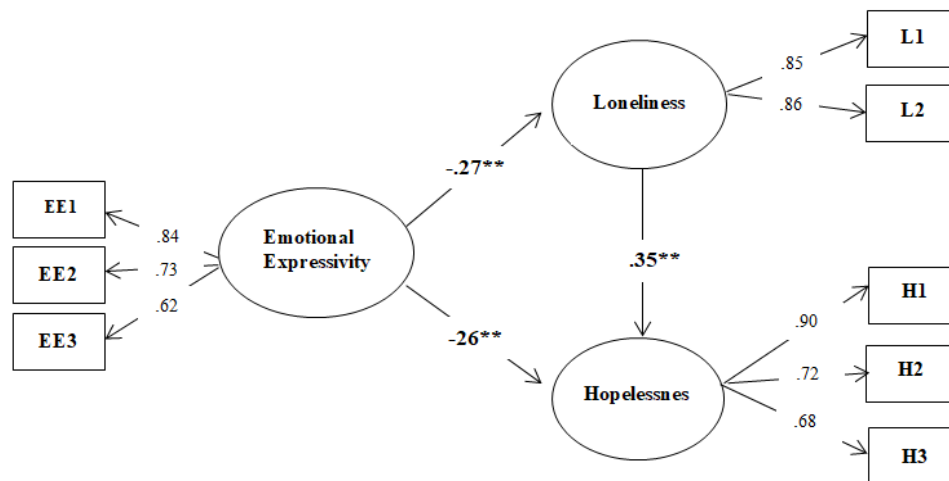


Figure 1. Standardized Values for the Structural Model

Note. ** $p < 0.01$; EE1 positive expressivity, EE2 negative expressivity, EE3 impulse strength; L1 loneliness parcel1, L2 loneliness parcel2; H1 feelings about the future, H2 loss of motivation, H3 expectations.

4. Conclusion, Discussion and Recommendations

In this study, a structural model evaluating the relationship between emotional expressivity, loneliness and hopelessness in adolescents was evaluated. According to the result of the structural model, adolescents have a negative relationship between emotional expression and loneliness and hopelessness and a positive relationship between loneliness and hopelessness. In this regard, it can be said that adolescents with high emotional expression have low levels of loneliness and hopelessness, and an increase in hopelessness as their level of loneliness increases.

Below, the results of the model confirmed in the research are discussed in detail. First, a negative relationship was found between emotional expression and loneliness. It can be seen that this result is consistent with the literature. In a study by conducted Burgin et al. (2012), the findings showed that individuals with high emotional expression had higher subjective well-being and life satisfaction, were less alone and had a better social relationship with others. Similar to this result, there was a negative relationship between emotional expression and loneliness (Akin, 2012). In studies examining the relationship between emotional intelligence and loneliness, it is shown that there is a negative relationship between the two cases and loneliness level decreases as the level of emotional intelligence increases (Merican, Demirci, Özler, & Oyur, 2015; Lee & Ko, 2018; Saklofske, Austin, & Minski, 2003; Özdemir & Tatar, 2019). In a study examining the effect of opening the emotions education on the loneliness level of university students, the loneliness level of the university students participating in this program was lower than the loneliness level of the students who did not participate in this program (Öksüz, 2005). In another study, in which the effect of emotional expression education program on university students' alexithymia and loneliness levels by Koçak, (2005), the findings showed that the levels of alexithymia and loneliness of students participating in emotional expression education group program decreased. Good skills to understand and manage emotions predict a decrease in

loneliness over time, but loneliness also affects a person's ability to understand and manage emotions over time (Cacioppo & Hawkley, 2009; Wols, Scholte, & Qualter, 2015). Emotional skills can protect against loneliness (Hawkley & Cacioppo, 2010; Hawkley, Thisted, & Cacioppo, 2009).

Another result obtained from this study is that there is a negative relationship between emotional expression and hopelessness. This result is consistent with the studies in the related literature. A negative relationship was found between emotional expression and positive expression in high school students and hopelessness, feelings and expectations about the future, and hope levels (Çelik, 2015). It was determined that as emotional intelligence level increased, hopelessness level decreased (Yılmaz, 2019). Young people with high hopelessness tend to express their anger openly and aggressively and display more negative emotions than young people with low hopelessness (Kashani, Suárez, Allan, & Reid, 1997). In addition, it has been found that emotional disturbance predicts hopelessness (Vatan, Lester, & Gunn, 2014).

Another finding obtained from this research is that there is a positive relationship between loneliness and hopelessness and loneliness predicts hopelessness. Many studies have also shown that there is a positive relationship between loneliness and hopelessness levels (Chang, Sanna, Hirsch, & Jeglic, 2010; Girgin, 2009; Kırımoğlu, Filazoğlu Çokluk, & Yıldırım, 2010; Kızılgeçit, 2011; Şahin, 2015; Ruchkin, Eisemann, & Hagglof, 1999; Özkaya, 2017). Hopelessness is a predictor of loneliness and depression (Joiner & Rudd, 1996); it was found that loneliness predicted the possibility of suicide (Batugün, 2005) due to the reasons of experiencing hopelessness. It was concluded that early diagnosis and treatment of loneliness might have the potential to decrease the results on adolescents' hopelessness and emotional health and development (Page, 1991).

This study has some limitations. An SEM was used in this study, which could obtain strong results from quantitative methods. However, due to the nature of the quantitative method and the cross-sectional nature of the sample in this study, the cause-effect link was not established. Thus, longitudinal and experimental studies are needed to fully reveal these causal relationships.

The findings of this study provide significant information about the relationship between emotional expression, loneliness and hopelessness in adolescents. In order for the adolescents to successfully overcome the period they are in, it can be provided to include activities that allow the opening of emotions within the school education programs. Psychoeducation can be given to adolescents who are inadequate and hopeless and feel lonely by their school psychological counselors to improve emotional expression. It is evaluated that the findings of this research can be tested and verified by later researches, recognition of the conditions of loneliness and hopelessness experienced by adolescents during this period, and taking necessary measures may be important for preventive mental health.

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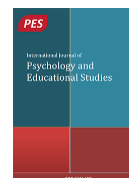
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Perceptions of Pre-service Teachers Regarding Entrepreneurship Education: A Metaphoric Study

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ABSTRACT

Without being aware of it, metaphorical concepts reveal their expressions word for word in our social life. It is the expression of thoughts using concrete and abstract concepts. The aim of this study is to reveal the mental perceptions of teacher candidates about entrepreneurship education and entrepreneurship skills by using metaphors. The participants of the study are teacher candidates studying in ten different branches at the Faculty of Education in Bolu Abant İzzet Baysal University in the 2019-2020 academic year. In the research, as a data collection tool, a form that includes the expression "Entrepreneurship education / entrepreneurship skill..... because....." was used to identify metaphors for entrepreneurship education. The data obtained from the data collection tool were analyzed using qualitative data analysis techniques. Content analysis and metaphor analysis were used in the analysis of the data. According to the findings obtained from the study, pre-service teachers produced a total of 100 metaphors for entrepreneurship education and entrepreneurship skills. These metaphors are evaluated in three categories: 1-Theoretical framework of entrepreneurship education, 2-Values of entrepreneurship education, 3-Sub-skills of entrepreneurship education. These conceptual categories were examined according to the pre-service teachers' branches and the data obtained were evaluated under three main categories and under thirty-five titles. According to the results of the research, the perceptions of pre-service teachers about entrepreneurship education and gaining entrepreneurship skills are generally positive.

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Keywords:

Metaphor, entrepreneurship, entrepreneurial skill, entrepreneurship education, skill, value

1. Introduction

Metaphors that enable the thoughts existing in mind to be expressed with abstract and concrete concepts can help us to explain the concepts. Especially the differences in the metaphors used for theoretical concepts can sometimes be a matter of debate regarding the explanation of that concept. However, revealing the underlying metaphors about the relevant concept helps to express the definitions and explanations for that concept effectively (Andriessen, 2009). Generally, the "benefit" factor plays a decisive role in scientific activities. Any action is meant by benefit. This is especially important for pragmatists. At the same time, it is possible to define other learning ways such as aesthetic and artistic perception as important elements of a research (Cherryholmes, 1999).

It is possible to see metaphors as means of expression that penetrate human thought and contribute to abstract thinking ability. It is not possible to put this concept into certain molds. Because metaphors should be interpreted in relation to other metaphors in certain contexts and in a process that static classification (Mason, 2018). According to Morgan (1998), metaphors expand our imagination by enabling us to develop strong

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insights, encourage us to think and act differently, gain insight, and pave the way for new possibilities. At this point, it is very important to use metaphors in the education and training process.

It is possible to explain the meaning of the word metaphor as an analogy and description (TDK, 2020). This word is of French origin. The word meta (metha) in the word metaphor, which consists of two different words, means the other (or) ~~ile~~, while the word fora (phora) means to convey (convey) (Keklik, 1990). From this point on, it is possible to define metaphor as a figurative expression of a concept that actually exists. Therefore, it facilitates the expression of concepts that can differ according to variable conditions by loading new words and meanings (Doğan, 2014). Jensen's (2006) defined metaphors as a valuable research tool to gain new perspectives on educational practice and theory. Briefly, metaphors can be expressed as the state of explaining unknown, invisible abstract concepts with concrete concepts (Yetim Karaca & Ada, 2018).

The aim in scientific studies is to approach reality as much as possible. Although efforts are made to find the holistic and concrete truth in scientific studies, the truth can only be reached in a fragmented and limited way (Goldmann, 1998). For this reason, the use of metaphors in expressing reality allows real expressions of any subject or concept to be explained through simulation. A metaphor-based narrative using an analogy method helps to express life issues based on thought (Morgan, 1998). It is possible to explain metaphorical expression as an expression method used in explaining scientific processes or as a situation of transforming scientific processes into meaningful forms of expression (Keskin, 2019).

Metaphors and metaphorical narratives are largely based on the findings of cognitive psychology. In this case, the assumption that meaning and perception are interrelated is generally accepted. The metaphor used for any concept is directly proportional to how we perceive that concept in reality. What causes this situation is that there is a close relationship between the way we perceive and process information about reality. It is also not only the perception of reality that affects our mental representation. Our past experiences towards the concept we are trying to explain and how we perceive that concept in the past affect the use of metaphors. To summarize, our perceptions underlie the interpretation of meaning for any concept cognitively (Fábián, 2013).

When research is done on the concept of metaphor, it is seen that metaphors have an important and prominent place in the education system. For this reason, Botha (2009) argued that metaphors are not a concept belonging to literature and literati, on the contrary, their use in education has important benefits. Therefore, metaphors are considered as a part of the teaching-learning process. In this context, metaphors constitute a bridge between the past and the present, theory and practice in the learning-teaching process. It is possible to use metaphors to increase students' motivation in order to reach correct answers for the solution of certain problems, to help teachers and students to define, understand, perceive and focus the learning-teaching environment (Yıldız et al., 2018). On the other hand, metaphors help to reveal how a concept or phenomenon is perceived (Aydın, 2011).

In this study, metaphors were preferred in determining pre-service teachers' perceptions for entrepreneurship education and entrepreneurship skills. In the undergraduate program, the elements of entrepreneurship (knowledge, skills and values) are taught to pre-service teachers within the scope of the "economy and entrepreneurship" course. This situation is important for individuals to know about entrepreneurship education and gain experience in gaining entrepreneurship skills when they become teachers. On the other hand, it is thought that it is important to examine the perceptions of pre-service teachers who have taken this course towards entrepreneurship education and entrepreneurship skills. Because the perception of teacher candidates towards entrepreneurship will be beneficial for them in their professional lives and lives. In addition, we choose to think with metaphors within our experiences of life. There are metaphor expressions in the language that we use in our daily life. Metaphors make it easy for us to explain our new experiences in real life in other terms. In addition, metaphors provide the opportunity to convey a new concept encountered more effectively by associating it with elements we know well or in our past life.

Based on this information, this study aims to analyze the perceptions of pre-service teachers taking the "Economics and entrepreneurship" course in the 2019-2020 academic year towards entrepreneurship education and entrepreneurship skills through metaphors. In addition, the following questions were sought:

1. What are the metaphorical perceptions of pre-service teachers regarding to the theoretical framework of entrepreneurship education?

2. What are the metaphorical perceptions of pre-service teachers regarding to the values of entrepreneurship education?

What are the metaphorical perceptions of pre-service teachers regarding to entrepreneurship education skills?

2. Method

The research has been designed as a qualitative research. Phenomenology design was preferred as the research design it aimed to determine the perceptions of pre-service teachers regarding the knowledge they gained in the "Economics and entrepreneurship" course. According to Merriam (2013), phenomenology is related to lived experiences. Yıldırım and Şimşek (2005) stated that the aim in phenomenology is to describe the basic structure of experience, and phenomenology that does not have an in-depth and detailed understanding is taken into consideration. At this point, metaphors were seen as important and used to provide richness of socio-cultural expression. It is possible to consider metaphors in two categories as cultural metaphors and social metaphors. Metaphors also represent a basic cognitive strategy of analogical problem solving. In addition to being sensitive to the context in which they are used, metaphors are reflections of abstract reality with mental models and schemas. The versatile properties of metaphors make it attractive for use in qualitative research. Furthermore, metaphors allow to bridge the gap between different (quantitative-qualitative) approaches (Mooser, 2000). The pre-service teachers were different branches. The theoretical scope of this course has been determined by Tarhan (2019) (For the elements of entrepreneurship education, see Appendix 1).

2.1. Working Group

The research was carried out with pre-service teachers registered at Faculty of Education at Bolu Abant İzzet Baysal University. The working group of this research consists of 100 pre-service teachers from different branches. In this study, the pre-service teachers participated in this study were attending to Economics and Entrepreneurship course given at Abant İzzet Baysal University in the 2020 academic year. Data on the characteristics of pre-service teachers are included in Table 1.

Table 1. *Distribution of the study Group by Branches*

Pre-service teachers' branch	Gender (Female)	Gender (Male)	Frequency
Pre-School	22	2	24
Elementary Mathematics	13	4	17
Social Studies	8	5	13
English	7	6	13
Guidance and Psychological Counseling	10	2	12
Classroom	8	-	8
Science	6	-	6
Music	2	1	3
Turkish	2	-	2
Art	1	1	2
Total			100

All metaphorical analogies from the participants were included in the study. The metaphors used over the same concepts were evaluated separately due to the differences in their reasons for use. The pre-service teachers included in the study are in ten different branches. According to branches, the distribution of pre-service teachers is given in Table 1 and gender factor was not included in the research process. Gender expression is included in the table to show the diversity of prospective teachers.

2.2. Data Collection

In the study, qualitative research tools were preferred to obtain the opinions of pre-service teachers regarding effective domain. Document review (document review form) was used for data collection. In the creation of the document review form, the elements of entrepreneurship knowledge, skills and values were taken into account. Findings were categorized according to these factors and these were interpreted based on metaphors

for gaining entrepreneurial skills. Based on this element, the application process and tools have been developed. Document review form has been prepared in two different ways.

Form 1: This form was created in the context of entrepreneurship education elements. It is aimed to obtain data on knowledge, skills and values for entrepreneurship with the form. It is aimed to elicit data in order to prepare theoretical framework.

Form 2: In the second form, using the semi-structured interview form, pre-service teachers are asked to fill the following sentence up: "Entrepreneurship education is similar to because"

Although Saban (2009) used the term "like" instead of the term "similar", it is thought that the term "similar" is more suitable for the format of the sentence above. The term "similar" was used to determine the metaphor of the participant in order to relate between the source and the participant, while the concept of "because" is used to explain the justification of the metaphor. During the implementation, no intervention was made to the participants and no instructions were given to direct their ideas.

2.3. Analyzing Data

"Metaphorical analysis" and "content analysis" techniques were applied in the analysis of obtained data. Metaphorical analysis can be expressed as examining metaphors in relation to representations and taking them into a certain perspective. This situation helps to construct and make sense of a theoretical concept. In particular, it enables the relationship between different representations to be understood (Andriessen, 2009). Metaphorical analysis is used as a qualitative research tool to learn the opinions of the participants on a particular subject. The metaphorical language expressions voiced by the participants allow the concept to be defined (Cameron & Low, 1999; in Guerrero & Villamil, 2002). Cameron and Low (1999) interpret metaphorical analysis as linguistic metaphors used to explain thoughts about any subject or concept. The purpose of metaphorical analysis is to create explanatory concepts consisting of socio-cognitive connections by associating one concept with another.

On the other hand, it is known that content analysis is a widely used analysis type in qualitative research. Merriam (2013) states that content analysis is a systematic process in defining communication. At the same time, it is possible to express content analysis as a qualitative data analysis method that includes the stages of organizing and classifying findings and reaching theoretical results by comparing them (Cavitt, 2006; Cohen, Manion, & Morrison, 2007). The following stages were applied in the analysis of data during the research process:

1. Coding and elimination phase. This stage involves putting the metaphors developed by the pre-service teachers in a certain order, thus creating a simple and temporary list. While creating this list, the ability of the participants to express the metaphor they stated was examined. The purpose of the coding and elimination phase is to simply code the metaphors produced in order to create the first step of the analysis of data by determining whether the participants have expressed a certain metaphor clearly (for example, "Horse, Sun, Field, Flower, etc.").

2. The stage of compiling metaphors. At this stage, the metaphors obtained from all data were examined and a total of 100 metaphors were evaluated. Metaphors are associated with entrepreneurial education elements (knowledge, skill, value) that they represent.

3. Category creation phase. The main purpose of this stage is to examine the produced metaphors in terms of common aspects. Metaphors containing the same element are grouped under three main categories. These categories are: (1) metaphors regarding the theoretical framework of entrepreneurship education. (2) Metaphors regarding the values of entrepreneurship education. (3) Metaphors regarding entrepreneurship education skills. At the last stage, sub-themes were created by categorizing the metaphors in these three main categories according to their content, and a detailed evaluation was made on knowledge, skills and values.

3. Findings

The metaphorical concepts obtained from pre-service teachers' opinions during the research process are given in Table 1. Explanations regarding the reasons for metaphorical concepts are handled within the knowledge, skill and value categorization for entrepreneurship education. The meanings attributed to the concepts have been evaluated within the framework of entrepreneurship education.

Table 2. *Metaphors of Pre-Service Teachers (entrepreneurship education is similar to)*

1. Family	51. Light (2)
2. Mom	52. Drug
3. Antidepressant	53. Human
4. Car	54. Grammar book
5. Bee	55. Ant
6. Horse	56. Guide
7. Fever	57. Spark
8. Workshop	58. Book (1)
9. Pregnancy	59. Books (2)
10. Brain	60. Square kite
11. Quiz	61. Canned
12. Building	62. Running race
13. Watering a flower	63. Piggy Bank
14. Climbing a mountain	64. One wing of the bird
15. Wheat	65. A leading team captain
16. A living organism	66. Mathematics
17. Exam result	67. Musician
18. Flower (1)	68. Pomegranate (1)
19. Flower (2)	69. Pomegranate (2)
20. Planting flower seeds and watering	70. Oxygen
21. Farmer	71. Crossing the ocean by boat
22. To farm	72. Money
23. Raising a child	73. Compass
24. Sea	74. Picture
25. The lifeguard at sea	75. Painting
26. Going to the sea	76. Empty land you own
27. Language training	77. Art
28. Water resources on earth	78. Art and artist
29. Crawling	79. Water
30. Playing an instrument	80. Fish leaving the flock
31. Universe	81. Repair kit
32. Factory	82. Agriculture
33. Philosophy	83. Field
34. Lantern	84. Field Bread
35. Filter coffee	85. Crop in the field (1)
36. Guiding future	86. Crop in the field (2)
37. Food	87. Technology
38. Star in the sky	88. Seed (1)
39. Glasses	89. Seed (2)
40. Sun (1)	90. Earth (1)
41. Sun (2)	91. Earth (2)
42. Sun (3)	92. Raw material
43. Map	93. Rain (1)
44. Life	94. Rain (2)
45. Life	95. Jigsaw (1)
46. Arrow at the target	96. Jigsaw (2)
47. Hunter	97. Living
48. Statue	98. Captain
49. Sculpture	99. A new game
50. Light (1)	100. New born baby

Based on the information in Table 1, the diversity of the concepts, including the pre-service teachers' thoughts who take the "Economic and Entrepreneurship" course about entrepreneurship education and entrepreneurship skills draw attention. On the other hand, there are pre-service teachers who prefer the same metaphorical concepts. The pre-service teachers who use the same metaphorical concepts have different reasons for using this metaphor ; therefore, it is not considered as similar concepts. For instance, a pre-service teacher using the metaphor of "sun" gave explanation as "Because the sun enlightens people. It provides many

possibilities for human beings, "using the expression" Because the sun rises again every day no matter what. Entrepreneurial individuals do not give up no matter what." While one of these explanations meets the ability to "guide, lead" in entrepreneurship education, the other is related to the values of "being hardworking, being patient". Therefore, metaphors containing similar concepts are included in the list. Metaphoric concepts are interpreted under the following headings within the scope of entrepreneurship education.

3. 1. Evaluation of metaphors for the theoretical framework of entrepreneurship education

Under this heading, the metaphors of pre-service teachers related to entrepreneurship education's theoretical framework were discussed. Metaphor expressions about the information and processes that pre-service teachers consider important in the process of entrepreneurship education are given in Table 3.

Table 3. Teachers' Metaphors and Explanations for the Theoretical Framework of Entrepreneurship Education

Metaphors (Similar to...)	Relationship (Because...)	Subject	Frequency
Guide	it is a guide.	Entrepreneurship	5
Compass	it shows us a direction when we cannot find our way.	education guides.	
Map	just as the map shows us where and how to go, entrepreneurship education guides us in our future business.		
Lantern	it illuminates our way and shows the truth		
The Sun	the sun gives light around it. It guides and inspires people.		
Books	books raise people. It opens new windows to our lives. They always take us forward	Provides entrepreneurship education and alternative opportunities.	1
Piggy Bank	it grows, develops and contributes over time.	Entrepreneurship	5
Money	money is not available to everyone. Those who have money also know its value and strive harder to earn more.	education provides information about obtaining financing.	
Quiz	the more you know, the more you win.		
Building	the better a country gives this education to its students and does not run away from its expense, the stronger the economic structure of the country and its economy is not easily destroyed.		
Soil	we get crops by cultivating the land. For this reason, thanks to entrepreneurship training, we create an active life for individuals and ensure that they become productive individuals.	Entrepreneurship Training is Product Oriented	17
Life	whatever you plant you reap.		
Sculpting	it does not look like anything at the beginning of its construction, very beautiful works come out at the end.		
Wheat	when wheat is cultivated, harvested and processed, it produces many useful products for humanity.		
Crops in the field	the crop planted in the field produces a product and is beneficial to the whole country and even to the world.		
Bee	bees create their products by drawing their way within their own working system.		
Seed	as it develops, it produces a product and requires effort.		
Crop in the field	the crops in the field yield a harvest. It creates a product.		
Seed	the idea of entrepreneurship is small like a small seed, but it grows and develops over time.		

The progress of the individual playing an instrument on the path of virtuosity	it produces, is open to innovations, it has a structure that does not give up sensitive to future criticism. As a result of this determined work, the ability to obtain every product it wants is in the palm of its hands.		
Food	food feeds people and benefits people.		
Mother	it's like a mother raising her child. He thinks with everything and tries to prevent bad things that can happen to him. A mother wants her child to grow and develop to be a beneficial individual to people and their homeland. In entrepreneurship education, we try to raise individuals who will lead the country to prosperity.		
Puzzle	the entrepreneurial characteristics of people come together at certain rates and form a meaningful whole by conducting interrelated studies.		
Getting the result of an exam we have studied	at the end of that exam, we are entitled to go to the school we want. In other words, we get the reward for our efforts.		
Farming	certain stages are passed and labor is given to produce a product.		
Agriculture	the agriculturalist deals with the soil, the soil yields fruit as a result.		
Field	it grows suitable crops in the fields		
Brain	the brain receives information and shows us how to use it and helps us to understand how to use it over time, great things can be accomplished if the information is used correctly.	Entrepreneurship Education Provides Systematic Information on Entrepreneurship	1
Oxygen	life continues with oxygen, entrepreneurship enables people to continue life.	The Importance of Entrepreneurship Education	2
Rain	it wets it hard at first but then it makes everything grow		
Water	it is very important for the country, society and individual.		
Technology	it provides technological products that make human life easier.	Entrepreneurship Education Provides Benefits	2
Life in a product, entrepreneurship is its raw material	Life in a product, entrepreneurship is its raw material: Because it is one of the most necessary skills for human life.		
Human:	Born, grows, develops and dies ...	Entrepreneurship education and investment	1
Family	entrepreneurship grows and develops over time just like family.	Entrepreneurship Education provides essential information resource for entrepreneurship	6
Jigsaw	when the pieces in the puzzle come together, they form a meaningful whole. In the process of entrepreneurship training, when all the dimensions aimed to be brought to the individual come together, a meaningful and successful entrepreneurial activity takes place.		
Repair kit	if I know how to use tools that work for me, I can be successful in repairing		
Spark	without a spark, a fire cannot burn.		
The Sun	the sun provides enlightenment. Provides many opportunities for human		
Language education	it requires not only knowledge but also an environment to be practiced.		

Lifeguards at sea	whenever something is needed in life, entrepreneurs create a business idea and save people's lives thanks to their skills.	Entrepreneurship Education Create a business idea	1
Water resources on the world	the world has existed since its existence, even if the ready-to-use part is small or decreases from time to time, and it will be as much as disappeared.	Historical continuity of Entrepreneurship Education	1
Pomegranate	when you look at it from the outside, it looks like a single job, but as you enter it, it becomes clear how wide a network it is.	Entrepreneurship education is multidimensional and interdisciplinary.	1
Grammar book	Entrepreneurship education is a world that everyone thinks they know very well, but it is almost impossible to do without training, just like grammar. Someone with a good entrepreneurial skill has completed the most important stage of self-improvement, just like an individual with a good grammar knowledge.	Entrepreneurship Education and personal development	11
Workshop	you give the log, that log is brought back to life by taking completely different shapes there.		
The captain of the sailing ship	only those who can predict in which direction and when the wind will blow can get to their destination.		
Guide	it is a guide.		
Painting	both the teacher and the learner must be willing and talented, you can get good results after receiving training with these two features.		
Watering a flower	if we give water to the flower, it can flourish.		
A living organism	just as a living organism has to evolve constantly, entrepreneurship skill must develop constantly		
Fire	it is flammable when it is right and goes out when it is wrong		
The process of the baby in the womb	if the baby continues its physiological development in the womb, the individual starts from scratch and continues its development with individual and environmental factors.		
Mathematics	it is open to continuous improvement.		
Sea	it contains millions of ores waiting to be discovered.		
A new game	a new game teaches you different things and you can play this game individually and in groups	Entrepreneurship education provides an innovative thinking and learning environment	1

Based on the information in Table 3, the metaphors for the theoretical framework of pre-service teachers' entrepreneurship education were examined and categorized. In this direction, pre-service teachers gave opinions within the framework of the following subjects in the entrepreneurship education process according to the frequency density:

- There is a product output at the end of the entrepreneurship training process. (17)
- Entrepreneurship training helps in personal development. (11)
- Entrepreneurship education is the main source of information for entrepreneurship. (6)
- Entrepreneurship education guides. (5)
- Entrepreneurship education provides information about obtaining financing. (5)
- The importance of entrepreneurship education. (3)

- Entrepreneurship education provides benefits. (2)
- Entrepreneurship education provides an innovative thinking and learning environment. (1)
- Entrepreneurship education provides information about the investment process. (1)
- Entrepreneurship education offers alternative opportunities. (1)
- Entrepreneurship training helps to form a business idea. (1)
- Entrepreneurship education provides information about the historical continuity of entrepreneurship. (1)
- Entrepreneurship education systematically presents information about entrepreneurship. (1)
- Entrepreneurship education is multidimensional and interdisciplinary. (1)

When the relevant data are examined, it is seen that the product output is important at the end of the entrepreneurship training process. Another frequency density is that entrepreneurship training provides personal development. Entrepreneurship education is reflected in the findings as an effective tool for the development of knowledge and skills for entrepreneurship activities in individuals. At the same time, pre-service teachers stated that they helped to gain basic knowledge and skills about entrepreneurship in the process of entrepreneurship education. Tarhan (2019) examined the processes of entrepreneurship skills in five dimensions: business idea, financing, product design and production, promotion-marketing and investment. Findings regarding the dimensions of "business idea, financing, product design-production and investment" were obtained from the data obtained. No solution has been found regarding the promotion and marketing aspect.

3. 2. Evaluation of Metaphors Regarding the Values of Entrepreneurship Education

Under this heading, the metaphors of pre-service teachers regarding the values of entrepreneurship education were discussed. The metaphor expressions about the values that pre-service teachers consider important in the entrepreneurship education process are given in Table 4.

Table 4. Teachers' Metaphors and Explanations for the Values of Entrepreneurship Education

Metaphors (Similar to...)	Relationship (Because...)	Value	Frequency
Ant	ants carry fifty times more weight than their own and carry food to their nest just to survive. Anything can happen to him in this business he undertakes. But the ant sets out for a purpose and returns to its nest after getting what it wants.	Be challenging	2
Getting the result of an exam we have studied	at the end of that exam, we are entitled to go to the school we want. In other words, we get the reward for our efforts.		
A team captain with leadership	it takes risk and courage. I think these two facts are very important in order to be an entrepreneur.	Being brave	1
Canned	if the construction phase is intact and stored in good conditions, you will achieve your goal.	Leadership	
Flower	If you water that flower, the flower will grow. If you don't look at the flower, it will dry out and die. Our entrepreneurial skill is like this. The more we head towards that area and go over it, the longer we go. But if we do not work for something and continue, we will have nothing left.	To strive to achieve the goal	10
Arrow thrown towards the target	the arrow knows the direction to go and the arrow reaches the target with the force on the bow. The more effort is made to stretch the bow, the easier it will be for the arrow to reach the target.		
Planting flower seeds and watering	when we water the flower seeds, the flowers bloom.		
The valuable and empty land you have	it is up to you to beautify and maintain that land. As long as you work and spend your time, it will become more beautiful.		

Farmer	the farmer takes care of what he sow, the more efficient he sows. I think entrepreneurship is the same. Whatever man sows for himself, he benefits.		
Raising a child	the more time you devote to the child, the more effort you put into raising a good child.		
Flower	the flowers become more beautiful as you water them.		
Car	like a car, it goes as far as you want. If you press the gas, you will move forward. You also need to progress in entrepreneurship. Or you will stay where you are.		
Sow the field	only if you sow the field you reap		
Glasses	glasses allow people with eye disorders to see things farther away or near them more easily.	Be useful	3
Soil	you can benefit from soil in every way		
Glasses	glasses allow people with eye disorders to see things farther away or near them more easily.		
Philosophy	the person who deals with philosophy is a little crazy, a little crazy and a little crazy. Entrepreneurial people are also a little crazy, ambitious, crazy. Similar to entrepreneurship, art, a painter tries to finish his painting with devotion, and an entrepreneur tries to finish his work with his vision, just like an artist.	Have a vision	3
Art and artist	the entrepreneur is trying to realize his vision, just as a painter paints a picture or a writer writes his novel. He puts a lot of effort into it and finally sees the painting he wants to see.		
Quiz	the more you know, the more you win.		
Life	it is a process that leads to certain areas in life, where we discover our skills and mature in this way.	Valuing Experience	1
Crossing the ocean by boat	there are many who say you can't. It is necessary to take risks. You fight big waves. But if you reach the shore, you will succeed.	Be determined	2
On-target hunter	he always gets what he wants		
A wing of the bird	Humans are so caught up in the pursuits of their profession that they do not want to make another attempt. We do our own profession, but how much is that enough. Imagine yourself as a bird, your wings that raise and lower you. So the job you do. By taking initiatives related to your own business, you will not stand in your place and raise yourself.	To give importance to personal development	4
Life	you learn as you live		
Antidepressant	if you take this training, you'll be happy		
New born baby	it develops and grows us like being born again. It allows us to take steps.		
Filter coffee	it tastes better as you wait	To be patient and determined	8
The Sun	whatever the sun is, it will rise again every day. Entrepreneurial individuals do not give up no matter what.		
Crawling	reaching a certain point is not a sudden event. It takes labor, much thought, and firm moves. With experience, this foundation gets stronger and over time, people move from crawling to walking.		
Star in the sky	we always shine like a star when we hope, even when we do not give up, even if we are on the way to fulfilling our dreams.		
Climbing the mountain	climbing the mountain requires courage at first and then it is a difficult process. You will encounter difficulties, but if you do not persevere, you will eventually succeed.		
Painting	when I started painting, I couldn't quite draw what I wanted. In most places I make mistakes and draw over		

	and over again. When I continue to draw patiently, a very beautiful picture comes out.
The progress of the individual playing an instrument towards virtuosity	it produces, is open to innovations, it has a structure that does not give up sensitive to future criticism. As a result of this determined work, the ability to obtain any product they want is in the palm of their hand.
Running race	if you fall behind, they always get one step ahead.

Based on the information in Table 4, pre-service teachers' metaphors about the values of entrepreneurship education were examined and categorized. In this direction, pre-service teachers gave opinions within the framework of the following subjects in the entrepreneurship education process according to the frequency density:

- To strive to achieve the goal. (10)
- To be patient and determined. (8)
- To give importance to personal development. (4)
- Be useful. (3)
- To have a vision. (3)
- Being challenging. (2)
- Being stable. (2)
- To have courage (1)
- Being a leader. (1)
- Valuing Experience. (1)

When the relevant data were examined, it was seen that the highest frequency intensity in the entrepreneurship training process was "making an effort to reach the goal". Another frequency intensity is reflected in the findings in the form of patience and determination. This value, which is heard a lot in the entrepreneurship process, is one of the most important characteristics of entrepreneurs. It is also reflected in the findings that teacher candidates care about personal development in the entrepreneurship process. Findings show that enterprise activities should benefit people. Values such as having a vision, being challenging, being determined, and being courageous are the important values and attitudes that an entrepreneur should have. This information reflects the values and attitudes that are deemed important or should be found in entrepreneurs in the process of entrepreneurship training.

3. 3. Assessment of Metaphors Regarding to the Skills of Entrepreneurship Education

Under this heading, the metaphors of pre-service teachers related to entrepreneurship education skills were discussed. In entrepreneurship education, metaphor expressions for the skills that pre-service teachers deem important are categorized, and the relevant information is given in Table 5.

Table 5. Teachers' Metaphors and Explanations for Entrepreneurship Education Skills

Metaphors (Similar to...)	Relationship (Because...)	Skills	Frequency
Book	books teach new things, improve our horizons, add positives to our ability to speak. It contributes to our ability to think and improves us. Allows us to view life and events from different angles	The ability to think differently. Good speaking ability.	1
Noticing the square kite in the sky	everybody notices the kites, but only some of them can change the shape and color of the kite and get a new kite.	Awareness skill	1
Swimming	as you enter, you get used to it.	Orientation skill	1
Sculpture	when you sculpt, you generate new ideas from scratch from clay. Dynamic ideas are continuous in entrepreneurship.	Thinking creatively and innovatively	7
The progress of the individual playing an instrument on the path of virtuosity	it produces, is open to innovations, it has a structure that does not give up, sensitive to future criticism. As a result of this determined work, the		

	ability to obtain any product they want is in the palm of their hand.		
Medicine	producing something new is like finding a medicine for a disease that has no cure.		
Light	it inspires individuals who benefit from entrepreneurship education by shedding light.		
Light	the light illuminates our surroundings, the brilliant ideas we have thanks to the entrepreneurial skill also illuminate our future.		
Art	it is based on one's imagination and feeds on creativity		
Musician	their inspiration is their most important weapon.		
Rain	rain helps plants grow and develop.	The ability to daydream.	1
Crossing the ocean by boat	Entrepreneurship education also improves thinking skills and enlarges the imagination. there are many who say you can't. You have to take risks. You fight big waves. But if it reaches the shore, you will succeed.		
Fish leaving its school	the fish leaving its school take most risks to survive-		
A team captain with leadership	it takes risk and courage. I think these two facts are very important in order to be an entrepreneur. you're putting something out of scratch. You think and work. You present this to people. In return, you either continue to develop yourself or you fail. However, the important thing here is to start the production of something new, not to close the factory when you fail.	The ability to take risks	4
Factory			
The captain of the sailing ship	only those who can predict in which direction and when the wind will blow can get to their destination.	The ability to see and evaluate the opportunity	2
Universe	it consists of billions of stars. It contains many ideas waiting to be discovered.		
Puzzle	the entrepreneurial characteristics of people come together at certain rates and form a meaningful whole by conducting interrelated studies.	The ability to act together	1
Guiding the future	the future is usually remembered by entrepreneurs in the future and the arguments they put forward continue to live.	The ability to predict / The ability to see the future	1

Based on the information in Table 5, pre-service teachers' metaphors about entrepreneurship education skills were analyzed and categorized. In this direction, pre-service teachers gave opinions within the framework of the following subjects in the entrepreneurship education process according to the frequency density:

- Creative and innovative thinking skills. (7)
- Ability to take risks. (4)
- Ability to see and evaluate the opportunity. (2)
- Ability to think differently. (1)
- Good speaking skills. (1)
- Awareness skill. (1)
- Orientation skills. (1)
- The ability to dream. (1)
- Ability to act together. (1)
- The ability to predict / The ability to see the future. (1)

When the relevant data are analyzed based on the above information, the highest frequency density is seen in "creative and innovative thinking skills" in the process of entrepreneurship education. Another frequency intensity is reflected in "risk taking skill". It is possible to express other skills that are considered important by pre-service teachers to be present in entrepreneurial individuals as being able to see and evaluate the opportunity, thinking differently, speaking well, awareness, orientation, dreaming, acting together, predicting / seeing the future.

4. Conclusion and Discussion

In the study, pre-service teachers' perceptions in different branches of the concept of "entrepreneurship education and entrepreneurship skills" were examined through metaphors. The responses of the pre-service teachers were collected under three main categories and 35 sub-categories under these categories. Considering the metaphors expressed by pre-service teachers based on entrepreneurship education and entrepreneurship skills and their reasons, the relevant results are given below.

Fifteen sub-categorizations in total were made in the category of theoretical framework of entrepreneurship education. These subcategories are: (1) There is a product output at the end of the entrepreneurship training process. (2) It helps in terms of entrepreneurship education and personal development. (3) Entrepreneurship education is the main source of information for entrepreneurship. (4) Provides entrepreneurship training and guidance. (5) Entrepreneurship education provides information about obtaining financing. (6) The importance of entrepreneurship education. (7) Entrepreneurship education provides benefits. (8) Entrepreneurship education is important. (9) Entrepreneurship education provides innovative thinking and learning environment. (10) Entrepreneurship education provides information about the investment process. (11) Provides entrepreneurship education and alternative opportunities. (12) Entrepreneurship training helps to form a business idea. (13) Entrepreneurship education provides information about the historical continuity of entrepreneurship. (14) Entrepreneurship education systematically presents information about entrepreneurship. (15) Entrepreneurship education is multidimensional and interdisciplinary. Tarhan (2019) examined the processes of entrepreneurship skills in five dimensions: business idea, financing, product design and production, promotion-marketing and investment. In the data obtained, results regarding the dimensions of "business idea, financing, product design-production and investment" were obtained.

A total of ten sub-categorizations were made in the main category for the values of entrepreneurship education. These subcategories are: (1) To strive to achieve the goal. (2) To be patient and determined. (3) To give importance to personal development. (4) To be useful. (5) To have a vision. (6) To be competitive. (7) To be stable. (8) To have courage. (9) Being a leader. (10) To value experience. These headings overlap with the findings of researchers who have made studies on entrepreneurship in the literature. Hisrich and Peters (1973) explained the characteristics that successful entrepreneurs should have in the process of entrepreneurship education as "desire to work at a high level, courage, passion and determination, having a personal vision and mission, determination and excitement to finish work, foresight and the habit of seizing opportunities". Besides, Ethemand (2004) explained the values that entrepreneurial individuals should have as "adaptability and flexibility, self-respect, confidence, a creative vision and management".

A total of ten sub-categorizations were made in the main category of entrepreneurship training skills. These subcategories are: (1) Ability to think creatively and innovatively. (2) The ability to take risks. (3) The ability to see and evaluate the opportunity. (4) Ability to think differently. (5) Good speaking skills. (6) Awareness skill. (7) Orientation skills. (8) The ability to dream. (9) Ability to act together. (10) The ability to predict / The ability to see the future. Social scientists conducting research on entrepreneurship have explained the characteristics of entrepreneurs (McClelland, 1965; Chell et al., 1991); individual characteristics of an entrepreneur, taking risks, being talented in certain areas, having an active personality, being creative, being proactive, etc. These explanations directly overlap with the findings of the research. Also, Ferrante (2005) and Koh (1996) stated that factors such as the need to succeed, control, risk taking, being innovative and creative are effective in the development of entrepreneurship skills in individuals. Hisrich and Peters (1973) stated that there is an important relationship between entrepreneurship and personal characteristics. At the same time, they emphasized the importance of entrepreneurship education in the formation of entrepreneurial personality and explained the characteristics of successful entrepreneurs as "Creative thinking skills, desire to

work at a high level, courage, passion and determination, ability to express oneself verbally and in writing, aptitude for team and teamwork".

Berglund and Skoglund (2016) stated that, after the entrepreneurship training process, it is aimed to create individuals who can produce solutions to various social problems, develop alternative methods against existing insecurities (individual or social) and uncertainties, and implement solutions.

In this study conducted on pre-service teachers involved in entrepreneurship education, metaphors were used as a tool and it was seen that the targeted knowledge, skills and values were realized. To increase the effectiveness of the active learning environment in the entrepreneurship education process, the number of researches in the field should increase. More studies need to be done on knowledge, skills and value, especially in the process of entrepreneurship education.

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Competence of Neurotypical Siblings of Children with Autism Spectrum Disorder

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ABSTRACT

In present study, the school, social and activities competencies of neurotypical siblings of children with autism spectrum disorder (ASD-NTDsibs) were examined. A total of 146 children, including 66 ASD-NTDsibs and 80 children both themselves and their siblings are neurotypical (NTC-NTDsibs), participated in the study, which was designed in the correlational survey model. The data were collected via mothers using part 1 of CBCL / 6-18, which measures competence. In the analysis of the data, competence levels of ASD-NTDsibs were evaluated as normal/ borderline/clinical according to the norms of the scale using the raw scores obtained from the scale and the T scores obtained by using the profiles, and the competence levels were examined according to demographic variables and compared with the competence levels of NTC-NTDsibs. According to the research results, significant differences favour the comparison group regarding school, social and activities sub-fields and total competence levels between the study and comparison groups. ASD-NTDsibs demonstrated a normal level of competence in the school and social sub-fields, clinical level of competence in sub-field activities, and total competence. There was no significant difference between competence of ASD-NTDsibs and demographic variables, except that the sisters showed a high school performance level. Research findings were discussed within the framework of parents' ability to provide limited resources to their neurotypical children, broader autism phenotype (BAP) characteristics and demographic variables. As a result of the research, it can be said that ASD-NTDsibs have low competence and should be supported in school, social and activities fields.

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Keywords:

Activities; autism spectrum disorder; competence; school performance; neurotypical sibling; social relations

1. Introduction

According to the family systems theory, all family sub-systems are in interaction and each member of family are affected by this interaction differently (Bronfenbrenner 1977). Based on this theory, the effects of a child with Autism Spectrum Disorder (ASD) which is characterized by social impairment, limitations in verbal and non-verbal communication, repetitive behaviours, and limited areas of interest (American Psychological Association [APA], 2013) on the family go beyond personal effects, affect the family as a whole and change the functions of family systems. Siblings are one of the subsystems that ASD affects directly and indirectly (Diener et al., 2015; Morgan, 1988; Shivers et al., 2019).

Studies on neurotypical siblings of children with ASD (ASD-NTDsibs) are primarily focused on identifying the problems and adaptation difficulties in social, behavioural, and emotional characteristics (Ben-Itzhak et al., 2019; Petalas et al., 2012; Rodrigue et al., 1993; Ross, & Cuskelly, 2006). However, the results of the studies show differences. Some studies indicate that being a sibling of a child with ASD does not cause any disadvantages (Dempsey et al., 2012; Kaminsky & Dewey, 2002; Tomeny et al., 2012; Verte et al., 2003).

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However, many studies stated that ASD harms siblings' emotional, social, and behavioural adaptation (Meyer et al., 2011; Rodrigue et al., 1993; Şengül-Erdem, & Fazlıoğlu, 2020a; Şengül-Erdem, & Fazlıoğlu, 2020b).

While studies on ASD-NTDsibs focus more on problem areas in the literature, how ASD affects siblings' competence in academic and social skills and academic experiences are not known well enough due to limited research (Gregory et al., 2020; Herman, 2013; Surfas, 2005). Competence is defined by Acherbach (1991) as obeying the rules and fulfilling the responsibilities at home, social environment, and school, and it is evaluated in three sub-fields as school, social and activities. Social competence is defined as a broad concept with dimensions such as using social skills effectively, social acceptance, establishing positive relationships with others, not showing maladaptive behaviours and age-appropriate social perception (Haager, & Vaughn, 1995; Vaughn, & Hogan, 1994), while the activity sub-field is defined as the level and quality of participation in daily routines, sport and non-sport activities. School competence is defined as school performance and problems related to school (Achenbach, 1979).

Some studies show that ASD-NTDsibs do not experience any difficulties with school adaptation, school performance, and school-related responsibilities (Macks, & Reeve 2007; Pilowsky et al., 2004; Stampoltzis et al., 2014), while several studies indicate that the siblings show academic difficulties (Barak-Levy et al., 2010; Gregory et al., 2020; Herman, 2013). Herman (2013) stated that in comparison to their peers, ASD-NTDsibs participated less in school-related activities. According to Herman (2013), many factors such as increased responsibilities at home, assuming different roles at home, difficulty accessing parents, psychological difficulties, and genetic predisposition may cause academic difficulties, and ASD-NTDsibs are less supported by their parents in school-related activities and homework than their peers. ASD-NTDsibs participate less in extracurricular school activities than their peers (Barak-Levy et al., 2010; Herman, 2013). One of the reasons for this is that siblings do not have time for out-of-school activities due to their high responsibilities at home (Benderix, & Sivberg, 2007), and the other one is that parents do not have enough opportunities to support the out-of-school activities of their neurotypical children (Herman, 2013).

While neurotypical siblings can positively affect their siblings' social skills with ASD (Tsao et al., 2011), it is still unknown how ASD exactly affects siblings' social characteristics (Shivers et al., 2019). When compared to neurotypical siblings of neurotypical children (NTC-NTDsibs) in terms of social competence, some studies reveal that ASD-NTDsibs do not have any problems and even see their peers as a source of social support (Angell et al., 2012; Kaminsky, & Dewey, 2002; Rodrigue et al., 1993). Conversely, substantial studies reveal that ASD-NTDsibs have difficulties in peer relationships and friendship relations (Giallo et al., 2011; Hastings 2003; Ross, & Cuskelly 2006; Stampoltzis et al., 2014). Dyson (1999) revealed in his longitudinal study that there was a decrease in siblings' social competence in time but stated that this might also be related to adolescence. In another study, it was stated that siblings experienced limitations in spending leisure time with their parents, felt social isolation and needed social support (Angell et al. 2012).

When examining the effect of ASD on siblings, it is essential to take into account demographic variables such as gender, age, and the total number of siblings (McHale et al., 1984; Morgan, 1988), because when demographic risk factors are determined and brought under control, having a sibling with ASD enriches the emotional development of other siblings (Macks, & Reeve, 2007). Although some studies indicate no significant relationship between siblings' competence levels and demographic factors (Mates, 1990), it is emphasized that recognizing the effects of demographic factors is important to eliminate negative effects (Gregory et al., 2020). A research findings revealed that older siblings take more responsibility, have less parental attention, and have lower academic performance regarding the birth order, which is one of the demographic factors (Macks, & Reeve, 2007; Rodrigue et al., 1993). Verte et al. (2003) study on gender revealed that sisters of children with high-functioning ASD have more social competence.

Determining the level of competence of ASD-NTDsibs in social and academic fields is essential to emphasize the need to support siblings in these areas (Surfas, 2005). It can be said that studies on this subject are limited in the literature, minimal studies in Turkey are mostly related to the problem areas of siblings, and there is no study examining the academic and social competencies of siblings. The study objective is to examine the competence levels of ASD-NTDsibs. In line with this main purpose, the study has 3 objectives: (1) to evaluate competencies of ASD-NTDsibs as normal/borderline/clinical level, (2) to compare all sub-competence areas and total competence levels of the study group ASD-NTDsibs and the comparison group NTC-NTDsibs, and

to determine how ASD makes a difference in the competence levels of siblings, (3) to reveal how competence levels of ASD-NTDsibs vary according to the variables of birth order, gender, and a number of children in the family.

2. Method

This study was conducted as a correlational survey model that evaluates the social, school and activities competencies of school-age neurotypical children who have siblings with ASD by using a comparison group. Karasar (2012) defined survey models as a type of research method that aims to describe an existing situation as it is, without any experimentation or application. Instead of looking for a cause-effect relationship among the data obtained, the survey model aims to interpret the existing situation.

2.1. Participants

In this study, participants include a study group, and a comparison group, and 146 children. The study group (ASD-NTDsibs) consisted of 66 neurotypical children aged 8-16 with a sibling diagnosed with ASD, while the comparison group (NTC-NTDsibs) consisted of 80 children who were neurotypical both themselves and their siblings and were at the same age range as the study group. Descriptive statistics for demographic information are presented in Table 1.

Table 1. Demographics for Participants

		Study Group	Comparison Group
Age	Mean (SD)	11.6 (2.63)	10.7 (2.33)
Gender	Boy	33 (50%)	39 (49%)
	Girl	33 (50%)	41 (51%)
Birth Order	Younger than RS*	20 (30.5%)	34 (42.5%)
	Older than RS	43 (65%)	46 (47.5%)
	Same age with RS	3 (4.5%)	-
Mothers' Age	Mean (SD),	37.5(5.5)	38(5.2)
	Ranj	26-48	28-50
RS gender	Boy	51(77%)	35(44%)
	Girl	15(23%)	45(56%)

*RS (reference sibling): a sibling with ASD for study group; another neurotypical sibling for the comparison group

In this study, in which competence levels of ASD-NTDsibs were examined using a comparison group, a convenience sampling from nonprobability sampling strategies was used while determining the study group. The participants' suitability to the study is vital for convenience sampling (Creswell, 2012). The study group, which agreed to participate in the study voluntarily, was reached through the centres where children with ASD were educated, associations and special education schools, and the comparison group was reached through public education schools at different levels.

2.2. Data Collection and Analysis

Child Behavior Checklist 6-18 (CBCL / 6-18): The first part of the scale consisting of 20 items was used in the study. Part 1 consists of 3 subscales as 'Activities', 'Social' and 'School', and measures the child's competence in these areas (Achenbach, & Ruffle, 2000). "Activities Subscale" evaluates sports and non-sports interests and work done at home or outside the home; 'Social Subscale' evaluates clubs, organizations membership and friends and sibling relations; The "School Subscale" evaluates the school performance, school problems and the level of participation in school activities. Total competence score is obtained from a total of 3 subscales (Erol, & Şimşek, 2010). The scale's adaptation to our country was carried out by Melda Akçakın and Neşe Erol with a study conducted with 5241 children (963 = clinical; 4278 = normal). In the factor analysis conducted for the scale's construct validity, it was determined that 99% of the items measured the intended symptoms at a significant ($p < .01$), positive and satisfactory level. The correlation coefficient was .80 in the convergent validity performed with the Strengths and Difficulties Questionnaire (SDQ) for the scale's convergent validity. In the reliability study of the scale, test-retest reliability coefficients and internal consistency coefficients were calculated. The test-retest coefficient was .78 in total competence (Erol, & Şimşek, 2010).

Demographic Form: The researcher developed the form to get information about the children participating in the study, their siblings and their mothers who filled the data collection tool. Some sections differ for the study and comparison group. In the demographic form developed for the study group, demographic data about the neurotypical child, the sibling with ASD and the mother was obtained. In contrast, in the form prepared for the comparison group, data about the neurotypical child, the other neurotypical sibling and the mother was obtained.

Raw scores obtained from the scale and converted T scores were used in the analysis of the data. The scale has separate profiles for boys and girls; by converting raw scores into T scores based on these profiles, the siblings' sub-fields and total competence levels were determined as normal, borderline, and clinical. Calculations were based on the following figures: clinical level $T < 37$; borderline $T = 37-40$; normal level $T > 40$.

Raw scores were used to compare the competence sub-fields and total competence scores of the study and comparison group and reveal how the study group's competence levels differ according to demographic variables. Shapiro-Wilk test was applied to determine whether the raw scores obtained from the scale have a normal distribution. According to the results of the analysis obtained, it was determined that the "Activities", "Social", "School" sub-dimensions and "Total Competence" scores of the scale show the normal distribution and are presented in Table 1. For this reason, parametric statistical techniques were used.

Table 2. Normal Distribution Characteristics of Sub-Fields and Total Competence Scores

	Activities	Social	School	Total Competence
Shapiro – Wilk	0.971	0.978	0.961	0.985
p	0.118	0.299	0.039	0.589

2.3. Ethics Committee Approval

This research was approved by the Social Sciences Scientific Research Ethics Committee of İstanbul Medipol University (approval number 67).

3. Results

In this part, the findings of the research are given in the order of the research objectives. Since the first aim was to evaluate the competence level of ASD-NTDsibs as normal/borderline and clinical according to the T scores obtained from the scale profiles, the "Activities", "Social", "School" and "Total Competence" T scores of 66 siblings were calculated, and the results are presented as frequency (n) and percentage (%) in Table 3.

Table 3. The Competence Levels of the Siblings in the Study Group

Sub-Dimension	Study group											
	Normal				Borderline				Clinical			
	girl		boy		girl		boy		girl		boy	
	n	%	n	%	n	%	n	%	n	%	n	%
Activities	10	15.2	8	12.1	9	13.6	5	7.6	14	21.2	20	30.3
Social	22	33.3	26	39.4	8	12.1	5	7.6	4	6.1	1	1.5
School	32	48.5	32	48.5	1	1.5	1	1.5	-	-	-	-
Total Competence	5	7.6	4	6.1	3	4.5	6	9.1	25	37.9	23	34.8

According to the findings in Table 3, it has been revealed that the areas with the lowest level of competence were activities and total competence. In the activities sub-field, 21.2% of sisters and 30.3% of brothers had clinical level competence. In total competence, 37.9% of sisters and 34.8% of brothers were at the clinical level. While 33.3% of sisters and 39.4% of brothers were normal in the social sub-field, nearly half (48.5%) of sisters and brothers in the school sub-field were normal. It was seen that there were no siblings at the clinical level in

the school sub-field. In the activities and social sub-fields, it was found that sisters showed more intense borderline level competence than brothers.

In line with the study's first aim, the mean of the T scores of ASD-NTDsibs in sub-domains and total competence were calculated and the level corresponding to these means in the profiles was determined as normal/border/clinical. According to the results, the mean T scores of the siblings in the activities sub-field and total competence were 32.3 and 32.6, respectively, and both were at the clinical level of competence ($T < 37$). In the social and school sub-fields, the means were 40.7 and 46, respectively, and siblings had normal levels of competence in both fields ($T > 40$).

The study's secondary objective is to compare all competence sub-fields and total competence levels of the study and comparison groups to determine the difference made by having a sibling with ASD on siblings' competencies. For this purpose, the significance of the differences between the study's competence scores and comparison groups was determined by using the t-test and the findings presented in Table 4.

Table 4. Activities, Social, School and Total Competence Levels of Study and Comparison Group

Competence	Sibling with ASD	N	M	SS	t	p
Activities	Present	66	5,77	2,72	- 6,73	0.00*
	Absent	80	8,88	2,83		
Social	Present	66	8,89	2,33	- 4,37	0.00*
	Absent	80	10,85	2,95		
School	Present	66	10,03	2,91	- 2,09	0.03*
	Absent	80	10,98	2,60		
Total	Present	66	24,69	5,90	- 6,27	0.00*
	Absent	80	30,72	5,67		

* $p < 0.05$

According to the findings in Table 4, "Activities", "Social", "School" sub-fields and "Total Competence" scores of NTC-NTDsibs " were significantly different from those of ASD-NTDsibs ($p < 0.05$) and this difference appeared to be in favour of NTC-NTDsibs. According to this finding, children who had siblings with ASD in the study group, showed less competence in the areas of home and out-of-home activities, sports activities they participate in, membership of organizations and clubs, establishing friendship and sibling relationships, school performance, and participating in school activities than the comparison group. The difference was most evident in the activity sub-field.

The study's third aim is to examine whether ASD-NTDsibs competence levels differ significantly according to some demographic variables. The first demographic variable was the gender of both ASD and neurotypical siblings. Two independent samples t-test was used to determine the effect of the gender of siblings with ASD on the competencies of neurotypical siblings. According to the results of the analysis, it was revealed that the gender of siblings with ASD did not make a significant difference in "Activities" ($t = - 0.897$; $p > 0.05$), "Social" ($t = - 0.575$; $p > 0.05$), "School" ($t = - 0.490$; $p > 0.05$) and "Total Competence" ($t = - 0.433$; $p > 0.05$) levels of ASD-NTDsibs. In other words, regardless of the gender of the sibling with ASD, the neurotypical siblings had similar characteristics in the "Activities", "Social", "School" sub-fields.

Two independent samples t-test was used to determine the effect of ASD-NTDsibs gender on competence levels, and the findings are presented in Table 5.

Table 5. Analysis Results of Activities, Social, School Performance and Total Competence Levels According to ASD-NTDsibs Gender Variable

Competence	Gender	n	M	SS	t	P
Activities	Boy	33	5,30	2,84	- 1,359	0.179
	Girl	33	6,21	2,58		
Social	Boy	33	8,96	2,37	0,262	0.794
	Girl	33	8,81	2,32		
School	Boy	33	6,72	2,75	- 2,054	0.044*
	Girl	33	8,21	3,11		
Total	Boy	33	21,00	5,86	- 1,550	0.126
	Girl	33	23,24	5,88		

* $p < 0.05$

According to the data in the table, the gender of the neurotypical siblings did not cause a significant difference in the levels of "Activities", "Social", and "Total Competence". On the other hand, it is revealed that gender causes a significant difference in the "School" sub-field ($t = - 2.054$; $p < 0.05$). When we looked at the mean values to determine which group this difference was in favour, it was determined that the "School" mean ($X_G = 8.21$) of the sisters was higher than the mean of the brothers ($X_B = 6.72$). As a result, neurotypical sisters were more successful at school than brothers and had fewer school-related problems while participating more in school activities.

Two independent samples t-test was used to determine whether the status of neurotypical siblings being older or younger than siblings with ASD, which was the second variable considered concerning the third aim of the study, showed a significant difference in their competence levels. According to the results of the analysis, it was determined that being older or younger than the sibling with ASD does not make a significant difference in the "Activities" ($t = - 0.428$; $p > 0.05$), "Social", ($t = - 0.251$; $p > 0.05$), "School" ($t = - 1.227$; $p > 0.05$) and "Total Competence" ($t = - 0.876$; $p > 0.05$) levels of neurotypical siblings. In other words, neurotypical siblings showed similar social and academic competence regardless of being older or younger than the sibling with ASD.

Another demographic variable whose effectiveness was tested on competencies of ASD-NTDsibs was the number of children, and a one-way analysis of variance was used for this. According to the analysis results obtained, there was no significant difference between the levels of "Activities" ($F = 2,444$; $p > 0.05$), "Social" ($F = 0,995$; $p > 0.05$), "School" ($F = 0,745$; $p > 0.05$) and "Total Competence" ($F = 1,270$; $p > 0.05$) according to the total number of children in the families of ASD-NTDsibs. In other words, ASD-NTDsibs had similar competence regardless of the number of children.

4. Discussion and Conclusion

In present study, the social, school and activities competencies of neurotypical 8-16 years old school-age children who have a sibling with ASD and how their competence levels differ according to demographic variables were examined. The study found that ASD-NTDsibs had clinical competence in the sub-field of activities and total competence, showed normal competence in school and social sub-areas and did not differ according to demographic variables except sisters' school performance. In the study, the competence levels of ASD-NTDsibs and NTC-NTDsibs were compared, and it was found that ASD-NTDsibs had significantly lower competence.

In the study, the first aim of which was to evaluate the ASD-NTDsibs competence levels as normal/borderline /clinical, the finding that the siblings were at a clinical level in the areas of total competence and activities is supported by the previous study findings (Barak-Levy et al., 2010). A study conducted by Barak-Levy et al. (2010) with 27 children with sibling with ASD concluded that more than half of the siblings (55.6%) were at the clinical level in the field of activity and approximately 30% of them were at the borderline. In the same study, most of the siblings (77.8%) were normal in the social subtest. The study of Lefkowitz et al. (2007) determined that the siblings' social competencies are at the clinical level. In the current research, while the

siblings' school competence level was normal, Barak-Levy et al. (2010) stated that more than half of the siblings (51.8%) were at the clinical/ borderline level.

In line with the second aim of the study, competence levels of ASD-NTDsibs and NTC-NTDsibs were compared, and it was seen that ASD-NTDsibs showed statistically significantly lower competence. It can be mentioned that the studies on the subject in the literature are limited, and the results are inconsistent. While some studies support this finding (Barak-Levy et al., 2010; Lefkowitz et al., 2007; Kaminsky, & Dewey, 2002), some studies do not reveal meaningful difference (Herman, 2013) or ASD-NTDsibs have higher competence (Mack, & Reeve, 2007). Barak-Levy et al. (2010) stated that the siblings of children with ASD had less participation in extracurricular social activities at school and experience more academic difficulties than the siblings of children without ASD. A study comparing the sense of belonging to the school and academic self-efficacy level of ASD-NTDsibs and NTC-NTDsibs found that ASD-NTDsibs felt lower school belonging and had lower academic self-efficacy (Gregory et al., 2020). It is known that siblings of children with different development experience more peer relationships problems and behave more aggressively and anxiously towards their peers (Cuzzocrea et al., 2014). Conversely, in studies in which the findings of the study were not supported, it was stated that annual grade point averages of ASD-NTDsibs, which are the most important indicator of academic performance, were similar to those of children who did not have siblings with ASD (Herman, 2013). The two groups did not differ in academic performance (Quintero, & McIntyre, 2010).

The fact that the competence level of ASD-NTDsibs revealed in the study is significantly lower than the comparison group can be discussed from some perspectives. One of them may be that if there is a child with ASD in the family, parents may spend most of their time for their child with ASD, and they may not make enough time for their neurotypical children while carrying out the daily program they have created for their child with ASD. In this case, siblings cannot receive enough parental resources from in their school life or social life, and their competence in these areas remains low. Studies show that ASD-NTDsibs get less support from their families and their parents spend less time with these children (Herman, 2013; Huinker, 2012; McHale, & Harris, 1992; Quintero, & McIntyre, 2010). Another issue where parents experience restriction along with parental attention is financial resources. Providing services to children with ASD in education, intervention, and health care put families into trouble financially. Besides, parents can provide limited access to opportunities to improve other children's social competencies, such as participation in social activities and club membership. Studies have shown that parents use their attention, financial and energy resources for their children with ASD, which negatively affects other individuals in the family, including siblings (Macks, & Reeve, 2007; Orsmond, & Seltzer, 2007; Quintero, & McIntyre, 2010). In a study investigating neurotypical siblings' experiences, they stated having a sibling with ASD was challenging. They stated that their siblings with ASD never did homework at home, so they did not do it either because they did not have such an obligation, and their success had decreased (Huinker, 2012). The same study stated that the negative effects of siblings with ASD mainly were on academic performance and parental participation (Huinkin, 2012). Considering that there is a significant positive correlation between family participation and children's academic performance (Fan, & Chen, 2001), this finding of the study is meaningful. The disruption of family routines with the participation of an individual diagnosed with ASD also causes difficulties in siblings' social development areas (Rogers, & Hogan, 2003). Therefore, spending time with family regularly and establishing routines are essential for neurotypical siblings to develop themselves in the social field (Giallo, & Gavidia-Payne, 2006).

Another factor that may cause academic, social and school competencies of ASD-NTDsibs to be significantly lower than the comparison group is that neurotypical siblings have more and different responsibilities at home, leading to a decrease in academic achievement and low participation in extracurricular activities at school. Studies have shown that these different responsibilities and roles of siblings cause limitations in their lives (Angell et al., 2012; Barak-Levy et al., 2010; Mascha, & Boucher, 2006; Petalas et al., 2009). Bendrix and Sivberg (2007) state that siblings with ASD assume overprotective and parental roles for their siblings with ASD, they have to look at life from a larger perspective, and their academic performance will be low since it has lost its importance for them.

Broader Autism Phenotype (BAP) is less severe and is referred to as sub-clinical social functions, language, cognitive, and personal characteristics that similar to the core features of ASD (Landry, & Chouinard, 2016; Losh et al., 2008). It has been stated that BAP characteristics are more common in families and relatives of

individuals with ASD (Piven et al., 1997). It has been revealed that the problems experienced by the siblings of children with ASD in the field of social competence are very evident (Constantino et al., 2006). It is estimated that about 25% of their siblings may have phenotypic features (Meyer et al., 2011; Yirmiya et al., 2006). Based on the discription of BAP and the fact that BAP may be more intense in ASD-NTDsibs, it can be said that siblings do not want to participate in social activities. Instead, they want to participate less in extracurricular activities, they experience limitations in establishing and maintaining peer relationships, and as a result, their social competence levels are low.

As to how competence varies according to demographic variables - which is the third study objective, it was revealed that the competence levels of siblings did not show significant differences, except for the gender of the neurotypical sibling, according to gender, being older / younger than the sibling with ASD and the total number of children in the family (Giallo et al., 2011; Mates, 1990). Mates (1990) stated that the school performance of ASD-NTDsibs does not differ according to gender and sibship size. In another study, it was stated that ASD-NTDsibs had more friend and peer problems than the comparison group, but this was not related to demographic factors (Giallo et al., 2011). A study was carried out to determine whether being older or younger than a sibling with ASD can make any difference in parental attention and resource allocation for the neurotypical children and siblings born before a child with ASD. It was also to determine whether these children will have less behavioural difficulties and better academic performance than siblings born after a child with ASD. It was also carried out to test if siblings born after a child with ASD will have poor academic success due to limited access to the resources and parental attention. Consequently, the study has revealed that being older or younger than a sibling with ASD does not make a difference in academic performance (Orozco, 2014). Another situation assuming that older siblings may have higher academic performance than younger siblings is that academic performance of siblings born before a child with ASD will be higher because they have a "tutor" function in sibling relationship and this function will strengthen the cognitive and psychosocial sides of older siblings (Herman, 2013). However, the findings of the present research were not similar to this assumption. Even if it is thought that sisters may assume more maternal roles in sibling relationships and they will show low school performance due to the heavy responsibility they feel (Mates, 1990), it is stated that there is no significant relationship between the difficulties experienced by the siblings and socio-demographic characteristics (Giallo et al., 2011).

The study's findings have shown once again that the effect of ASD on siblings can be in a vast range, as stated above. The studies carried out with a perspective that many individual and contextual factors about siblings can interact to understand siblings' experiences with another sibling with ASD better, and their needs can be presented as a suggestion for further research. As a result of the research, the low level of competence of ASD-NTDsibs in social life, school performance, and other activities emphasises the need to support siblings in these fields. Providing this support with psychosocial support services that will be offered to the whole family from the moment an individual with ASD joins the family will adapt to changing life routines easier for all family members. When considered in line with the study's aim, siblings need more out-of-home activities participation, more social resources and more support for academic performance. For this, parents can share jobs between themselves or make time for their neurotypical children by getting support from their close relatives. Taking responsibilities at home by siblings appropriate to their age and development, creating spaces where they can spend time with their peers, can effectively support their social development. Finally, it would be appropriate to state that this study, which is carried out to determine the social and academic competence of ASD-NTDsibs, will underline the need to support siblings.

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Impacts of Project Preparation Course for Students Studying at Postgraduate Education in the Field of Educational Sciences: A National Project Example*

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ABSTRACT

This research was carried out within the scope of a Scientific Educational Activities Support Project supported by TUBITAK 2237-A. The purpose of this study is to evaluate this project in the context of participants' opinions for six days of training and examination of changes in research competencies and research intended anxieties. Twenty-four students from different graduate programs participated in the research. A questionnaire was used as a tool to collect during the interview. This study was designed by a weak experimental design. The impact of the practice in this design is tested by studies performed on a single group. Three different data collection tools were used in the research. One of these tools is the interview form, and others are graded scales. Two types of data were obtained in terms of data analysis in this study. One of these is qualitative data obtained from interview forms. The other is quantitative data obtained from graded scales. As a result of the training, almost all participants stated that they would write project and they would not be undaunted before the challenges by confronting this work. Even if learning the phases of project writing was among the project's important objective, the ultimate objective is that each participant will prepare a project by creating his/her own team. For this reason, an increase in the project writing wishes of participants is an essential indicator of attaining the aim at the end of the course.

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Keywords:

Project writing, project evaluating, project

1. Introduction

Project is a word etymologically based on a French word of "projet" and bears the meaning of "projection, designing". This word means "a scientific study draft that has been taken into plan and program previously in different fields, of which the cost is calculated and approved by institutional and organizational management bodies to be performed on behalf of a private institution or state either in the short or long term" in Turkish (Turkish Language Association, 2020). As will be understood from this definition, projects are scientific studies designed over a projected idea, planned over a set of processes. In the literature examination performed about the project, different definitions are found in different sources. Önen, Mertoğlu, Saka and Gürdal (2010) defined the project as generating solution for any problem and presenting a product in this process by working individually or with a group. Dede and Yaman (2003) express the project studies as performing studies to

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remove the problem and obstacles and generate new knowledge in this process. According to Kubinova, Novotna, and Littler (1998), a project is defined as studies performed individually or in a group for bringing a concept or skill. Creswell (2008) defines the research projects as steps used to collect and analyse information to comprehend any problem or subject. Once these definitions are taken into consideration, a project may be defined as actions performed for generating product/products by solving any problem according to any previously designed plan at a particular time interval and with a specific cost.

It can be said based on these definitions that projects are a process presenting a concrete product or enabling new knowledge to be generated as well as a solution-generation process for any problem. Consequently, a financial gain is provided with the products presented, and the generated knowledge contributes to the literature. A state of gain, whether concrete or abstract, is a matter under all circumstances. Projects may be carried out in social, scientific, technological fields. Projects have a vital role, particularly in countries' development plans. Once our country's development plans are examined, it is addressed in all studies to be performed as from the first development plan (1963-1967) that it should be acted according to the project basis. As a justification, the importance of developing an idea and habit of working based on the project is mentioned. Thus, a contribution can be provided to the country's development (First Development Plan, 1963). As a result of these, the Scientific and Technological Research Council of Turkey (TUBITAK) is one of the important scientific research organisations founded on 24.07.1963 to support and promote scientific and technological research development projects. This organization has three fundamental missions. These are "supporting the national science, technology and innovativeness ecosystem; developing technology and services whose added value is high with the science-based technology; enabling the development of a qualified knowledge generation and qualified human resource" (TUBITAK, 2019). TUBITAK is still an active leading organisation in our country's scientific and technological development with the Ministry of Industry and Technology. Universities (Scientific Research Projects-BAP), Ministries, KOSGEB, regional development agencies, non-governmental organisations, and TUBITAK give support to the projects. There are also international supports these national supports. Among these project supports, the organisation that gives the most common and effective source ad grant for all Turkey researchers is TUBITAK. Many organisations have an active role in supporting projects, a meaningful sign addressing the importance of projects for countries and societies. This information suggests that projects and supporting projects play an essential role in the country's development. Projects supported by TUBITAK, the institution that provides the most support to researchers and academicians on scientific projects, are classified under five major headings: 1) Academic, 2) Industrial, 3) Public, 4) Scientific activity, 5) Science and Society. There are national and international support programs under each heading within this scope. Of these programs, call signs frequently resorted to educational sciences, and their descriptions are given in Figure 1.

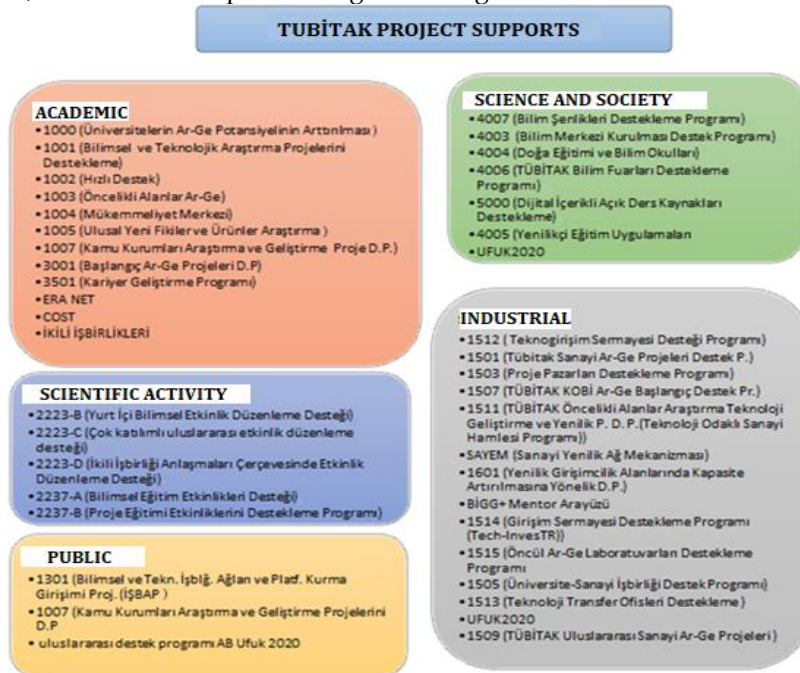


Figure 1. TUBİTAK Project Supports

This study was supported by the Scientific Training Activities Supporting Program of TUBITAK. Activities were performed within the scope of the scientific training activities project with 2237-A call sign. This project aims to support the scientific training activities to be organized domestically. Within this scope, a project was prepared for studies studying at postgraduate education within the scope of call in this course. This course activity aims to teach the method and techniques to the postgraduate students from different fields of education and educational sciences so that they will be able to prepare projects in their fields and interdisciplinary fields through a social environment with detailed and realistic participation of academic members from different universities. Within this scope, 24 participants from different universities are provided training to prepare any project with the expert academicians in six days. Participants were enabled to prepare their project ideas in the form of a project proposal and present them in the trainers' panel to reinforce the practical knowledge they theoretically learned. Thus, since trainers evaluated the project proposals in a panel scene, participants gained more information about the process. This study aims to determine the extent to which the participants utilised this training and present the learning outputs. When project-related studies in the literature are examined, teachers' views on the project preparation process (Donmuş & İzci, 2016; Kavacı, Kılıç, & Kavacı, 2015), the development of project writing skills of prospective teachers (Aydın, Bacanak and Çepni, 2013; Peten, Yaman, Sezen Vekli, and Çavuş. , 2019) and examining the problems, opinions and needs of students in the project preparation process (Avcı, Özenir, & Yücel, 2019; Özel & Akyol, 2016; Sözer, 2017) can be found. It is thought that providing applied project development education at the postgraduate level will contribute to the field. Because it is believed that it will contribute to the development of the participants' project writing competencies and thus, it is expected that increase of writing projects in the following periods, with this aspect, this study could contribute to the literature.

2. Method

This study is carried out by a weak experimental design. The impact of the practice in this design is tested by studies performed on a single group. There is no randomness and matching in group formation. Since it was carried out with a single group, the group was first given the pretests and then the training (Cohen, Manion, and Morrison, 2000:213). The group was given post-tests so that changes can be observed after the training.

2.1 Study Group

Project applications were received through an online form and lasted for 30 days. Later, announcements were made over social media and the project website. It was determined at the end of the process that the total applications were 198 people. As stated in the project proposal, it was paid attention to the fact that the participant group consisting of 24 individuals comes from different disciplines and different universities of major education and educational sciences (maximum 4 individuals from a university). It was determined that there are participants from 15 different majors in the project, and these participants are studying post-graduate education in 20 different universities. Also, it was stated in the project announcement that students who are studying in a master's degree programme with a thesis or doctorate programme of minimum 4 different majors of the education science or major education programs would be elected. Accordingly, 13 of the participants are in a master's degree programme with a thesis and 11 are in a doctorate programme. Thus, the condition entailing that the participants should know about a scientific study's basics, justifying their enrollment in a master's degree programme with a thesis or doctorate programme was considered. An environment was created to enable the postgraduate students to be aware of both studies in their majors and other majors and create an infrastructure for interdisciplinary studies. Participants were asked whether they participated in another project before this project or not. Once data related to project training in which participants are examined, it is seen that one of the participants conducted TUBİTAK 4007 project. When answers of other participants were examined, it is seen that participants took part in TUBİTAK projects as a guide. It was found that they took part in other project types as participants. It was determined that this is the first project for 5 participants. The condition regarding not participating in a comprehensive project writing training earlier was stipulated in a project participation stage. According to these answers, it was determined that participants met the condition of not participating in any project having similar content earlier stipulated in the project participation criteria.

2.2 Process Steps

Course covers a training process of 6 days. Trainers who are competent in their fields about all phases of project writing informed the participants in the course lasting for totally 6 days excluding preparations. In the first day, data for determining the project outputs were collected from the participants. Creative drama activities were performed with the participants within the scope of acquaintance activity. In this activity, it was aimed that participants be acquainted with other individuals and introduce themselves. During these practices, it was provided to create groups consisting of 4 individuals by similarities of participants' working fields. In the first data of the project, generating ideas workshop and the activity of problem analysis and solution were performed and participants were provided to focus on project ideas. Then, general information was given about national projects and scientific research projects (BAP) and project codes. On the second day, information was given about OKA, KOSGEP, DOKAP, project supports of Ministries, and projects carried out with other public/private organizations. Participants started to identify those that suit their ideas by getting informed about codes of projects to which joint support is given. The next day, they took the general information lesson about international projects (Erasmus, COST, Horizon2020) and project codes. In so doing, participants were enabled to get general information about projects both in national and international fields. Participants gathered with group mates at the end of the training process every day and performed studies to clarify project ideas. On the next day, they were informed about project samples and ethics, project forms, research, and database use. They acquired detailed information about processes they should pay attention to while writing their projects. On the fifth day, general information was given about project budgeting, TUBITAK projects 1001-1002-1003-3501. After this stage, participants gathered and focused on their projects. On the last day, general information related to project writing was repeated, and related trainers were provided to assess the projects built by participants and make suggestions. On the sixth day's afternoon, panel works were performed for project proposals. This panel was built to show similarity to the panel performed by TUBITAK, and a 6-point assessment system calculated projects of participants in secret scoring. Then, panellists made their assessments verbally about the project of each group. It is possible to access the activity program on the project website (see; <http://sabaproje.omu.edu.tr/tubitak-2237-a/>)

2.3 Data Collection Tools

Three different data collection tools were used in the research. One of these tools is interview form, and others are graded scales.

Interview Form: Participants were asked to fill in two different interview forms before the project start and after the project completion. Questions in the interview form were prepared by taking the opinion of 4 experts. This form was used to reveal the opinions of participants for the project. There are 10 questions in the interview form. These questions are about participants' competencies and those training they received added/will add to themselves regarding project writing. **Research Competence Scale (RCS):** This Likert type scale developed by Büyüköztürk (1997) consists 7 items. Scale is consisted of "zero", "less", "moderate", "quite" and "full" options and is scored between 1-5. Participants can take 7 (minimum) or 35 (maximum) scores from this scale whose Cronbach alpha reliability coefficient. Degree ranges are used instead of maximum and minimum scores for this study, and scores close to 1 mean that research competence is zero; scores being close to 5 mean that it is full. The reliability coefficient of the pretest and posttest data applied in this study was found respectively 0,83 and 0,87.

Research Intended Anxiety Scale (RIA): This scale developed by Büyüköztürk (1997) is a Likert type scale that is consisted of 12 items. Answers given to the items given in this tool were calculated by giving between 5-1 in statements reflecting the anxiety state directly from "I completely agree" to "I never agree". This process was reversely applied to the reverse statements, not directly reflecting the anxiety state. Participants can take 12 (min.), 60 scores (max.) from the scale. Thus, the high score taken from the scale shows high anxiety, the low score shows low anxiety. In this research, Likert degree ranges were used. Accordingly, it was accepted that as scores close to 1, the research anxiety is low, scores close to 5, the anxiety is high. The scale's internal consistency coefficient was calculated as 0,87, and this value was accepted as a sufficient level for reliability. The reliability coefficient of pre-test and post-test data of the limited participant number in this study is respectively 0,89 and 0,90.

2.4 Data Analysis

Two types of data were obtained in terms of data analysis in this study. One of these is qualitative data obtained from interview forms, and the other is quantitative data obtained from graded scales. The qualitative and quantitative data obtained in the application process were analysed as follows.

The interview form was analyzed by content analysis method by using descriptive statistical methods. The content analysis method targets the presentation of the problem in a systematic and unbiased manner. For this purpose, data were collected and analyzed together with two researchers. In this stage, every question was analysed by theme, category and codes. The matching percentages of these researchers were calculated by a formula developed by Miles and Huberman (1994). Discussions and examinations on data were continued till the matching percentage among the researchers was 100%. Frequencies of data and percentage rates calculated depending on these frequencies were presented in tables so frequencies would correspond to any research question's answer.

A statistical analysis program was used for the analysis of graded scales. After data were transferred to the program, normality values were controlled. Due to the small number of participants, skewness and kurtosis values of quantitative data were examined, and it was found that data obtained were in the range of -1 and +1. It can be said that the reason for such a limited number of data showing normal distribution may be resulted from that elected individuals gathered for a certain purpose and they have similar characteristics. Parametric statistical analyses were used for data obtained in conformity with distribution of data. However, since the number of participants is 24, the confidence interval was taken as 95%.

3. Findings

The content analysis results of the answers that participants gave for the interview questions proceed in presenting numeric data. The quantitative data were analysed by making a-t test by gender. Once the project's quantitative data were analysed, answers which participants gave to RCS and RIA scales were analysed. The following analyses were obtained by comparing both sub-factors and total scores with dependent t-test:

Table 1. Participants' Dependent T-Test Results on Research Competence Scale's Pre-Test and Post-Test Scores

Factor	Test	N	\bar{X}	S	sd	t	p
RCS	Pre-test	23	3,36	0,53	22	4,77	,000
	Post-test		4,01	0,51			

According to Table 1, it was found that there is difference between RCS pre-test and post-test scores of the participants at a meaningful level. It was determined that this difference is in favour of post-test ($t(22)= 4,44$; $p<,05$). Once the mean scores were examined, it was found that post-test score is 0,65 higher than pre-test score. It can be said that students' research-intended competence scores increased by about 20%, and their homogeneity levels partially increased.

Once the pre-test and post-test data of participant were examined;

K₂ expresses himself/herself by saying: "I do not find myself sufficient in terms of project preparation, doing research competence yet. I have no experience of preparing TUBITAK projects."

After the training, K₂ expresses himself/herself by saying: "It increased my writing competence. If I am to a score between 1 and 5 to myself, I will give 4 for my progress. This is because we had no adequate time and research ability for writing our project proposals. I think that training improved us as it made us realize our mistakes". As will be understood here, participants observed progress in themselves after the training.

Once the participants' ideas related to the project were asked after the project, the participants' answers were analysed in their acquisitions and suggestions.

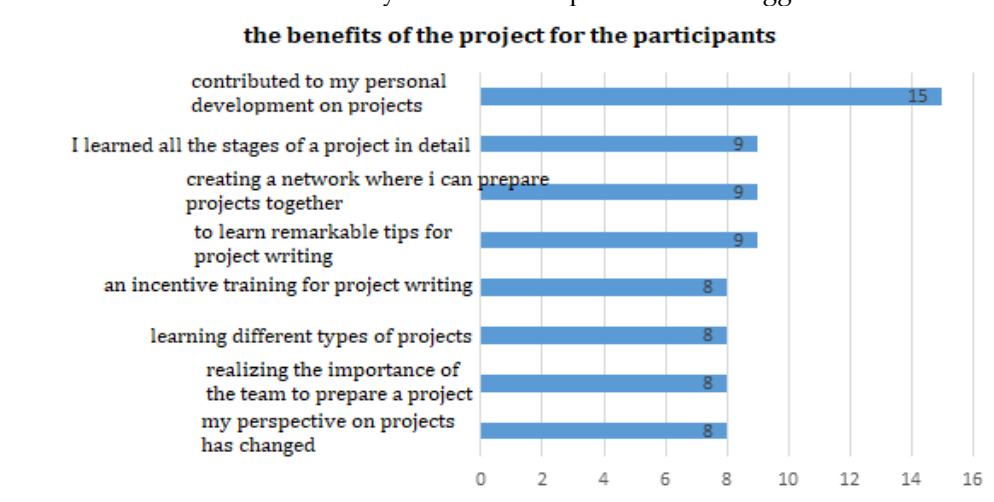


Figure 2. Project Participants' Acquisitions from Their Aspect

After the project, participants stated that the training given has an essential contribution to their personal development related to project writing. Also, it was seen that they stated that they saw all stages of any project in a detailed way, and they learned these stages well while writing a project. It was found that they stated that since project is good teamwork, they acquired a circle of friends with whom they will prepare a project thanks to this training. They said that there are essential key points in writing a project, and they learned these hints. They expressed that the training given is a project encouraging to write new projects, many friends have a desire of writing project after the training. They specified that there are many project codes that they do not know and learned the details of these codes. They generally noted that the project team is outstanding, the project team is vital for project writing, and they learned it with this team. It is understood from the statements that ideas of the participants are positive after the training and they got great yield. It is understood that they they have changes in their point of view for the project.

Table 2. Participants' Dependent T-Test Results on Research-Intended Anxiety Scale's Pre-Test and Post-Test Scores

Factor	Test	N	\bar{X}	S	sd	t	p
RIA	Pre-test	23	4,06	0,57	22	2,25	,035
	Post-test		4,27	0,57			

According to Table 2, it was found that participants' RIA post-test scores showed an increase compared with pre-test scores, and this increase created a meaningful difference. It was determined that the difference is in favour of post-test increasing 0,21 score compared with pre-test score ($t(22)= 2,25$; $p<,05$). This result shows that the participants' anxiety levels increased about 5% once the course was completed.

Once the situations in which students felt anxious were examined in terms of qualitative data;

While K₃ expresses himself/herself by saying: "...Organizing team, managing project and making budget planning are my biggest anxiety fields."

At the end of the training K₃ expresses himself/herself by saying: "The feeling of competencies is a proud feeling; however, since I am aware that it will be tiresome, this is anxious.". As will be understood here, it is seen that participants stated that their anxiety states also increased.

The analysis of the question related with their opinions about competence levels in project writing was performed. The participants were asked about their competence levels in project writing before and after the project. Answers of the participants were as follows.

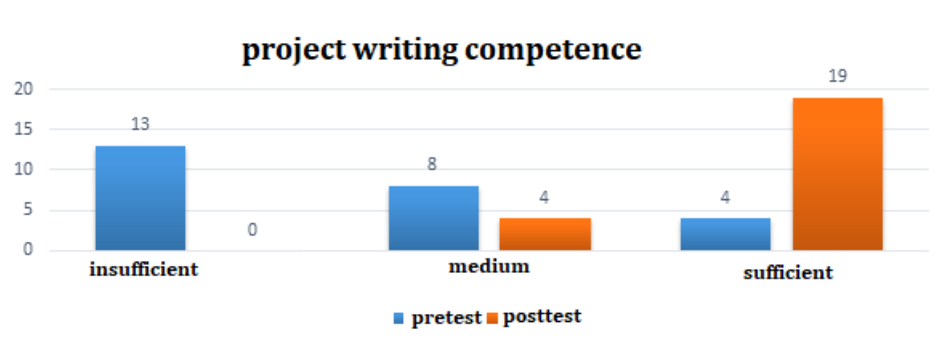


Figure 3. Project Writing Competence

Once the research competencies examined the project participants, it was seen that while they felt incompetent before the project training, they were more competent after the training in the quantitative analysis results in Table 3. When it was examined in terms of qualitative results, many participants who described themselves as incompetent in regard to project writing before participating into the training consider that they remedied their deficiencies and become more competent after the theoretical and practical trainings. This finding shows that training within the project's scope substantially achieved its goal in terms of the participants. There has been an increase in the number of persons who think to be competent in project writing. It is understood that the training given is beneficial from this point of view. Both results support each other. If this finding is intended to be supported with citations of the participants' answers;

K₁ expresses himself/herself in the pre-test by saying: "I do not feel myself so competent because I had no project writing experience. For this reason, I am not in a level which I desire to present an effective product in the context of a project."

After the training, his/her opinion changed, K₁: "I was not feeling myself competent on the first day. I had some ideas only about the project headings. Now, I believe that I will prepare a project although not exceptionally good."

Table 3. Relation Results between RCS And RIA Post-Test Scores of Participants

Test	Factor		Research Intended Anxiety
Pre-test	Research Competence	r	-0,05
		p	,833
		N	23
Post-test	Research Competence	r	0,11
		p	,629
		N	23

Once Table 3 was examined, it was found out that the relationship level between RCS and RIA scores of the participants before and after the course was low. According to this analysis, it can be said that there is no meaningful relation between levels where participants find themselves competent in the research and levels where they find themselves anxious while doing research.

Once the views of the participants about the research process and anxiety states were examined;

K₄: "Although I have been actively taking part in the project writing process, I read the projects written, and I like researching in my field. I can say that I find myself competent at low level in writing of project proposal."

K₅: "I feel competent. I have learned key points to be taken into consideration in project writing."

K₆: "My point of view to the project writing has quite changed after I participated into Project Writing Training. It enabled me to see my weaknesss both theoretically, and practically and I acquired new information. For this reason, I feel competent."

K₇: "I feel quite competent, because they showed us the key points of project preparation, and we tried and applied practically."

K₈: "...I got the chance of seeing that I have several subjects in which I am incompetent."

K₉: "I was not feeling myself too competent on the first day. I had some ideas only about the project headings. Now, I believe that I will prepare a project although not very good."

Once the views of the participants were examined, it is seen that there are differences between the levels in which they see themselves competent in the research and feeling anxious while doing research, as in the quantitative data. It is seen that their ideas have changed after the training.

To determine participants' opinions, they were asked what the project proposal headings are before and after the project. The answers of the participants are as follows.

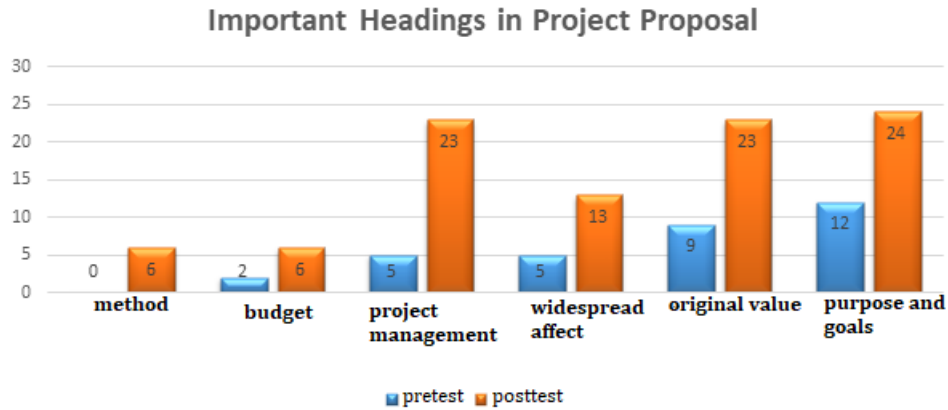


Figure 4. Important Headings in Project Proposal

Once the participants' answers are examined, it is seen that they did not mention the method section before the project writing training; they said that the method section was important after the training. It was understood that they were not aware of the budget's importance; however, afterwards, they stated that the budget was also important. While it was found that they only addressed the concept of risk management of the states under the project management heading, it is seen that they included every concept under the project management sub-heading after the project training. It is seen that after the project training, in which 5 individuals mentioned the importance of the typical impact before the project, 13 individuals mentioned the importance of this heading after the project training. It is seen that 9 individuals expressed the unique value and research problem in the unique value section that is an indispensable part of the projects; however, they generally concluded that all unique value and sub-headings are important after the project. While it is seen that they only expressed as a goal before the project in writing the aim and target, they stated that the aim and target section is a heading and give the project's essence after the training.

4. Discussion, Conclusion and Suggestions

The aim of this course activity where the findings of this research were collected is to provide a detailed and realistic training environment in a social setting for the projects which participants who study at major education and post-graduate education in different fields of educational sciences will prepare. Accordingly, theoretical and practical information on each project phase from preparation to reporting was given to the participants when the course was completed. Eventually, they are informed about all phases of project preparation. Also, participants' research competencies required to prepare a project and research-intended anxiety levels were measured, and their tendencies were presented.

One of the research's important results within this scope is that the participants' research competencies showed a meaningful difference after the project compared with the pre-project. This result also means that participants saw themselves competent at a lower level before the study. It was found out that the participants' homogeneity levels regarding research competence also increased as well as an apparent score increase after the study. It can be said that theoretical and practical information given in project training effectively improves the competence levels of the participants. It may be suggested that this state results from the fact that trainers who have considerable knowledge in their fields include both theoretical and practical information into the content and their contributions in 6 days of the training process. Participants believe that both they stated that they have considerable differences in themselves about the projects after the training, this project effectively

contributes to their personal development and acquisition of a good social circle. Likewise, it was concluded that there was a positive change in trainers' opinions at the end of the 12 days project training held by Güler (2010). In studies carried out by Memişoğlu (2001) and Önen, Mertoğlu, Saka, and Gürdal (2010), they found out that participants stated that the Project training improved them personally from many aspects.

Participants' research-intended anxiety levels were higher than pre-test at the end of the project, which is another important result of the research. It was shown that the participants' anxiety levels differ before and after the project, and the difference is consistent with the post-test. Accordingly, it can be said that training given increased the anxiety levels of the participants. As will be understood from the qualitative data obtained from the project, as the participants obtained information further regarding projects known superficially or partially, they may have noticed the difficulty of overcoming such works. Büyüköztürk (1999b) noted in his study that individuals with research experience feel less anxious than those who do not. It may be considered that the research process is not generally unclear for those who have research experience. They can overcome some possible fears, uneasiness through this process. On the contrary, it may be thought that those who have no research experience feel anxiety at a higher level due to fear and uneasiness for some aspects of the research process, from planning and implementing to reporting. Simultaneously, once the qualitative data were examined, it was seen that anxiety states were low when every phase of project writing was not known. However, the anxiety states increased once they thought about the entire project writing process after seeing numerous points to be taken into consideration in a project writing phase after the training. Quantitative data of the research supported this result. According to the project training findings, there is no relation between research competence and research-intended anxiety both in pre-test and post-test. This condition demonstrates no relation between levels where participants see themselves competent and their anxiety levels in doing research. In other words, it can be said that the prerequisite entailing to have a research competence for conducting projects does not lead to anxiety on participants. Accordingly, it may be argued that even if participants having too little concrete experience in projects had high research competencies, they do not see this state as a restriction for themselves. Büyüköztürk (1999b) states that performance observed in research course and whether having an earlier research experience or not is each important factor in estimating the anxiety which university students will feel in doing research. Once it is considered that experience and achievement are two important properties in the estimation of anxiety for research account for about one-fifth of the variance, generating research projects in which other variables that are considered to be associated with research anxiety would be helpful. Developing programs that will reduce the research anxiety and testing its efficiency in experimental studies are regarded significant. Once the relation between the research competence and anxiety is examined, the existence of anxiety in those who will write a project will bring advantage in the writing project phase. While participants described their research competencies low before project writing training, they stated that their research competencies increased after the training. According to the qualitative data obtained in the project, the participants stated that they have progress, their point of view changed, they saw their deficiencies, and they saw themselves more competent for these states after the training. Some participants stating that they acquired quite a lot of information noted that project writing is complex and writing a project worries them since they were aware of the process's difficulty, which also means questioning his/her competence. Once the participants' competencies regarding project writing were examined at the end of the project training, they stated that they see themselves at a better point than the pre-project period regarding research competencies. Saracaloğlu (2008) and Newman (1994) noted that the research method courses taken in the post-graduate education process would help students to remove their deficiencies in research competencies at early times when they started to take the course, and they stated that there was an increase in research competences of the participants through the training given at the end of the course. In the study of Piburn (1992), the research methods course affected the research competence levels of the students. Once the results of this research were examined, it may be concluded that training provided a positive contribution to participants' project writing competencies. This is also an important indicator that such training attained its aim, and they have beneficial outcomes at bachelor or post-graduate levels. This project's findings show no meaningful relationship between the research competence level of participants and research-intended anxieties. In a research conducted by Büyüköztürk (1999a), he noted that there is also a negative and significant relationship between the experience and research-intended anxiety. Again, in the study carried out by Büyüköztürk (1999b), it was argued that there is a moderate positive relationship between the research experience and achievement in a research course. This means that there is a difference between this study's

results and these preceding two studies' results. It can be said that this condition may be associated with data collection from a relatively more significant sampling than the study performed by Büyüköztürk. Also, since this research is a cause and effect study, it can be said that whether the expectations of the participants from the training has an impact on their research competencies and anxiety levels is within the realms of possibility. Peten, Yaman, Vekli, and Çavuş (2019) conducted a study to increase project writing/preparation skills of science teacher candidates for TUBITAK support programs. They noted that the teacher candidates do not know what research, research-development and information research project types mean. Therefore, they selected the wrong project types. Teachers generally prepared science festival projects and utilized the projects accessible on the internet while preparing such projects and performed their studies with project proposals containing overall performance experiments instead of project proposals. This training will contribute to the scientific skills of students. Due to this negative condition, once the study findings of Baki and Bütüner (2009) were examined, they noted that teachers could not contribute to the writing of incentive project proposals for their students since they did not get practical project writing training. Hence, they could not adequately encourage their students nor help them choose a project subject. Önen, Mertoğlu, Saka, and Gürdal (2010) and Öztuna Kaplan and Diker Çoşkun (2012) stated that training should be given for project writing and preparation to overcome this state. One of the most important results of this study is that project writing training should be increased to remove deficiency in project writing. Tatlı (2016) concluded in his study conducted to identify the opinions of 360 teachers from 27 different branches working in elementary, secondary and high school level about the project development process. It was to establish the hindrances in front of teachers in this process that teachers did not get any training in project development and management, the large part of teachers wanted to take part in a project; however, they could not participate in project works due to different deficiencies they observed in themselves. Timur and İmer-Çetin (2017) noted that there is a deficiency in the generation of new ideas in the project, Ünver, Arabacıoğlu, and Okulu (2015) found a deficiency in finding a project subject, Özel and Akyol (2016) stated in their study that there are many deficiencies in the project writing phase. Once it is generally evaluated, since individuals do not get practical training, it can be said that they have a negative attitude against project writing due to their prejudices and lack of knowledge related to project writing. Giving practical project writing training will be a problem-solving remedy for removing this lack of knowledge and negativity. For this reason, continuation and reproduction of training given are essential. As training enhances, prevention of such negativities will be easier. Upon analysing the project interviews, students stated that they were delighted with this training and such training provided many advantages both for their personal and corporate development. Participants noted that they had no courage in project writing at the beginning of the course. Participants were provided with theoretical and practical information from preparation to reporting when the course was completed. Based on this information, participants concluded that the most important features in project preparation are factors such as project team, method, budget management, not finding a project idea. Many students stated that they encouraged to make a project application on its own or with the team after this project training. Also, participants meeting with their peers willing to project writing stated that they would write interdisciplinary project and this training they received provided an excellent contribution for building this idea. They expressed that they will put a signature under more result-oriented works once they work with experienced and willing individuals and growth in their social circle. This is the indicator that training given is a considerable contribution. Participants stated that they admired the working styles and disciplines of the project team. They noted that they considered earlier that only one person writes such projects and only one person engaged in all works. They specified that project writing and enforcement are teamwork; they saw how the team performed division of labour and worked in harmony at the end of the project. Participants made a distribution of duties while preparing project proposals within the course's scope and realised how working in a team will be and how responsibilities are shared.

All participants expressed that they will make a project application once the project was completed. They noted that they were more courageous concerning writing projects, and their existing biases have decreased. Lack of knowledge, difficulty in project writing, facing challenges during enforcement, negative ideas such as foisting all works on any person in projects turned into positive opinion thanks to this training. While participants believed that participation in such training was adequate instead of preparing a project when they applied to the project, they believed that they could write a project at the end of the project. Almost all participants stated that they would write the project and they will not be undaunted before the challenges by

confronting this work. Even if learning the phases of project writing was among the project's important objectives, the ultimate objective is that each participant will prepare a project by creating his/her team. For this reason, an increase in the project writing wishes of participants is an essential indicator of attaining the aim at the end of the course.

Once the initial results are considered, it is recommended to disseminate the training within this course's scope that is successful in terms of its outputs for reaching large masses. It is foreseen that this practical training at the post-graduate level will be beneficial in different education levels. Adding this training to bachelor and post-graduate programmes in universities as a compulsory course will be beneficial in encouraging project preparation so that more people can access such training. Deficiencies of many teacher candidates, teacher and post-graduate students related to project writing training were presented in many studies. Increasing the number of these training courses may help overcome these problems.

Failure to continue the training in project writing also gets down the students in project writing. Because scarcity of teacher number who will encourage project writing decreases the student mass, who will write a project. To overcome this problem, giving practical project writing training to teacher candidates and teachers can increase Turkey's project writing rate and make students reach experienced teachers in project writing easier. When it is taken into account that there is a limited number of people who write a project or engage in project writing in Turkey, it is considered that the more practical training is given, the more important role it will have in eliminating this deficiency. TUBITAK provides many supports to project writing training. Studies show that many people achieved training by writing project (Aydın, Bacanak and Çepni, 2013; Özel and Akyol, 2016). Since details about individuals are entered into the TUBITAK system in project training, TUBITAK may increase the interest in project writing training and contribute to identifying realistic results by sharing information regarding how many people of those who received training made a project application and how many projects are accepted.

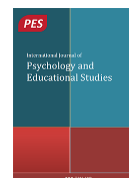
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Analyzing the 9th Grade English Curricula Between 1973-2017

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ABSTRACT

In 21st century, developing communication and technology usage has increased people's interest and need for English and made English a common language in many fields such as science, culture, art, and economy. In this context, important changes have been made in English curricula in Turkey like many countries. In this study, the curricula between the years 1973-2017 were examined and discussed within the framework of similarities and differences. The study is conducted by qualitative research method. The curricula were examined based on the original and official document by using document analysis. When the findings were examined, it was understood that from 1973 to 2017, students became responsible for their own learning, teachers were transformed into guides and the learning-teaching environment was tried to be created in more technological structures. It has been observed that in the curricula of 2014 and beyond, the concepts of information and communication technologies, culture and values were dominant. During the assessment process, it was observed that classical assessment methods gave way to alternative assessment methods. According to the results, since development is a holistic process, more emotional and psychomotor objectives could be included in new curricula. Student motivation can increase positively with themes that appeal to students' interests more. New technologies should be introduced into teaching-learning process.

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Keywords:

English education curriculum, 9th grade English curricula, language teaching.

1. Introduction

In the world of the 21st century, developing communication and technology usage increased the interest and the need for English, and made it a common language for millions of people. The widespread use of English in all areas, especially in social, political and economic circumstances also affected educational policies. Therefore, countries have to take all changes into consideration to adapt this process into their programs.

Turkey is one of the countries which gives importance to foreign language learning and within years the country has applied many changes in educational system due to educational policies. Firstly, Anatolian high schools were established and their number reached to 415 at the beginning of the 21st century (Kırkgöz, 2007: 218). Super High Schools followed the opening of Anatolian high schools in 1994, and they were combined in 2005. With the 8-year compulsory education in the European Union accession period, English education has been reorganized to start in the 4th grade. In the 2012-2013 academic year, the system was converted to 4 + 4 + 4 and English learning started in the 2nd grade. Therefore, the English curricula were also affected by these changes and they were revised year by year. It can be said that agenda of Turkish education system always

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considers English as an important agent to be developed and the changes can be explained in this manner as well.

Investigating and analyzing curricula of countries have significant effects on designing new curricula and this factor is one of the main principles of curriculum development as dynamism. Finding some similarities and differences in previous curricula may create profound frameworks for the new studies that also construct the curricula' historical foundation. When the relevant literature was examined, it is seen that there are studies where the new curricula are compared with the previous ones (Demirtaş & Erdem, 2015, Yücel, Dimici, Yıldız, Bümen, 2017) and teachers and students were mostly consulted on the changes in the curriculum in foreign languages (Sert, 1997, İlke, 2001, İğrek, 2001, Yılmaz, 2003, Yanık, 2007, Küçük, 2008, Dönmez, 2010, Kandemir, 2016). It is observed that there are limited studies analyzing the curricula within years and in broader terms (Yücel, Dimici, Yıldız, Bümen, 2017). In this study, the secondary education 9th grade English curricula, which have changed in about half a century since 1973, have been examined in terms of four basic components of curriculum development, aims, content, learning-teaching, and assessment. This study is important in revealing the similarities and differences of the curricula in 9th grade English language teaching with a historical perspective and bringing the issues that can be considered in new curricula.

2. Method

Qualitative research method was used in this study to determine similar and different aspects of 1973, 2002, 2007, 2011, 2014, 2016 and 2017 English curricula. Qualitative research, using methods and techniques such as observation, interview, and document analysis, evaluates events or facts in a realistic and holistic manner without any intervention (Şimşek & Yıldırım, 2013). This technique, which Duverger (1973) calls "documentary observation", is defined as "document method" by Rummel (1968) and many more.

Since this study is based on the original and official documents of 9th grade English curricula, the basic research technique has been determined as document analysis. In qualitative research, document analysis can be a stand-alone data collection technique or can be used in conjunction with other data collection techniques (Yıldırım & Şimşek, 2013). There are many stages to be followed while analyzing the document which are (1) accessing the documents, (2) checking its originality, (3) understanding the documents, (4) analyzing the data and (5) using the data (Yıldırım & Şimşek, 2013). In the research, the necessary sensitivity was shown to comply with these stages and the following steps were followed in order:

1. Access to relevant curricula and checking their originality through the Turkish Education Board,
2. Determining the principles for the analysis of curricula,
3. Analyzing the curricula according to the determined principles and comparing them with each other,
4. Interpreting the data obtained and reaching the findings,
5. Interpreting the findings by associating them with relevant research and writing suggestions.

As a result, in this study, the curricula were compared in terms of four main components of curriculum development in order to reach a more holistic judgment.

3. Findings

3.1. Objectives

In the curricula examined within the scope of the study, it was seen that the objective-oriented titles in the curricula varied by years.

Table 1. *Objective Titles in Curricula*

Year	1973	2002	2007	2011	2014	2016 (preparation)	2017
Title	Aims	Objectives	Learning Outcomes	Learning Outcomes	Skills	Skills	Language skills and learning outcomes

In Table 1, it is seen that the behaviors desired to be acquired by the students in the curricula are under the headings of "aims, objectives, learning outcomes, skills and language skills and learning outcomes". Therefore, it can be said that objective notion changes to learning outcomes and this situation refers that constructivism has been seen since 2007 (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

a. General aims: It can be said that the general aims of the curricula examined in this study were basically similar but it was observed that there were different expressions at some points.

Table 2. *General Aims*

1973	2002	2007	2011
Understand the language learned in a foreign language when spoken at normal speed	Understand spoken language at normal speed	Enjoy learning foreign languages	Enjoy learning foreign languages
Enable speaking clearly	Ability to distinguish the cultural values of the English-speaking country	Recognizing and distinguishing the culture of the target language	Recognizing and distinguishing the culture of the target language
Easy reading and reading comprehension	Speak English with the correct speed, intonation, emphasis and pronunciation	Improving vocabulary in the target language	Improving vocabulary in the target language
To gain the writing ability to express what you think	To be able to read and understand a passage in English correctly	Compliance with the criteria specified in the CEFR	Compliance with the criteria specified in the CEFR
Help them grow up as a beneficial member of their country in all fields tourism, international relations, etc.	Enable understanding what he is listening	Provide four basic language skills	Provide four basic language skills
	Enable expressing emotions, thoughts and impressions in English clearly and comprehensibly	Enable their personal, social and cultural development	Enable their personal, social and cultural development
	Enable being aware of her/his own culture and enable transferring her/his cultural values to others	Enable transferring their own cultural values to foreigners	Enable transferring their own cultural values to foreigners
	Enable developing suitable methods, techniques and working skills in learning a foreign language	Enable developing skills such as self-expression, communication, collaboration and problem solving	Enable developing skills such as self-expression, communication, collaboration and problem solving
	Ability to watch publications published in English	Recognizing different world cultures with written and oral products	Recognizing different world cultures with written and oral products
	Ability to explain Atatürk's thoughts and reforms	Enable developing learning skills using information technologies	Enable developing learning skills using information technologies
	Ability to tolerate language and intercultural differences	Being tolerant of the different by recognizing their own values	Being tolerant of the different by recognizing their own values

Believe in the necessity of learning a foreign language	Believe in the necessity of learning a foreign language	Believe in the necessity of learning a foreign language
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When Table 2 is examined in detail, it is seen that the aims of 2002 curriculum include the aims of 1973 curriculum and the objectives on recognizing, transferring, distinguishing cultural values, realizing four basic language skills and explaining Atatürk's thoughts and reforms are added. Besides having similar objectives, 2007 and 2011 curricula have aims to adapt to the Common European Framework of Reference for Languages (CEFR) criteria, to improve learning skills using information technologies, to ensure their social and cultural development, and to develop basic skills such as expressing themselves, communicating, cooperating and problem solving. Table 2 does not include 2014, 2016 and 2017 curricula since they do not have any special titles for general aims like the others. However, the aims underlined in these three curricula are tabulated below (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

Table 3. *General Aims of 2014, 2016 and 2017 Curricula*

2014	2016	2017
The main purpose of the curriculum is to bring students together in a stimulating, motivating and enjoyable learning environment so that they can use English effectively, fluently and correctly.	The main purpose of the curriculum is to reinforce the understanding of foreign cultures and societies and to interpret the differences between cultures, to use English creatively and critically, to provide language skills of listening, speaking, reading and writing.	The main purpose of the curriculum is to easily understand simple conversations, to introduce oneself comfortably and to continue their daily life with the target language, to enable learners to be effective, fluent and self-directed users of English.

According to Table 3, It is clear that the students are intended to be active users of English in 2014, 2016 and 2017 curricula (MEB, 2014, 2016, 2017).

b. Objectives in the context of Common European Framework of Reference for Languages: The Common European Framework of Reference for Languages (CEFR) brought a new perspective to foreign language policies. With this new perspective, the importance of multilingualism and multiculturalism has become primary. According to all curricula investigated in this study, it is seen that the developments in Europe about language teaching are being followed. In 1973, it was mentioned about the symposium organized by the European Council in order to provide a more efficient education. In 2002, the Language Development File studies of the Council of Europe's were taken into account in curricula. Thus, it can be said that 1973 and 2002 curricula have CEFR indirectly. In 2007 curriculum, it was clearly stated that the targeted level was expressed as A2 and this level was taken from CEFR. However, in 2011 curriculum, there is a clear expression that it was prepared according to CEFR from A level to C level. From 2014 to 2017, the target language level was defined as A2 but 2016 curriculum had as B1+ since it has preparation class (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

c. Objectives about skills: In 1973 curriculum, it was observed that a great responsibility was attributed to the teacher rather than the students with the statements "to give students the ability to understand ..., to speak ... and to express ...". In 2002 curriculum, listening, speaking, reading and writing skills have expressions like "it is expected to be... ". With this expression, student-centeredness has been expressed. In the expressions used in 2007 and 2011 curricula, there are sentences like "student makes..., writes..., speaks... and reads...". It has been observed that sentences with present tense are preferred in the third person singular and the students were directly taken to the center with the statement like "students will be able to..." which is in third person in the curriculum of 2014 and followings (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

When the curricula are considered within the scope of four basic skills (listening, speaking, reading, writing), the curriculum of 1973 did not have a separate section for skills objectives, but these skills are included with sentences such as "understand the language that they are learning when spoken at normal speed", "speaking clearly", "Expressing what they speak in writing", "reading easily". These skills are much clear and they are under their own subjects from 2002 to 2017 (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017). These changes show that four skills gained importance and this can be described as the effect of communicative approach.

When the objectives of all curricula are examined at the cognitive, affective and psychomotor level, it can be said that the curricula mainly include cognitive objectives. In general, of the curricula, terms, expressions such as "discriminating, noticing, making comparisons, making inferences" used in skills show that they are given for the development of mental skills, especially expressions such as discrimination, inference, making comparisons show that the objectives gain a critical perspective. In addition, it can be said that there are also objectives that reflect the affective domain such as "... enjoy ...", "... expressing one's desire", "... valuing", "giving ideas, accepting / rejecting". On the other hand, it is seen that psychomotor skills are supported with acquisitions such as "applying instructions" (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017). Dominance of cognitive objectives can be observed in many curricula.

d. Grammar objectives: It is seen in 1973 curriculum that although there is no special section, grammar was handled holistically. It was emphasized that the communicative approach was adopted in the 2002 curriculum, and this approach aimed a holistic teaching perspective on grammar. In 2007 curriculum, grammar is included in learning areas and it emphasizes a holistic structure as well. Unlike all the curricula so far, 2011 curriculum divided its grammar objective according to the language levels specified in CEFR. In line with the understandable importance of communication skills, it can be said that reading, writing, listening and speaking are inseparable and grammar is shaped in accordance with CEFR. In 2014 and following curricula, a communication-oriented grammar education has been adopted and evaluated as a whole (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

e. Vocabulary objectives: In this study, when the curriculum is examined in the context of vocabulary objectives, it is seen that the vocabulary of 1973 curriculum can be selected based on the subjects that will attract the attention of girls and boys, supported by daily life. In addition, vocabulary itself can be taught using real life materials like a picture, dramatized during the teaching phase and can be given synonym and antonym of their meaning, encouraging students to think. Besides this situation, it is emphasized that there are minimum 250 and maximum 300 words to be taught. In the 2002 curriculum, vocabulary learning outcomes are shown under a vocabulary set title. It is underlined that the students can develop their vocabulary size using many methods such as brainstorming and concept maps. In 2007 and beyond, it is understood that words should be handled in integrity and in relation to the theme, function and skills presented (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017). It can be said that giving the words to be taught, by drawing attention to the role it undertakes in the text, by concentrating students on what the meaning of the word can be in the context of that text by concentrating on the context, contributes to the learning of permanent and usable vocabulary (Göçer, 2015).

3.2. Content

In most of the curricula, the themes should be prepared in accordance with the general objectives of Turkish National Education as defined in the Basic Law of the National Education No. 1739. Although there is no clear section of content in 1973 curriculum, it was dealt in detail within the learning-teaching process. From 2002 to 2017, a thematic approach could be seen on curricula. It is stated in curricula that the themes should be determined in a way that appeals to the students' interests, motivates and enables them to be active in daily communication. Especially the language levels of CEFR are seen on the themes of 2011 curriculum (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

Table 4. 2011 Curriculum CEFR Level, Theme and Content Quantity

Level	Theme	Content quantity
A.1.1	6	18
A.1.2	6	18
A.2.1	8	24
A.2.2	8	24
A.2.3	8	24
B.1.1	8	24
B.1.2	8	24
B.2.1	10	30
B.2.2	10	30
C.1.1	-----	----

In table 4, unlike all previous curricula, the 2011 curriculum brought together language proficiency levels, theme and content within the same framework. In this context, it can be said that determining a theme parallel to student levels is prioritized. It was also seen that the 2011 curriculum had similar points to the 2002 and 2007 curricula: the content to be selected should be in accordance with the Basic Law of the National Education No. 1739. Content and themes could correspond to listening, speaking, reading and writing skills.

From 2014 to 2017 curricula, it is seen that the themes are communicative-oriented. Each unit includes four language skills, basic functions to be acquired, grammar and necessary materials as a whole (MEB, 2014, 2016, 2017). Moreover, it is stated that CEFR descriptors are taken as reference.

One of the most important topics of constructivism, which started to be reflected in 2005, is culture. The values education, which is a part of the culture, has not been sufficiently included in the curricula despite many changes. It is noteworthy that it is included in the curriculum as values education in 2017 curriculum (MEB, 2017).

3.3. Learning and Teaching Process

Learning-teaching process is a critical component in the curricula. It includes many variables. The learning-teaching process was examined under the headings of approach in the curricula, classroom environment, methods and techniques, teacher and student roles, tools and materials in the present study.

a. Approach: Among the curricula examined in this study, it was seen that no approach was mentioned in the 1973 curriculum, but it was emphasized that there should be a method from the known to the unknown, from the easy to the difficult, supported by visual and auditory tools focused on listening and speaking in foreign language teaching. In addition, according to aims in Table 2, it can be said that there is a communicative approach adopted in objectives of 1973. From 2002 to 2017, the approaches in these curricula are tabulated as follows:

Table 5. *The Approaches Between 2002 and 2017*

2002	2007	2011	2014	2016 (preparation)	2017
Communicative-cognitive learning approach and selective approach	Communicative	Communicative	Communicative Eclectic	Communicative Eclectic	Communicative Eclectic

It is clearly seen on Table 5 that all the curricula discussed in this study adopt a communicative approach and eclectic approach can be observed in 2014, 2016 and 2017 curricula (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

b. Classroom environment: The physical environment of the classroom, the organization of relationships and management in the classroom, the management of the learning-teaching process and time management are the factors that make up the classroom management (Başar, 1999; Evertson, Emmer & Worsham, 1994). In the curricula reviewed, there is no special section on the physical conditions of the classroom. However, the classroom management like the roles of teachers and students, the methods to be applied, the meaning of the learning situations through the tools and materials to be used, and the creation of them in line with the student's expectations and needs associated with diverse linguistic and cultural element are seen in the curricula (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

c. Methods and techniques (foreign language teaching techniques and principles): One of the most important things that will affect the results in achieving objectives is the teaching method. The method to be applied will also change in parallel with the change in student, teacher, target and content (Bilen, 2006). It is noteworthy that in 1973 curriculum, the items dealt within the objectives section were specified as the order to be applied in education. The curriculum stated that teaching should be done in a foreign language, and by emphasizing that there should be a method supported by visual and auditory tools focused on listening and speaking. In addition, it can be said that the communicative method is indirectly reflected. In 2002 curriculum, within the framework of the approaches that form the basis of the curriculum, the use of methods and techniques parallel to these approaches was recommended. It has been observed that there are foreign

language teaching techniques under seven titles: demonstration, question and answer, drama and role play, simulation, pair and group work, educational games, grammar games. Considering the requirements of all these methods, it can be said that the student is at the center and the teacher is the guide. As a difference, it was mentioned in 2007 curriculum that methodology and lesson planning should be improved in interactive learning styles, learning places and environment, connection and internal association with other fields.

It was observed that foreign language teaching techniques differed from 2002 curriculum. These techniques are lecture, discussion, case study, demonstration, problem solving, individual work. In addition to these methods, group teaching techniques, individual teaching techniques and out-of-classroom teaching techniques are included. Thus, it was stated that the students' cognitive, affective and psychomotor skills would also improve. 2011 curriculum has similar qualifications with 2007 curriculum. In the learning environment to be organized for foreign language lessons, the principles of language teaching, the steps to be applied in case of mistakes, the teaching methods and techniques to be applied in foreign language teaching are similar to the previous curricula. However, the observation of student mistakes was a factor in the student's awareness of his own learning process. It is seen that the methods and techniques handled in 2014, 2016 and 2017 curricula are similar. In this context, the methods and techniques in the curricula are discussed generally. One of the first details is that the eclectic approach adopted has been adapted into the curricula to ensure the continuity of the dynamic environment. On the other hand, there are different techniques in parallel with themes and functions. It was especially stated that the student's age, interests and language level should be taken into consideration in the selection of techniques to be applied. The curricula should also be supported with communicative, experiential, and task-based language activities (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

d. Teacher role: According to 1973 curriculum, it can be said that the expressions under general principals indirectly refer to the encouraging, motivating, observing, and regulatory characteristics of the teacher. Within the communicative approach mentioned in the 2002 curriculum, the teacher had roles as a consultant, observer, guide, counselor, teacher, supervisor, regulator, resource, lecturer, and lecturer. In 2007 curriculum, the teacher is an administrator and guide. In the 2011 curriculum, the teacher is qualified as the leader, and the teacher's roles are discussed in more detail than the previous curricula. Guiding students, giving students the opportunity to use what they have learned, helping students in activities, enabling students to use their thinking skills, informing the student that there are many problem-solving ways, encouraging students, involving the students in the decision-making process, enabling the students to learn on their own are defined as teacher's roles (MEB, 1973, 2002, 2007, 2011). 2014 and following curricula have the same roles although they have developed in different years and these are classified as follows:

- Being a role-model for students by constantly speaking English in the classroom,
- Using different types of communication such as individual work, pair work, group and class work,
- Teaching the subjects that students are foreign to in English by structuring them on the subjects they know,
- Allowing students to extract meaning from context and / or clues given.

Tolerating the students' mistakes and slips during their speaking activities and using the correct form themselves or taking note of the mistakes and sharing them with the whole class without naming them after the activity.

When looking at the items, it is seen that the roles of the teachers become briefer compared to the ones in 2011 curriculum. It can be said that while they are technology-oriented, this situation does not completely reflect on the roles of teachers. OECD (2010) points out that technology is an integral part of accessing high-level competencies called 21st century skills. When the methods, techniques, materials and tools used in the curriculum are examined, it is seen that most of them are technology-oriented. International media communication tools usage, international software, internet, curricula, blogs etc. require the teacher to have a global perspective. As a result, faster and more detailed information about different cultures and different people is obtained through these. At the same time, the teacher should have a good grasp on "smart technologies". In many studies, it has been observed that there is an increase in the level of learning in

classrooms where smart technologies are integrated. When the roles in these curricula are examined, no roles to refer to digital technology have been defined or mentioned (MEB, 2014, 2016, 2017).

e. Student role: In line with the stated principles in 1973 and 2002 curriculum, it is seen that the students are able to speak a foreign language, constantly interact, learn four language skills, and take responsibility inside and outside the classroom, it can be seen that the individual goals expressed under the title of "curriculum vision" in 2007 curriculum are students' roles that are indirect. When the expressions are examined, it can be said that the skills in the characteristics of the 21st century have a place in curriculum. Almost for the first time, an individual's self-knowledge, ability to use technology, maintaining a lifelong learning attitude, and critical thinking are included in this curriculum. Considering other curricula, 2011 is the first curriculum that student role has own section. When the student roles of 2011 curriculum are examined, it is seen that the features of the constructive and communicative approach clearly reflect on student roles. Being in the center and responsible for their own learning, using their thinking skills parallel to real life practices, having lifelong learning understanding reflect 21st century characteristics. In 2014, 2016 and 2017 curricula, student roles have common expressions. For three of them, a student is a "creative individual" who is responsible for their own learning, who can use his/her thinking skills, and reconcile learning with real life (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

f. Materials: It is seen that the materials used in the curricula are diversified in parallel with the changes and developments in science and techniques, and the social-economic structure. The material changes between 1973 and 2011 are seen as follows:

Table 6. *Materials Used in Curricula*

1973	2002	2007	2011
	Visual: books, blackboard, pictures, real items and models, projectors and graphics	There is no special section.	There is no special
Student books, teacher guides, exercise books, pictures for speaking, charts, film strips or slides and tapes and records, poems, songs	Audio: radio, turntables and records or CDs, tape and sound tapes	It is included in its own title in the sample lesson plans. In addition, it was observed that the materials belonging to the previous 2 curricula were included within the scope of 4 skills training.	section. It is included in its own title in the sample lesson plans. In addition, it was observed that the materials belonging to the previous 2 curricula were included within the scope of 4 skills training.
	Audio-visual media: Film machine and moving films, closed circuit television, video, VCD, DVD, computer video, computer language curricula and internet		

In Table 6, it is seen that the abundance of written materials was noteworthy before 2002, while radio, cd player and computer were included in the curricula in 2002 and beyond (MEB, 1973, 2002, 2007, 2011).

In 2014, 2016 and 2017 curricula, the materials are prepared with a more technological infrastructure than all other curricula. As a result, the materials are now organized as written material and multimedia material rather than being visual and auditory. With these changes, it was observed that the student was defined as "digital native" especially in the curricula of 2014 and after (MEB, 2014, 2016, 2017).

3.4. Assessment

In 1973 curriculum, in which no methods, techniques, assessment tools were specified, it can be said that an assessment towards the outcome of the process was adopted in the title of "Objectives", as it was stated that assessment could be made in line with the stated objectives.

In 2002 curriculum, communicative assessment is emphasized. According to the curriculum, student achievement is evaluated by the teacher with six criteria: follow-up tests, achievement tests, student's in-class oral and written project presentations, student's participation in the lesson in pair and group work, careful monitoring and use of audio-visual tools and regular bookkeeping, foreign language, their attitudes and behaviors. It has been stated that progress is controlled with follow-up tests and accumulation at the end of the process is controlled with success tests (MEB, 2002).

In the 2007 curriculum, the assessment is learning-oriented and is made by taking into account the level of language skill development, use in daily life, critical thinking, problem solving and language skills in creativity, and the level of social skills development. Assessment tools that can be used in four different skills are as following: listening to short chats, dialogues, speeches, lectures for listening skill; interview, art presentation, theater, problem solving (group work or pair work) for speaking skills; finding the main idea for reading skill, finding the key information in the piece; for writing, it was stated that methods such as writing letters, memoirs, reports, messages and instructions can be used. Besides language skills, the assessment of language areas is also mentioned. These areas are grammar, vocabulary and pronunciation knowledge. In addition, the scales such as performance assessment (performance and project), self-assessment, peer assessment, portfolios are used as measurement and assessment methods in curricula. As a result, measurement and assessment are dominant at the summative and formative types (MEB, 2007).

In 2011 curriculum, assessment process is almost the same. However, assessment methods and tools are divided into two as qualitative and quantitative. Qualitative assessments include oral presentation, project, performance task, rubric, product file (portfolio), observation, checklists, self-assessment, peer assessment, group assessment; short-answer questions, open-ended, multiple choice, matching, right/wrong type questions are examples of quantitative assessments. When all the details given are evaluated in the whole curriculum, it can be said that the assessment can be observed in summative and formative types (MEB, 2011).

In 2014, 2016 and 2017 curricula, this assessment process is similar. Assessment in the 9th to 12th grade English curriculum is also specified as a mix of alternative, traditional and electronic assessment types. While it is stated that all kinds of student outputs can be used for assessment in the curriculum, the basic assessment types suggested in the curriculum are "discussion time activities or video blog application for language skills. For other structures, such as vocabulary, structure, pronunciation, tech pack, classroom exams or e-portfolios could be used. Regardless of which assessment tool is used, it is particularly recommended to pay attention to design communicative assessment tasks and evaluate language production in implementing the curriculum. Since 9th grade English curriculum is mainly based on functions and skills, it is emphasized that holistic assessment types should also be included in the curriculum (MEB, 2014, 2016, 2017).

4. Conclusion, Discussion and Recommendations

In this study, the findings obtained from the questions which are "What are the similarities and differences in 9th grade English curricula between 1973-2017?", "What are the similarities and differences at the aims, content, learning-teaching process and assessment?" were evaluated. In the context of general objectives, objectives in all curricula cover each other. Within the scope of CEFR, the target level is A2 for non-preparatory high schools and B1 + for preparatory high schools (MEB, 2002, 2007, 2011, 2014, 2016, 2017). When the objectives were examined under four basic skills, in 2014 and beyond, the skills were included in the units on a theme-based and holistic basis (MEB, 2014, 2016, 2017). In holistic language classrooms, children try to express the meanings by using all aspects of the language and communicate using their existing skills through activities where teachers and students can understand the world in cooperation with each other. Even if there are students who have problems learning a language and have low motivation, the holistic approach will provide active participation by increasing the students' motivation because it actually offers an inclusive environment (Turan & Ege, 2003).

With 2007 curriculum, the student became responsible for their own learning. When the objectives are examined in cognitive, affective and psychomotor contexts, it is seen that the objectives are mostly in the cognitive direction. In the context of grammar, it was emphasized that the communicative approach had been adapted beginning from 2002, and it was concluded that a holistic and spiral approach was followed. Especially in 2011 curriculum, grammar subjects were shaped within the scope of CEFR levels and separated from other curricula with this feature (MEB, 2002, 2007, 2011).

In the content dimension, the curricula have generally thematic approach. While determining the themes, it was especially emphasized that the focus was on students and communication. In 2011 curriculum, the themes were shaped according to CEFR. In 2014 and beyond, these are completely communication-oriented and shaped around the target functions. This approach actually shows that content is flexible. On the other hand, the arrangement of the subjects from easy to difficult, from concrete to abstract is an important detail that

draws attention (MEB, 2011, 2014, 2016, 2017). However, despite these positive developments, as Bayındır (2018), Yüce (2018), Yücel, Dimici, Yıldız and Bümen (2017) stated, the lesson duration and content discrepancy have negative effect on these positive developments.

In the learning and teaching process, the curricula have been student-centered since 2002. Teachers, on the other hand, are a model that guide students, increase their desire and motivation towards the lesson and encourage them. Since 2002, all skills have been tried to be addressed in a holistic way. The materials in curricula also support the real-life use of the language and should be close to reality. It is observed that the material design in the curricula is oriented in parallel with the technological and scientific developments in every change, and especially in 2014, computer and mobile supported devices are dominant. In addition, it is clear that with 2014 curriculum, technology, computer and mobile-assisted education were included in the curricula. According to the approach being adopted, it was seen that the constructivist approach was observed as dominant in the curricula after 2005. Basically, all of them were revised to keep up with the requirements of the developing era, and their focus was to ensure communication. In the context of method and technique, it is seen that the curricula have more technological infrastructure year by year (MEB, 1973, 2002, 2007, 2011, 2014, 2016, 2017).

The assessment process in curriculum has become more communicative since 2002. In 2007, different assessment methods were mentioned for language skills and language fields, and it was seen that summative and formative assessment was dominant (MEB 2002, 2007). While it was stated that mixed assessment methods (alternative, traditional and electronic) could be used in curricula in 2014 and beyond, it was also emphasized that communicative assessment and language production should be evaluated in addition to the parental assessment's inclusion to the curricula. (MEB, 2014, 2016, 2017). When the international studies are examined, integrating new technology and materials into curricula, developing communicative competence and integrating effective skills are found to be critical for English as a foreign language curricula (Velazquez and Zamora, 2017, Castillo, 2017, Anastasiadou, 2015).

In the light of the results obtained from the study, the following can be suggested:

1. The cognitive objectives are dominant in all curricula. In case of new curriculum development, more emotional and psychomotor objectives could be included.
2. Considering students are expressed as digital natives today, student motivation may increase positively if the themes that appeal more to students' interests are included.
3. There is no statement regarding the measurement of information and communication technology competencies in the curricula. To evaluate this factor, first of all, arrangements can be made to increase teachers' competencies in this direction.
4. Every day, new developments are experienced in science and technique and new technologies are emerging. In order to use new technologies for educational purposes, the necessary software can be prepared by experts and introduced into teaching-learning environments.
5. The 2017 curriculum is different from the others in a sense that it focuses on values education. However, there is not any detailed information about assessment of values education. To internalize the values in students and to measure them effectively, the assessment dimension of the program can be reviewed in this sense again.

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The Effects of University Students' School Climate on Their Motivation Levels

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ABSTRACT

The present study aims to investigate the relationship between university students' school climate and their motivation levels. In this study, whether the school climate and motivation levels differ according to gender and year of study also been examined. The "School Climate Scale for University Students" and "Adult Motivation Scale" were applied to 322 participants aged between 18 and 40. Correlational survey model was used in this study. Pearson correlation coefficient was examined to investigate the relationship between school climate and motivation. The effects of university students' school climate on motivation were analyzed using the regression analysis technique. T-test and one-way analysis of variance technique were used to investigate whether the school climate and motivation differed according to gender and year of study. The findings showed that there was no significant difference between university students' school climate and motivation levels and gender. According to the other variable, the year of study, a significant difference was found in the dimensions of learning environment and communication, which were sub-dimensions of school climate. When the relationship between school climate and motivation levels of university students was examined, the findings showed that there was a positive significant relationship between school climate and its sub-dimensions and motivation and sub-dimensions. The findings obtained in this study suggest that school climate was a significant predictor of motivation.

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Keywords:¹

School climate, motivation, university students.

1. Introduction

Structures created by more than an individual to achieve a certain goal in the social structure are expressed as organizations. When the characteristics of organizations are considered, it can be said that responsibility and authority are distributed hierarchically and schools with a bureaucratic structure also have the feature of being an organization (Demirtaş, 1997). When the literature is examined, it can be seen that there are very different definitions of school climate and there is no consensus on a definition (Çalık & Kurt, 2010).

School climate is the relationship of all stakeholders, administrators, teachers, parents and students in the school and the feelings they develop as a result of this relationship (Kaplan & Geoffroy, 1990). According to Baykal (2007), the climate of a school can be expressed as the whole internal features that distinguish it from all other schools. According to Balcı (2014), who defines school climate as a lifestyle created by a school at the end of a specific process, school climate should actually be considered the personality of the school. The climate of a school is the same as an individual's personality. According to Loukas, Suzuki and Horton (2006),

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the multidimensional concept that includes the instructional, organizational, and interpersonal dimensions and determines the quality of the relationships in school is called school climate. According to Skiba and Peterson (2001), school climate is the emotions that teachers, students and other employees gain about the school environment over time. Hoy and Miskel (2010) stated that school climate is a concept experienced by all stakeholders of the school and related to how the stakeholders perceive the environment they are in.

Although there are many factors affecting school climate, the leading factors are the behaviors of administrators and teachers. In their study, Hoy, Tarter and Kottkamp (1991) defined four types of school climate as a result of the behaviors of teachers and administrators. Table 1 shows the classification of these climate types.

Table 1. *School Climate Types*

		Principal Behaviors	
		Open	Closed
Teacher behaviors	Open	Open climate	Engaged climate
	Closed	Disengaged climate	Closed climate

Source: Hoy, Tarter and Kottkamp (1991).

As can be seen in Table 1, four different school climate types occur in schools according to the open and closed behaviors of teachers and principals and their mutual interactions. In the “Open Climate” type in which the behaviors of both teachers and principals are open, teachers have sincere relationships with each other and principals have sincere relationships with teachers and the atmosphere is dominated by feelings of sincerity, trust, cooperation and respect. In the “Engaged Climate” type in which the behaviors of teachers are open while the behaviors of principals are closed, the school principal shows strict and authoritarian characteristics with ineffective leadership qualities, while teachers show high performance and efficiency. In the “Disengaged Climate” type in which the behaviors of teachers are closed and the behaviors of principals are open, while principals show effective leadership characteristics, teachers try to sabotage principals’ behaviors. Finally, in the “Closed Climate,” in which the behaviors of both teachers and principals are closed, principals are strict, authoritarian and intolerant, while teachers are indifferent, intolerant and suspicious of the administration (Hoy, Tarter & Kottkamp, 1991).

1.1 Elements of School Climate

When the literature is reviewed, different elements are mentioned regarding what exactly school climate tries to explain. These are safety, education and relations.

Safety. The place where teachers and students feel physically, socially and emotionally free can be expressed as a safe school. Elements that make up the physical security dimension are associated with situations in which there are clear discipline rules set in schools; sanctions are applied for violations of rules and stakeholders of school feel physically safe. At this point, it is important to have clear attitudes set for violence. In social-emotional safety dimension, it is possible to speak of clear rules and sanctions to prevent situations, such as verbal abuse and aggression and for the violations of these. In ensuring the safety of a school, administrators, teachers, parents and students should act together. Ensuring all kinds of safety at school is extremely critical in terms of creating a positive school climate (Cohen et al., 2009; Çamur, 2006).

Education. There are different sub-dimensions that make up the education dimension, which is one of the elements that make up the school climate. The most important of these is the quality of education. What is meant to be expressed here is a teaching environment that is connected with real life and a teaching method in which different techniques and materials that arouse interest in students are used. Another sub-dimension is social-emotional development. At this point, in addition to teaching, teachers should also implement different practices that will ensure the students’ social and emotional development. Regarding the climate of effective schools, points, such as student-centeredness, positive environment, communication and rewards, can be mentioned (Özcan, 2019; Şenel & Buluç, 2016).

Relations. As in any organization that includes people, human relations are also significant in schools for the creation of an effective school climate. At this point, effective human relations are expected between all

stakeholders in the school, starting from inside the institution to the outside of the institution. Human relations should be emphatic, tolerant, transparent, respectful, relevant and trust oriented. The relations of the school with parents and especially the relations among administrators, teachers and students are important at this point. If schools want to create a healthy and effective school climate, they should keep strong relations with families and other circles, especially teachers, students, and other employees (Çınkır, 2004).

1.2. Characteristics of a Positive School Climate

School climate, which is the personality of the school in general, may have positive or negative characteristics and these characteristics have various effects on all the stakeholders in the school and on the school's performance. A positive school climate provides teachers to have more responsibility for their students and to show more efforts to increase students' success (Sweetland & Hoy, 2000) and students to be more successful (Hoy, Tarter & Kottkamp, 1991), to develop positive relationships with their teachers, friends and other individuals in school, to obey school rules more, and the families to participate more in school (Blum, 2005).

Schools with a positive school climate are dominated by a climate in which students care about school life and play an active role in their learning. In these schools, rules are prepared by stakeholders and the reward system is about giving positive reinforcement rather than punishment. There is effective communication between administrators, teachers, other employees and students and administrators care about the needs of employees both in their professional life and their private life (Webb & Norton, 2009). According to Teddlie (2010), schools with a positive school climate have characteristics, such as the presence of discipline and rules, harmony among employees, high participation in school operations and fair distribution of tasks.

1.3. Motivation

Motivation, which was derived from 'movere' that means to move in Latin, is expressed as the power that activates the individual for a specific purpose in its most general definition. When the literature is reviewed, it can be seen that the concept of motivation has more than one definition.

Motivation is defined as an inner power that directs individuals to a specific purpose (Palmer, 1993). Cüceloğlu (1992) argued that motivation is a very general term that encompasses interests, impulses and needs. Çolakoğlu (2009) defines motivation as an energy that cannot be directly observed needed by an individual to accomplish a task within its complex structure. Motivation is the functioning state of internal and external causes that direct the individual to act, that determine the intensity of this act and the energy that the individual will give to this act and ensure its continuity (Arık, 1996). To summarize, the concept of motivation is a concept that includes various internal and external causes and their functioning mechanisms that drive the individual to behavior, determine the energy and intensity level of behaviors, and direct and maintain behaviors.

Durmaz (2019) stated that motivation is grouped in two as intrinsic and extrinsic motivation. If the cause of a behavior is an effect coming from the environment, it is extrinsic motivation, and if it is an effect coming from the individual himself/herself, then it is intrinsic motivation. Abilities, interests and curiosity of an individual can be given as examples of sources of intrinsic motivation, while environmental effects, such as punishment and the reward, can be shown as examples of sources of extrinsic motivation.

In schools where educational activities are carried out, teacher and students are the main actors. In schools where the human factor has a considerable significance, motivation levels of individuals may affect the quality of education. Motivation is associated with a large number of different factors. One of these factors is school climate. Providing motivation in schools, which are organizations due to the characteristics they have, is very important concerning school climate. A mutual relationship can be mentioned here. While high motivation is significant for a positive school climate, the resulting school climate can also be a key role in increasing motivation.

When the literature is reviewed, it can be seen that there are some studies conducted on the relationship between school climate and motivation of teachers, administrators and especially secondary and high school students (Bakkal, 2019; Zehir & Özgenel, 2019; Sönmez, 2018; İdi, 2017; Selçuk, 2016; Alqahtani, 2015; Özkul, 2013; Argon & Ertürk, 2013; Gök, 2009). To our knowledge, no studies were found in which the relationship between school climate and motivation has been examined in university students. In the present study, the relationship between school climate and motivation was examined on university students.

This study aims to examine the relationship between school climate and motivation levels of the university students. In parallel with this purpose, answers were sought to the following research questions:

- 1- Do university students' school climate and motivation levels differ according to gender and year of study?
- 2- Is there a significant association between school climate and motivation levels?
- 3- Does school climate predict levels of motivation?

2. Method

2.1. Study Model

In this study, correlational survey model, which is one of the general survey models, was used. Correlational models are studies which aim to describe a situation that happened in the past and continues to exist today as it is. "Correlational Survey Model", which is one of the survey types, is a research model which aims to find out whether the change between two or more variables exists together or the degree of this change (Karasar, 2014).

2.2. Study Group

The study group consisted of 322 students. Distribution of the students in this study by their gender and year of study is shown in Table 1 and Table 2.

Table 2. *Distribution of the Students in this Study by Gender*

Gender	f	%
Female	223	69.3
Male	99	30.7
Total	322	100

When Table 2 is examined, it can be seen that 223 (69.3%) of the students in this study were female, while 99 (30.7%) were male.

Table 3. *Distribution of Students in This Study by the Year of Study*

Year of study	f	%
1	21	6.5
2	100	31.1
3	104	32.3
4	88	27.3
Postgraduate	9	2.8
Total	322	100

When Table 3 is examined, it can be seen that 21 (6.5%) were in their first year of their study, 100 (31.1%) were in their second year of their study, 104 (32.3%) were in their third year of their study, 88 (27.3%) were in their fourth year of their study, and nine (2.8%) were postgraduate students.

2.3. Data Collection Tools

In the present study, the data were obtained using "School Climate Scale for University Students" and "Adult Motivation Scale."

2.3.1. School Climate Scale for University Students. School Climate Scale for University Students was developed by Terzi (2015). As a result of the exploratory factor analysis of 35-item draft scale, a structure consisting of a total of 17 items and three sub-dimensions was obtained. The school climate scale consisted of the dimensions of commitment to school, communication and learning environment. The 17-item and 3-dimensional scale explains 56% of the total variance. Factor loads of the scale ranged between .46 and .76 and item-total correlations ranged between .34 and .60 for the three dimensions. In the tests performed for

reliability analysis, the Cronbach’s Alpha coefficient was $\alpha=.75$ for commitment to school dimension, as $\alpha=.86$ for communication dimension and as $\alpha=.81$ for learning environment dimension. Reliability was $\alpha=.90$ for the total scale. Reliability in this study was $\alpha=.94$ for the total scale.

2.3.2. Adult Motivation Scale. Adult Motivation Scale, which was developed by Tulunay Ateş and İhtiyaroğlu (2019), consists of 21 items and two factors. As a result of exploratory factor analysis, a two-dimensional structure explaining 47.95% of the total variance was obtained. According to the confirmatory factor analysis, fit indices of the model were calculated as GFI (0.85), CFI (0.96), NFI (0.91), RMSEA (0.06), CFI (0.96), AGFI (0.82) and SRMR (0.06). In this study, the Cronbach’s Alpha value was 0.92 for intrinsic motivation, 0.82 for extrinsic motivation and 0.94 for the total scale. A high score from the 5-Likert type scale means a high level of motivation. Reliability in this study was $\alpha=.89$ for the total scale.

2.4. Data Analysis

To use parametric tests in data analysis, the data must conform to a normal distribution and the variables must be homogenous. To determine the data analysis methods to be used in this study, the data were first examined concerning normality distribution. According to the normality assumption analyses conducted, the data were found to show the normal distribution and it was decided to use parametric tests in data analysis. For significant differences in the variables of the study, the independent samples t-test was used for variables with two groups, while independent samples. One-way ANOVA test was used for more than three groups. The associations between the variables were calculated using Pearson correlation. Regression analysis technique was used to find out the predictive power of university students’ motivation levels of school climate.

3. Findings

This part of the study included findings regarding the analyses made based on the problem situations determined regarding the aims of the study.

Analysis results of university students’ school climate and motivation levels by the variable of gender

Independent samples t-test was used to analyse whether school climate and motivation levels of university students differed by the variable of gender. The data are shown in Table 4 and Table 5.

Table 4. The T-Test Results of School Climate Scale and Sub-Dimension Scores by Gender

Variables	Groups	N	X	ss	t-test		
					t	sd	p
School climate total	Female	223	3.22	.79	.38	163.30	.707
	Male	99	3.18	.93			
Commitment to School dimension	Female	223	2.94	1.00	-.13	188.46	.894
	Male	99	2.95	.99			
Communication dimension	Female	223	3.60	.87	1.11	162.72	.265
	Male	99	3.48	1.03			
Learning Environment dimension	Female	223	3.12	.84	.04	158.73	.962
	Male	99	3.11	1.03			

When Table 4 was examined, according to the t-test analysis results, it was found that school climate total and sub-dimension scores did not differ significantly by the variable of gender ($p>0.5$).

Table 5. The T-Test Results of Motivation Scale and Sub-Dimension Scores by Gender

Variables	Groups	N	X	ss	t-test		
					t	sd	p
Motivation total	Female	223	4.16	.42	.25	154.93	.799
	Male	99	4.14	.53			
Intrinsic motivation sub-dimension	Female	223	4.40	.48	1.00	171.80	.316
	Male	99	4.34	.54			
Extrinsic motivation sub-dimension	Female	223	3.92	.50	-.49	149.59	.624
	Male	99	3.95	.66			

As shown in Table 5, according to the t-test analysis results, motivation total and sub-dimension scores did not differ significantly by the variable of gender ($p>0.5$).

Analysis results of the university students' school climate and motivation levels by the variable of the year of study

One-way ANOVA test was used to examine whether university students' school climate and motivation levels differed by the variable of the year of study. The data obtained are shown in Table 6 and Table 7.

Table 6. ANOVA Results of School Climate Total and Sub-Dimensions Scores by the Variable of the Year of Study

	Year of study	N	X	Ss	Source of variance	KT	sd	KO	F	p	Sig.
School climate total	1st year	21	3.25	1.15	Intragroup	4.514	4	1.129	1,624	,168	-
	2nd year	100	3.17	0.80	between groups	220.345	317	.695			
	3rd year	104	3.28	0.84	Total	224.8860	321				
	4th year	88	3.10	0.78							
	Postgraduate	9	3.77	0.80							
Commitment to School dimension	1st year	21	2.90	1.28	Intragroup	4.369	4	1.092	1,093	.360	-
	2nd year	100	2.97	1.00	between groups	316.656	317	,999			
	3rd year	104	3.00	1.02	Total	321.024	321				
	4th year	88	2.82	0.91							
	Postgraduate	9	3.47	0.82							
Communication dimension	1st year	21	3.48	1.21	Intragroup	10.869	4	2.717	3,253	.012	1-5, 2-3, 2-4, 2-5
	2nd year	100	3.34	0.88	between groups	264.756	317	.835			
	3rd year	104	3.69	0.84	Total	275.624	321				
	4th year	88	3.63	0.94							
	Postgraduate	9	4.20	1.01							
Learning environment dimension	1st year	21	3.37	1.21	Intragroup	10.095	4	2.524	3,137	.015	1-4, 2-4, 3-4, 4-5
	2nd year	100	3.20	0.87	between groups	255.010	317	.804			
	3rd year	104	3.15	0.91	Total	265.105	321				
	4th year	88	2.86	0.83							
	Postgraduate	9	3.63	0.87							

As shown Table 6, a significant difference was found in the sub-dimensions of communication and learning environment by the year of study. While postgraduate students had the highest mean score and second-year students had the lowest mean score in the communication sub-dimension, postgraduate students had the highest mean score and fourth-year students had the lowest mean score in the learning environment sub-dimension.

Table 7. ANOVA Results of Motivation Scale Total and Sub-Dimensions Scores by the Variable of the Year of Study

	Year of study	N	X	Ss	Source of variance	KT	sd	KO	F	p	Sig.
Motivation total	1st year	21	4.15	0.80	Intragroup	1.555	4	.389	1,864	.116	-
	2nd year	100	4.17	0.39	between groups	66.104	317	.209			
	3rd year	104	4.06	0.49	Total	67.659	321				
	4th year	88	4.24	0.36							
	Postgraduate	9	4.20	0.36							
Intrinsic motivation sub-dimension	1st year	21	4.36	0.93	Intragroup	2.204	4	.551	2,199	.069	-
	2nd year	100	4.36	0.42	between groups	79.435	317	.251			
	3rd year	104	4.30	0.53	Total	81.639	321				
	4th year	88	4.51	0.38							
	Postgraduate	9	4.36	0.46							
Extrinsic motivation sub-dimension	1st year	21	3.95	0.76	Intragroup	1.720	4	.430	1,404	.232	-

2nd year	100	3.99	0.51	between groups	97.085	317	.306
3rd year	104	3.82	0.56	Total	98.805	321	
4th year	88	3.96	0.54				
Postgraduate	9	4.04	0.35				

As shown in Table 7, motivation scale total and sub-dimension scores did not differ significantly by the variable of the year of study ($p>0.5$).

Correlation results between university students’ school climate and motivation levels

Pearson Moments Correlation coefficient was used to examine the association between university students’ school climate and motivation levels and the results are shown in Table 8.

Table 8. Correlations between School Climate and Motivation Scales and Sub-Dimensions

	1	2	3	4	5	6	7
1. School climate total	1	.890*	.850*	.917*	.203*	.138*	.210*
2. Commitment to School		1	.588*	.759*	.231*	.172*	.226*
3. Communication			1	.683*	.160*	.111*	.165*
4. Learning environment				1	.142*	.079	.164*
5. Motivation Total					1	.853*	.880*
6. Intrinsic motivation						1	.502*
7. Extrinsic motivation							1

$p<0.01^*$

As shown in Table 8, it was concluded that there were significant associations between school climate total score and sub-dimension scores. Similarly, a significant association was found between motivation total score and sub-dimensions. When the associations between school climate and motivation were examined, a significant association was not found only between learning environment and intrinsic motivation, while the positive significant association was found between all other dimensions.

Regression analysis results regarding the effects of school climate on motivation levels in university students

Regression analysis was used to examine the effects of school climate on motivation levels in university students. The data obtained as a result of this study are shown in Table 9.

Table 9. Regression Analysis Regarding the Effects of School Climate on Motivation Levels

Dependent variable	Dependent variable	B	Std. Error	(β)	t	p	R	R ²	F	p
School climate	Motivation	.111	.030	.203	3.700	0.00	.203	.041	13.687	0.00

As shown in Table 9, the school climate of university students predicted their motivation levels ($r^2=.041$; $p<.001$) significantly. It was indicated that school climate predicted 4% of the variable of motivation.

4. Discussion and Conclusion

According to the results obtained from this study, school climate and motivation levels of university students do not differ significantly concerning the variable of gender. Significant difference was found between the variable of the year of study and school climate scale sub-dimensions communication and learning environment. The motivation of university students did not differ significantly in terms of the variable of the year of study. Positive significant associations were found between university students’ school climate and

motivation scale total scores and sub-dimension scores of the scales. Finally, the effects of school climate on university students' motivation levels were examined and the findings showed that school climate predicted motivation level significantly.

When the literature is examined, it can be seen that there are studies supporting the results of the present study. As a result of Güneş's (2019) study, the findings showed that communication and learning environment sub-dimensions of school climate did not differ significantly concerning the variable of gender. As a result of the present study, it was found that communication and learning environment sub-dimensions of school climate differed significantly in terms of the variable of the year of study. While 4th-year students had the lowest mean in the sub-dimension of learning environment, 2nd-year students had the lowest mean in the sub-dimension of communication. Unlike the results of the present study, Özdemir, Çepni and İncedere (2020) found that school climate levels of associate degree students decreased as their year of study increased.

When the studies which examined the association of school climate with different variables were examined, the samples of studies were mostly school principals (Sönmez, 2018; Alqahtani, 2015), teachers (Selçuk, 2016; İdi, 2017) and secondary school students (Dönmez & Taylı, 2018; Bahçetepe & Giorgetti, 2015). In the present study, university students were chosen as the study group. To our knowledge, no studies were found in literature in which the association between school climate and motivation was examined in university students; however, the association between school climate and motivation was examined in different study groups.

In the study conducted by Selçuk (2016) on teachers, a positive significant association was found between positive school climates and motivation. Similarly, it was found in Argon and Ertürk's (2013) study that as teachers' intrinsic motivation increased, their organizational identity perceptions also increased. According to the results of İdi's (2011) study on the organizational climate of teachers, a positive significant association was found between organizational climate and motivation. In Sönmez's (2018) study on school principals, the findings showed that the motivational language used by school principals was a significant predictor of school climate. Similarly, Alqahtani's (2015) study showed that the motivational language used by school principals had a significant effect on school climate. The findings obtained in the present study showed that a positive significant association was found between university students' school climate and motivation levels. It can be seen that the results of the present study are in parallel with the studies in the literature.

Few studies were found in literature which examined school climate on university students. In Güneş's (2019) study, a positive significant association was found between prospective teachers' school climate and attitudes towards the profession of teaching. In Özdemir, Çepni and İncedere's (2020) study, the findings showed that associate degree students had moderate levels of school climate perceptions. When the sub-dimensions were examined, associate degree students were sufficient in terms of learning environment and communication, while they were insufficient concerning commitment to school. It can be said that the results of the present study are consistent with the studies in the literature.

The following recommendations were made according to the results obtained from this study.

- In the present study, the association between school climate and motivation level was limited to university students. In future studies, the association between school climate and motivation levels can be examined in different sample groups.
- When the positive association between university students' school climate and motivation levels is considered, studies should be planned to increase the school climate of university students.
- In further studies, more in-depth analysis can be conducted using both quantitative and qualitative analysis techniques together.

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The Relationship between Participation in Extracurricular Activities and Motivation of Foreign Language Learning*

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ABSTRACT

The aim of this study is to identify the link between foreign language learning motivation and English preparatory class students' participation in the extracurricular activities programmes. The differences between the motivation levels of the students based on their participation in the extracurricular activities are defined and students' participation is also compared in terms of gender and education level. The study group consists of 340 students. The data were gathered by "Motivation Scale in English Language Learning". Results indicated a significant difference between the students' motivation level towards English and participation in extracurricular activities in favour of the ones who attended these activities. It is also concluded that participation in extracurricular activities had a significantly positive impact on the students' attitude towards learning English. However, it was found out that there is not a significant relationship between the gender, education level and motivation level of the students participating in the extracurricular activities. The results have been discussed within the context of Socio-Educational Motivation Theory.

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Keywords:¹

Extracurricular activities, English language learning, motivation.

1. Introduction

The necessity to learn English has become nearly compulsory in the contemporary world. One of the most noteworthy reasons can be considered English's being widely used worldwide, particularly in the fields of education and business. Young people must be competent users of a foreign language in their professional and social lives (Block, Gray, & Holborow, 2012; Lamb & Arisandy, 2020; Yashima, 2000). Youth mobility is getting more important across the world. To be a part of those programmes, they need to improve their communicative skills, including the ability to express themselves in English. According to Morris (2001), students learn English for a utilitarian value like job opportunities and cultural reasons. Similarly, Lu (2011) points out that students would like to learn English because of socio-economic mobility. Given all that, qualified foreign language education is compulsory for the students to catch up with the modern era since English is seen as a key to opening new doors for young people (Bacon & Kim, 2018; Moyer, 2018).

There are many components of foreign language education programmes. The first thing affecting foreign language education's quality is the philosophy, which all the curriculum and the teaching practices are based

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on. Second, the theories and methods used throughout the teaching practices matter in designing an education programme. The current foreign language programme in Turkey has been grounded on “The Common European Framework of Reference” (CEFR; 2001) by “The Council of Europe”. This programme helps learners reach up to a certain level by using the same curricula, the same objectives and provides a basis for the users. However, foreign language education practices in Turkey leave the education system one legged since English is not used in daily life and the students do not have a chance to practice it in Turkish education system (Çetintaş, 2010; Haznedar, 2010). Hence, curriculum is hardly sufficient to enable students to master their language skills (British Council & TEPAV, 2014).

The students' motivation level is regarded as an important issue affecting the quality of foreign language education (Belaja, Boon Sai & Lin, 2012; Deci & Ryan, 2012; Sengkey & Galag, 2018). Gardner and Lambert (1972) state that there are mainly two types of motivation for learning a language: integrative and instrumental. Instrumental motivation is having a pragmatic reason for a learner to learn any topic. To illustrate, one may wish to learn a foreign language for getting a better education or another for getting a better job. It is regarded as a key in the process of foreign language learning (Taylan, 2017). Integrative motivation supports people to empathize with others and socio-cultural aspects of the language context and it contributes the learners better understand the culture of the target language and the people. (Kashefian-Naeeni, Aminlari & Mousavi, 2018). These two motivation types are important in explaining the reasons why people learn a foreign language.

One of the pioneering motivation theories in teaching foreign language is Gardner's Socio-Educational Motivation Theory (1985). According to Gardner, motivation has a direct impact on learning a second language. A learner adopts the culture of language he/she learns. The learner practices many things in her own culture, accommodates herself in time, and starts thinking in the target language. For this reason, foreign language learning is thought to be more complex than learning other school subjects. Gardner (2006) does not simply connect the concepts of learning a language and motivation with tasks in class. He strongly proposes that there is a powerful link between integrative motivation and motivational behaviour (Gardner, 1985). According to him, knowing the motive of the learner is the key point to increase and maintain the motivation. The theory puts forward four important components: the social milieu, individual differences, acquisition (learning) contexts, and outcomes. The social milieu includes all the beliefs about language that parents, teachers, and peers mainly acquire. Individual differences are closely associated with attitudes towards learning situation, integrativeness and motivation. Krashen (1981) reviews acquisition context component as formal and informal ways. The outcomes of the learning are mainly associated with the language competency and attitude change.

Teaching aids are also considered to be one of the primal factors associated with the quality of foreign language education. To that regard, extracurricular activities play a crucial role in teaching a foreign language and they can be thought as part of informal learning (Gao, 2008; Reva, 2012). Informal learning can be generalized to all types of daily activities which enable the individuals learn in an unintentional way (Dörnyei, 1990; Gardner & Lambert, 1972). This generally results in the acquisition of the target language and one way to achieve this can be using extracurricular activities (Van Marsenille, 2015).

Extracurricular activities do not have a common definition in literature (Bartkus, Nemelka, Nemelka & Garnder, 2012), but according to Enachescu (2019) these activities include the activities that complement normal learning practices. Kassas (2002) highlights the importance of extracurricular activities by stating that learners will practice and internalize what they learn theoretically in class through these activities.

There are several studies related to the effectiveness of the extracurricular activities on learners' development. Some of them highlight the importance of the participation in these activities since they contribute to academic success as well as personal skills like self-confidence, time management and discipline (Barnett, 2007; Cooper, Valentine, Nye & Lindsay, 1999; King, McQuarrie & Brigham, 2020). Some other studies focused on the relation of extracurricular activities and motivation since this maintains a permanent language trend for the learners (Dörnyei, 2001; Gardner, 1985; Stearns & Glennie, 2010). These studies also stress out the profound effects on

academic success, motivation level, and the students' attitude in terms of learning English, showing a positive correlation between participation in the extracurricular activities and their success in the academy.

Many more studies (Bradford, 2007; Kuimova & Polyushko, 2015; Kyriacou & Zhu, 2008) emphasize the benefits of extracurricular activities such as forming social groups ensuring autonomous learning and peers' getting together and the significance of the purpose of the students to learn a language. While some studies conducted to display the effectiveness of being exposed to the target language is essential to have a higher level of motivation (Ojima, Matsuba-Kurita, Nakamura, Hoshino & Hagiwara, 2011), several studies reiterate the importance of using social media as a means of teaching foreign languages (Ohashi, 2016) and having higher level of socioeconomic status in terms of having access to extracurricular activities (Paek, Park, Runco & Choe, 2016).

1.1. Foreign Language Education in Turkey

English was first introduced into Turkish education system as a foreign language as of the nineteenth century and this was followed by the foundation of the Republic of Turkey (Sarıçoban, 2012). With the Educational Reforms (1997, 2006 and 2012), the position and the effectiveness of foreign language education changed in a salient way (Kartal & Başol, 2019).

In Turkey, foreign language education is currently included in the second year of primary education curriculum. Although it is compulsory, total weekly hour of English courses in primary school is only two hours based on the decision of the Board of Education and Discipline (2013). Since English has widely been taught using traditional methods in primary, secondary and even in higher education; it lacks to fulfil the fundamental objective of foreign language education, which is to equip the learner with the competency of communication in the target language. Traditional methods are being used in general and students are not usually encouraged to practice speaking. It will certainly become difficult to teach English unless a positive perception towards the language courses or a wider use in a social context is ensured.

The studies conducted in Turkey (Bulut Özek & Pektaş, 2016; Çetintaş, 2010; Haznedar, 2010; Kelahmetoğlu & Kaya, 2017; Kızıltepe, 2000, 2003; Sarı, 2012; Soner, 2007; Ulum & Uzum, 2020) reveal that especially state schools in Turkey stick to traditional teaching methods in foreign language education and lack of practice leads to many other problems in this context. Some other research run by external institutions (British Council & TEPAV, 2014; Education First, 2015) demonstrate the cost of the traditional way of teaching for the students in Turkey by having a relatively low English level in the world ranking. Taken all these studies into account, it is significant to evaluate the effectiveness of extracurricular activities as an alternative way of teaching English and implement them into the field of foreign language education in Turkey since traditional ways of teaching as reported above do not to create much difference in terms of competency and motivation levels of the students.

This study was designed to analyse the university students' motivation level towards English based on their participation in extracurricular activities. It is also intended to find out whether the difference in terms of motivation level of the students based on gender, the graduation school, and faculty type they are registered to is significant.

2. Methodology

2.1. Research Model

The design of this study is based on quantitative model principles as the relation between two variables were analysed via empirical data (Büyüköztürk, Akgün, Karadeniz, Demirel, & Kılıç, 2016). Within this frame, causal comparative research was used to analyse the variables correlational without an intervention. Also, short interviews were conducted with the students who show high level of motivation to support the quantitative data.

2.2. Participants and Procedure

The participants constitute of 340 students from a private university's English preparatory programme and their age range was between 18 and 20. The students in the study group were selected based on their level of English. The study group (Table 1) consists of Turkish students with an intermediate English level attending a preparatory programme at a university in Ankara, Turkey. Students, who were in their first year at university, were given an English proficiency exam and were placed in a suitable level based on their exam results. The levels can be listed as A, B and C from lower to higher and B level represents intermediate level. Students in the study group were chosen among 340 B level students since the ones in A level had difficulty understanding English yet, the ones in C level had been busy preparing for the preparatory class's exit exam and their attendance rate to the extracurricular activities were low.

The study group was offered to participate in various activities to create a real-like context and enable the learners to practice the target language. The extracurricular activities programme has been administered for nearly ten years in the department and was registered with European Language Award in 2012. They are mostly run by the instructors whose mother tongue is English. Although the activities are not based on a specific teaching method, they are structured, and the instructors prepare lesson plans and materials for these activities beforehand. The activities are organised for one hour on a weekly basis for the whole semester. The activities are detailed below:

The native instructors run English Friends Club and it provides learners with an opportunity to exchange cultural knowledge with the facilitators because knowing the culture of the target language can be thought as the most significant step in learning a foreign language. Prep Times is another club where students prepare news by themselves and share them with their peers in the department via a departmental newspaper. Another extracurricular activity is Movie Club where films, documentaries or series are watched and then discussed in English. This activity is a good way to boost listening and speaking skills. Drama Club is an extracurricular activity in which students rehearse and perform an English play to their peers at the end of the semester. Scrabble Club is also a way to enhance students' vocabulary knowledge. In addition to these clubs and activities, students also have a chance to practice on their own as autonomous learners in Self Access Centre in which the learners can enhance four skills in English with the help of a facilitator and Reading Room where students can reach some readers, magazines and books in English. Finally, students also have the opportunity to have conversation classes each week with a native speaker of English after the class hours.

Table 1. *Distribution of the Participants*

Variable	Level	f	%
Gender	Female	199	59.00
	Male	141	41.00
	Total	340	100.00
Registered Faculty	Engineering	126	37.00
	Economics & Administrative Sciences	93	27.00
	Fine Arts	60	17.00
	Science and Letters	26	8.00
	Law	26	8.00
	Medicine	9	3.00
	Total	340	100.00
Type of School	Public	125	37.00
	Anatolian High School	96	28.00
	Private	65	19.00
	Science High-School	32	6.00
	Other	22	100.00
	Total	340	

2.3. Data Collection

The quantitative data were collected by Motivation Scale in English Language Teaching developed by Mehdiyev, Uğurlu and Usta (2016). The five-point-likert scale was applied to 147 students in the pre-assessment phase and exploratory factor analysis (with 275 students) and confirmatory factor analysis (with 331 students) were carried out to examine the construct validity. Exploratory factor analysis results show that the scale comprises three sub scales: self-confidence, attitude and personal use, and the total variance is explained with a percentage of 51.13%. The self-confidence sub-dimension contains four items (item 1-4) and the Cronbach's-Alpha coefficient for this dimension is .78. The attitude sub-dimension contains five items (item 5-9) and the Cronbach's-Alpha coefficient for this dimension is .77 whereas the personal use sub-dimension includes seven items (item 10-16) and the Cronbach's-Alpha coefficient for this dimension is .85. The Cronbach's-Alpha coefficient for the entire scale is .83.

Motivation Scale in English Language Teaching, which has 16 items and 3 sub-dimensions, was applied to all the students in 20 different classes on a voluntary basis simultaneously after being piloted with 10 students. In order to support quantitative data, nine students who responded the motivation scale and participated in the extracurricular activities were interviewed voluntarily. These students were selected among the ones who got respectively higher results from the motivation scale. Upon their oral consent, these students were asked their general opinion about extracurricular activities and if the activities they participated positively contributed to their learning process or not. The students were asked for the short interview after school hours and interviewed one by one.

2.4. Data Analysis

First, normality tests were carried out for all levels of variables. Since the mean, median and mode values were very close to each other and coefficients of skewness and kurtosis were between -1 and +1, the distribution was accepted as normal (McKillup, 2005). To analyse the difference between the students' motivation levels based on the participation in the extracurricular activities, independent samples t-test was conducted.

Analyses were conducted to figure out if there is a significant difference between the motivation level of the students who participated and did not participate in extracurricular activities based on their gender, the type of high school they graduated and the faculty they were registered based on their motivation level. The impact of the gender on the participation of the students in the extracurricular activities was tested through independent samples t-test. Since the categorical variables (type of high school and registered faculty) were not distributed evenly, non-parametric techniques were used with the variables. Kruskal Wallis test was used to identify if the high school the students graduated and the faculty they are registered create a variation in the students' motivation level who participated in the extracurricular activities.

3. Findings

The link between participation in extracurricular activities and the motivation level is the main concern of this paper. Within this context, the results of the independent samples t-test (Table 2) analysing the motivation levels of the students revealed significant differences between the mean scores of the students participating in the extracurricular activities and those who did not participate in the English Language Learning Motivation Scale ($p < .05$). It can be concluded from the results that the students benefited by the extracurricular activities by gaining integrative motivation.

Table 2. Motivation Scale Scores

	N	\bar{X}	S	df	t	p
Participants in ECAs	118	4.0	.57	388	2.489	.01
Non-participants in ECAs	222	3.8	.66			

$p < .05$

Although the results of the t-test regarding the sub-scales (Table 3) did not show significant differences based on self-confidence and personal use sub-dimensions, participation in extracurricular activities may be concluded to change the students' attitude towards English in a positive way compared to those who did not attend the extracurricular activities when evaluated with the interview results ($p < .05$). This supports the idea put forward in the Socio-Educational Motivation Theory (1985), especially with the individual differences and outcome components that affect the students by changing their attitude and integration positively.

Table 3. Differences between Motivation Scale in English Language Learning Self-Reliance, Attitude and Personal Use Sub-Scale Averages

		N	\bar{X}	S	df	t	p
Self-Reliance	Participants in ECAs	118	2.36	0.92	338	1.801	0.07
	Non-participants in ECAs	222	2.56	1.01			
Attitude	Participants in ECAs	118	3.00	2.92	338	2.301	0.02
	Non-participants in ECAs	222	2.80	2.00			
Personal Use	Participants in ECAs	118	4.15	0.66	338	1.570	0.12
	Non-participants in ECAs	222	4.02	0.78			

$p < .05$

The second main purpose of this study is to examine whether the motivation levels of the students participating in extracurricular activities show a significant difference as per their gender, the type of high school they graduated and their faculties in the university. The motivation level of the students (Table 4) attending the extracurricular activities does not vary significantly based on the gender, type of high school they attended or the faculty they are registered ($p < .05$). It is vital to note that gender and education level are not common variables studied in most of the research done in the field of extracurricular activities.

Table 4. Gender, School Type and Faculty Differences on Motivation Levels in English Language Learning

		N	\bar{X}	S	df	X^2	p
Gender	Female	76	3.95	0.53	116	0.518	0.60
	Male	42	3.90	0.63			
Type of High School Graduated	Basic High School	48	4.04	0.57	5.11	8.877	0.06
	Anatolian High School	33	3.90	0.59			
	Private High School	20	3.88	0.63			
	Science High School	8	0.60	0.29			
	Other	9	3.92	0.30			
Registered Faculty	Engineering	47	3.75	0.64	5.11	11.313	0.06
	Economics and Administrative Sciences	25	4.14	0.35			
	Fine Arts	21	4.07	0.47			
	Science and Letters	9	3.80	0.53			
	Law	10	4.13	0.71			
	Medicine	6	3.79	0.46			

$p < .05$.

Interviews with the students who attended the extracurricular activities were conducted to get more detailed understanding of the quantitative data. Interviews indicate that students find it boring to attend the classes where English is taught with classical methods. Thereby, they report that they expect the learning process to be more enjoyable for them with the use of extracurricular activities. One of the students describes the foreign language learning process she desires as:

S1: "Sometimes we study just for the exams and therefore, we generally forget that we are learning English. Extracurricular activities teach us to use English and experience it in all domains of life if we want to learn it."

In Turkey, attending prep class is regarded as a lost year in university education both by the students and the parents. For this reason, the students have been asked the question "Has attending these activities contributed to your English language learning process?" to understand their attitude towards this one-year education. A student responded as follows:

S2: "I believe there has been a huge gap. I feel lucky since I attended prep class and these activities. The activities are really helpful, and they make students socialize. I had a chance to know a lot of people and interacted with them. When I could interact with people, especially in English, this gave me confidence. I had the image that I could speak in English."

As can be understood from these comments that students use the target language in a daily context change their misinterpretation regarding their prior knowledge which the following students also support:

S3: "These activities are really encouraging, but most of the students see them as burden. I took part in the drama activity and it helped me improve my speaking skill as well as social skills since this was a way for my friends and me to socialize."

S4: "When we learn something here theoretically, we generally do not use it in our daily lives. But when we join these activities, we can use them and have a chance to practice. I would also like to state that the number of the activities should increase to get more attention since people's interests may differ."

4. Conclusion and Discussion

This specific study aimed at displaying the effectiveness of the extracurricular activities in higher education level in Turkey, especially in the context of preparatory class students by highlighting the differences in terms of the participants and non-participants. This paper explored whether participation in extracurricular activities and being exposed to the target language significantly affect the students' motivation level towards English. The results show that the students participating in extracurricular activities have a higher level of motivation than the non-participants. Similar studies (Berg, 2013; Bulut Özek & Pektaş, 2016; Dörnyei, 2001; Gardner, 2001; Henry, 2014; Kelahmetoğlu & Kaya, 2017; Murray, 2011; Reva, 2012) indicate a parallel pattern as of the students' responses in the motivation scale and in the interviews. In this study, the term motivation has been used to refer to inner motivation. Many studies (Çelik & Bayraktar Çepni, 2020; Harter, 1981; Maehr & Midgley, 1991; Pintrich & Schunk, 2002) stress the importance of inner motivation in foreign language teaching field. The extracurricular activities seem to have a positive effect on the inner motivation level of the students who attended the activities based on students' self-report. Even though the students had some worries about learning English, they reported to feel more motivated and would like to attend the activities more often with the help of these activities.

The results of attitude sub-scale indicate that students participating in extracurricular activities had higher scores than non-participants did. The interviews with the students also support this finding. The students who took part in the interviews stated that they had worries about learning English before they started the preparatory programme. In addition, their attitude towards learning English was in a negative direction which is caused by their perceptions and assumptions about learning a foreign language; however, during the interviews they mentioned that their attitude towards learning English also changed in time. Although this contradicts the findings obtained from the attitude subscale, it supports Gardner's (1985) Socio-educational Motivation Theory. It alleges that the learners' attitude and motivation levels are closely related.

This study suggests that curriculum designers should be inclined to raise the authorities' awareness in the field of education and create an initiative for a change of practice in the field of foreign language learning to raise the students' motivation level towards learning foreign languages. Within this framework, in-service training should be organised for foreign language educators in different education levels in Turkey. The trainings should include what extracurricular activities are and how they should be implemented to go in line with our curriculum.

Turkey, still being among the very low proficiency level (46.81) category countries in the world- ranking 76 out of 85 countries, should take precautions to improve this learner profile (Education First, 2019). This is possible to enhance the level of motivation of the students through the use of experimental ways of teaching

rather than sticking to conventional methods (Demydovych & Holik, 2020). Another step to address this problem is to change the students' perception towards English (Tatar, 2017). It is also important for the instructors to encourage learners to be active participants in this process, which is thought to positively influence the students' motivation level. This is believed to have a profound impact on students' forming social groups and becoming autonomous learners as well.

With this permanent informal learning trend, the motivation levels of the students will go up. This suggests an important indicator of how foreign language education should be organized in Turkey since students benefited from these activities. However, the main focus of the activities was not grammar teaching. Therefore, there should be a gradual shift from the grammar-based teaching methods and the curriculum should be re-organized with the inclusion of practice-oriented activities. In this way, the students will be exposed to the target language, easing their foreign language learning process.

To conclude, the number of research on the effectiveness of extracurricular activities should follow up with higher education in Turkey and the other education levels, especially in foreign language education. This is mostly because of the fact that the students in Turkey are not educated as autonomous learners and this can be the first step of breaking out of the conventional ways of teaching.

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Women's Gender Roles in History Textbooks in Turkey

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ABSTRACT

Although the notion of gender has a biological meaning, the concept of gender refers to a social construction that emerges from a biological basis. This construction includes cultural definitions of masculinity and femininity that are more appropriate for social life. In the definition and distinction of gender roles in social life construction, the discussion of the public and private sphere is seen. Textbooks have an important place as a dominant discourse tool in the public and private sphere debate. Therefore, textbooks in general and history textbooks in particular have an important share in this debate. Textbooks convey stereotypes of gender roles to students and contain descriptions of roles. On the other hand, history textbooks construct and legitimize the historical context along with the definitions of roles. Therefore, history textbooks have an important share in the production of women's gender roles. In this context, it is determined that the purpose of the study is to evaluate the gender roles of women in compulsory or history courses textbooks in the 2019-2020 academic year in Turkey. In the research, document analysis is carried out using a case study, one of the qualitative research designs. 9, 10, 11 and 12th-grade history textbooks and 11th-grade elective History of Turkish Culture and Civilization, 12th grade Turkish Republic History of Revolution and Kemalism and 12th grade elective Contemporary Turkish and World History textbooks were examined. In the study, the discourse repertoires built on women's gender roles were determined using critical discourse analysis. In the textbooks, it has been determined that the gender roles of women are associated with traditional roles such as motherhood, child-rearing, and sewing and embroidery. Besides, although it is argued that women are the subjects of the public sphere in the textbooks, it has been seen that the roles of the private sphere are concretized, clarified, legitimized and reproduced with various examples. As a result, history textbooks have been shaped in a male-dominated structure and the basic discourse produced from this is that women are a part of private life, not the public sphere. To eliminate the disadvantageous situation of women regarding gender roles in history textbooks, guidelines for textbook authors should be prepared in the history course curriculum.

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Keywords:

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1. Introduction

The production of knowledge carries the traces or reflections of the producer of the information. The objectivity of the knowledge form produced refers to the basic acceptance point of modernity. Modern objective knowledge also enables the construction of the dominant discourse. The dominant discourse implies a hierarchical order, although it has a political meaning. Considering that the rules produced for the object express the discourse (Arkonaç, 2014), it has made the question of who the subjects in the discourse are, as

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well as the gender of these subjects, a subject of discussion, and put into question the entire form of knowledge produced by the dominant discourse.

There are some reasons why the woman cannot be the subject against the male subject who constructs the dominant discourse. In the historical background of this situation, in a period close to the end of the 20th century, before the influence of different disciplines in gender studies, there is the understanding that approaches the difference between women and men as natural. This natural difference demonstrated the existence of a hierarchical order in many issues ranging from social position to forms of power. There was no production of information about the life of the ordinary woman. However, one of the most important reasons underlying that women are not seen as historical subjects is that history seems to be related only to the transmission of politics, economics and the execution of power, while another reason is that historians are men. In addition, while these male historians saw women as mothers, wives and servants, they also regarded their activities as irrelevant to history (Rose, 2018).

Apart from understanding history and the perspective of historians on women as subjects, the main argument is that the male-dominated discourse of modernity is dominant in making sense of all events and phenomena, including concepts. In this context, the existence of the concepts of gender and gender roles in social sciences is a criticism of the aforementioned masculine structure. Unlike the concept of gender, the notion of gender emerges as a cultural definition of behavior that is assumed to be appropriate for the sexes in a particular society at a given time (Berktaş, 2019, p. 29). In a sense, the concept refers to the unequal division between masculinity and femininity in the social direction. It is understood that the most important reason underlying the unequal division is the reproduction of the inborn sexes by gender.

It provides information about gender, expectations from the gender and the position of the individual. The domain of the concept is not limited to expectation and position. Gender is also related to the private and public lives of men and women. The most important factor that maintains the stereotypes that are produced and expected to be followed is the belief that the behavior, attitude and reactions between these genders are different from each other and the differences between men and women, which are believed to be found (Vatandaş, 2007). These differences are the most important factors that make up the roles in the life of the breed. Connell (1996) explains gender roles as gender stereotypes that describe appropriate behavior for women and men and address social expectations. According to him, gender is a way in which social practice is organized.

The production of gender roles is not as simple as it might seem. Even the names such as father, son, and brother are not simple ones, on the contrary, they are people who bring very important mutual duties for the society beyond the individual structure (Engels, 2003). The mother and father take the first steps in building roles for the child, once the gender of the child is revealed. Again, Connell (1987) states that gender began its emergence with the family, and that social and cultural dynamics shaped it in the following process. Besides, in shaping the individual through values in this process, the production and continuation of gender roles and traditional values are provided. The transferred values and the applied approaches make it possible to build an appropriate citizen (Muç, 2019). Thus, the individual, who goes through various processes, adopts gender roles in the society's direction.

The main theme of gender adaptations has always been two gender roles. The male role and the female role or the male role and the female role. The roles to be followed make their presence felt in all areas of life. There are clear differences between the roles of men and women in every field from daily life to working life, from marriage to family life. However, it is seen that men are generally given the role of fatherhood, headship and breadwinner in the family, while women are mostly given the role of motherhood and housewife (Yılmaz, 2018, p.3). However, it should not be overlooked that women are at a disadvantage compared to men in this distribution of roles. It is especially noteworthy that this disadvantaged situation occurs in the public sphere, and women are primarily associated with the private sphere and the family.

According to Scott (1986), gender identity is constructed through language. In this construction process, especially since the relationship between the genders will be different, gender roles will be the main factor in understanding their sexual identity. Learning the roles that start with the interaction with the family and close environment is not limited to the family, but also, according to Özdemir (2018, p.81), from mass media, social environment, stories, fairy tales and textbooks. On the other hand, educational institutions play an active role

in the creation and reproduction of gender roles (Adaçay, 2018). In this context, one of the means of producing gender roles is textbooks.

1.1 Textbooks and Gender

Textbooks, one of the most widely used educational resources by schools, carry the acquisitions, concepts, values, and skills to students in line with the national curriculum's basic goals and objectives (Doğan & Torun, 2018, p. 112). While textbooks are also seen as powerful cultural, ideological and political tools of the society in which new generations socialize (Chiponda & Wassermann, 2011), they are the sources whose content is created within the framework of determined curriculums and the behaviors that the state wishes to see in individuals who want to train can be seen concretely (Alabaş, 2018a). Textbooks have an important content on gender roles as the distinctive power of social structure. This content conveys explicit and implicit messages to students about gender roles and conveys whether or not the gender-appropriate behaviors and roles are (Özmeriç Taştekin, 2019). Textbook reviews in this context provide important data on the relationship between textbooks and gender roles. For example, in the textbook reviews conducted until the end of the 1990s, it is clearly stated that there is gender discrimination against women and it is stated that women are restricted to housework and childcare roles (Güneş, 2008). More broadly, in the analysis reports of the Human Rights in Textbooks project (I, II, III) carried out in collaboration with TÜBA and the History Foundation, it was stated that the textbooks of Güvenli and Tanrıöver (2009) were particularly problematic due to their potential to sustain unequal gender roles. The most common violations are the use of sexist language in primary education, the unquestioned acceptance of the unequal distribution of social roles, the patriarchal understanding of the family, and the family's male-dominated portrayal. It has been stated that the most common violation at secondary education level is sexism in language (as cited in Çayır, 2014, p. 83).

Apart from these studies, the results of other studies (Gümüšoğlu, 2016; Altan Arslan, 2000; Tezer-Asan, 2010; Yurtsever, 2011) that examine the textbooks in terms of gender roles suggest that the passive position of women in the distribution of roles, the inequality and imbalance between the genders are maintained, women are home to traditional roles. (Karaboğa, 2020, p.55). In the textbooks that can be considered as a tool of dominant discourse, students are introduced to mothers as someone who cleans the house, cook, wash the laundry and dishes, take care of their children. Even in texts that mention women working in a job, it is emphasized that the main duty of women is in the home (Yılmaz, 2018). Accordingly, it is understood that women are associated with loyalty to their families and private sphere jobs, while men are associated with all public affairs except these jobs.

Taking place of the concept of gender in historiography is a product of the historical process. Indeed, the birth and rise of gender historiography in historiography was accompanied by linguistic turn, poststructuralism and postmodernism. Throughout this period, gender historians have been trying to demolish the idea that the subjects of history are disembodied white men. This situation also weakened traditional historiography. However, in the debates between feminist historians and traditional historians, Michel Foucault stated that the power's commitment to knowledge, gender has become the object of scientific knowledge in the history of sexuality. The information produced functions as a means of control. Jacques Derrida put forward the idea of deconstruction as a way of understanding and reading texts. Following the contributions of names such as Joan Scott and Kathleen Canning, it is seen that interdisciplinary approaches and different traditions made significant contributions to gender historiography (Rose, 2018).

It is known that after the inclusion of the concept of gender in historiography, history lessons have a structure that builds the dominant discourse besides conveying the knowledge of the past. According to the feminist theory, it is accepted that history lessons display a masculine structure as an ideological tool in this construction process. The historical construction of this masculine structure is closely related to the current paradigm. The modern paradigm has been an important factor determining the distribution of women and gender roles. As a matter of fact, gender-based modernist approaches distinguish between public and private spheres in the patriarchal family structure (Özbek, 2016). The public sphere is seen as the man's sphere, and the private sphere as the woman's sphere. This spatial differentiation gave women the roles of "mother, wife and housewife".

The inclusion of women in history textbooks different from their traditional roles in the private sphere is the reflection of the developments in democratization and human rights after the Second World War. The

development of social history understanding in the 1960s and 1970s has accelerated this situation. Firstly, the materials used in history education in England and the USA constitute the discussion's starting point. In the School History Project (SHP) in England, women are not sufficiently represented in history teaching, and a male-dominated understanding of history has been maintained in the context of the curriculum and textbook. Women and gender follow this discussion in special education in Turkey and in the world and history textbook study shows that began to be built (Demircioğlu, 2014).

In general, history textbooks contain subtexts that contribute to understanding men and women's social and historical roles (Chiponda & Wassermann, 2011). Therefore, history textbooks have been seen as an important tool for producing, interpreting, and converting gender roles into behavior. History lessons and textbooks have an important place in the formation of collective consciousness and in the construction of social reality, and it is seen that gender in social reality is legitimized as yesterday, today and tomorrow (Pamuk, 2014). In addition, it should be considered that history teaching programs are an important framework for history textbooks. Can (2009) states that in the history lesson curriculums prepared since 2006, there are issues and achievements related to women in social, economic and cultural history, and the emphasis is on the fact that women are the subjects of history like men. However, although there is no information about women and gender roles in the 2018 secondary education history course curriculum, only for the authors of the textbook, the contents of the textbook should be prepared by considering gender equality statement (MEB, 2018, p. 18).

The purpose of this study is to determine and analyse what the gender roles of women who are included in the textbooks, grade 9, 10, 11, 12 history textbooks, 11th Grade elective course The History of Turkish Culture and Civilization, Grade 12 Modern Turkish and World History, Grade 12 Turkish Republic History of Revolution and Kemalism, are and how they are reflected. The problem statement of research in this context is what the gender roles of women in history textbooks in Turkey are? Sub-problems to be answered within the framework of this problem statement are as follows;

1. What are the main features of the description of women in history textbooks?
2. What are the main characteristics of women's gender roles in history textbooks?
3. What are the main characteristics of women in history textbooks?

2. Methodology

2. 1. Research Model

In this study, a case study from qualitative research designs was used. "Case study is a qualitative approach that collects detailed information from real life situations or situations in a certain time interval through multiple sources of information, and reveals descriptions or themes" (Creswell, 2015, p.97). Unlike other types of research, the case study (Stake, 1978), which determines what the study is about, is a frequently preferred research design in social sciences. In this study, the gender roles of women in history textbooks, which are multiple sources of information, were examined and interpreted in a holistic manner with the case study.

2. 2. Data Collection Tools

Document analysis was used as the data collection tool of the research. Written materials that provide information to the researcher about the subject to be researched are called documents (Balci, 2013). Based on the problem statement, the sample of the research for which the document was examined; The Ministry of National Education's 9th, 10th, 11th grade secondary education history textbooks, which were accepted as an educational tool with the letter of the Board of Education and Discipline on 25.06.2018 and numbered 12254648, and which are compulsory in schools in the 2019-2020 academic year, In addition to the 12th grade Turkish Republic History of Revolution and Kemalism textbook, elective courses are 11th grade Turkish Cultural History and 12th grade Contemporary Turkish and World History.

2. 3. Analysis of Data

The data obtained in the research were analyzed by using critical discourse analysis. Critical discourse analysis is based on the use of language in texts. So much so that language has a central place in the meaning of the outside world. Rather than being a means of communication or representation (Elliott, 1996), it has a structure that constitutes the subject's social life.

There is a constant interaction between social life and language use. According to Gee (1999), the use of language has a political content and therefore a political discourse since the ideologies of the social world in which it emerged are intertwined. As a matter of fact, it is almost impossible to evaluate language outside of political and ideological factors. In other words, language, which has a role in constructing the external world and affecting social facts, differs in social situations related to the individual. This difference in the structure of the language is described as discourse, and discourse analysis can be expressed as a textual analysis of the different uses of language. With its general structure, discourse analysis is related to the context (power / knowledge relationship) and grammar of the text (Yetim & Erdağ, 2018, p. 83). Finally, it includes various analysis methods developed to explain the impact between the concepts of language and the social world's construction.

Critical discourse analysis relates to the use of the social power of elites, institutions or groups, the role of discourse in the (reproduction and challenge of) domination, resulting in social inequality, including political, cultural, class, ethnic, racial and gender inequality. It reveals and analyzes how power relations with another party are presented among participants, legitimized, denied, hidden. Critical discourse analysis explores and shows the structures, strategies or other features of text, speech, verbal interaction or communicative events that play a role in power and domination structures (Kress, 1990). That is, critical discourse analysis specifically focuses on manipulation, legitimation, consent generation, and other discursive ways to influence people's minds (and indirectly their actions) for the benefit of the powerful (Van Dijk, 1993).

In this context, by using critical discourse analysis in the research, the basic features of the presentation of women, how the woman as a subject is positioned and what kind of features come to the forefront in the history textbooks at secondary education level were determined. Then, by determining the roles of gender roles in the basic characteristics, it was investigated about the discourse produced. On the basis of the basic characteristics of the desirable woman, based on the basic features of the presentation and the discourse produced in the basic characteristics of the roles, the discourse of the acceptable woman that the dominant discourse tries to construct in the textbooks has been identified. Evaluations were made by discussing the contribution of these discourses to the general discourse.

3. Findings

3.1. Basic Features of the Description of Women in History Textbooks

The interpretation of the dominant discourse that determines the gender roles with critical discourse analysis aims to reveal the social power and influence relations built by the dominant discourse. The discourses built on the gender roles of women in the textbooks, which are an important tool that produce and legitimize these power relations, contain important clues about the place of women who are positioned as a subject. The basic discourse produced in the basic characteristics of the description of women in history textbooks is that women are the public sphere's subjects. In the sub-repertoire of this discourse, which expresses a meaning that women take an active role in social, political and economic life, there are a) gender equality, b) modern women, c) women as a defense mechanism, d) military women.

In the sub-repertoires of the discourse identified in the presentation of the woman in the textbooks, the emphasis on the equality of women with men in all matters associated with women draws attention. Supporting the basic discourse, the impression is created that equality is provided in all relevant fields, regardless of public and private discrimination. However, it is striking that the area to which equality is associated is mostly within the family and private. For example, in the 11th grade Turkish Culture and Civilization History textbook (MEB, 2019d, p.75): *"In the Turkish-Islamic society, the patriarchal family structure is observed as in pre-Islamic Turkic societies. In this structure, even though the father is the head of the family, the mother greatly influences family management. "The female bird makes the nest." The importance of women in society was stated with the proverb. Instead of the words kang (father) and ög (mother) used for mother and father in ancient Turks, the Turkish-Islamic states used the words ata for fathers and ana for mothers. In Turkish Islamic society, multi-spouse marriage was not common and the woman had the same rights as her husband."* As seen in the text, it is seen that women are in the role of motherhood and in the second place (mother also), as can be understood from the use of language created about women. Again, this situation, which is associated with the society and being a spouse, is supported by a proverb and it creates a meaning that it is equal with their spouses in terms of rights,

although it is not certain. Considering the text's general context, it is noteworthy that there is an emphasis on motherhood and being a wife in the context of women, and some issues that may cause controversy (such as polygamy) are avoided. In addition, it is seen that the theme of equality put forward in the description of women is wanted to be supported with a historical background by giving examples from Old Turks.

In addition to the historical background, how the meaning of the constructed discourse is provided and what has been done in this regard is another dimension that draws attention in the textbooks. In this context, studies conducted through laws, such as in the 11th grade Turkish Culture and Civilization History textbook: "An important step was taken in equality between women and men with the Civil Law enacted in the Republic Period." (MEB, 2019d, p.98) and: "With the Turkish Civil Code adopted on October 4, 1926, many changes were made in social life, and women and men were tried to be equal in almost every field from working life to education." (MEB, 2019d, p.123), as can be understood from the examples, laws were mentioned in ensuring equality, especially the importance of the Civil Code was pointed out. However, considering the predicates in the text, the fields in which equality is achieved and the changes made are not clearly stated. This shows that laws enacted are one of the tools that constitute the power of the dominant discourse in the description of women. Therefore, there is an expression that equality is placed on a legal basis.

Modernization has an important role in reproducing and transforming gender roles. Especially the female perspective of the new regime in the modernization of Turkey represents a major break with the old situation. In this context, as society's progress is in question, it is inevitable for women to have new roles in this progress. Modern women are included in the sub-repertoire that supports the basic discourse on exactly this understanding. It has been observed that this situation became concrete by granting legal rights to women in the early periods of the regime. The following expressions in the 12th grade textbook (MEB, 2019e, p.113) can be given as an example to this:

"On February 17, 1926, the Turkish Grand National Assembly accepted the Turkish Civil Code with the law it passed. The law entered into force on October 4, 1926. With the adoption of the Turkish Civil Code, the family structure was rearranged according to modern societies. Legal equality was achieved in Turkish society and thus an important step was taken in secularization of the legal system. With the acceptance of the Turkish Civil Code

- 1. Religion, language, and equality before the law regardless of race and gender were brought to all Republic of Turkey citizens.*
- 2. Turkish women have gained all kinds of social rights in social life.*
- 3. Turkish women gained the right to work in various professions.*
- 4. The monogamy rule was introduced.*
- 5. Women were also given the right to divorce.*
- 6. It was accepted that the marriage was made in the presence of an official marriage official.*
- 7. Women have been given the right to an equal share of the inheritance. "*

With the innovations brought by the articles of the Civil Code, it is seen that the new roles of women in public and private spheres are realized. However, the existing state of being in the second plane manifested itself in substances. Another point that draws attention here is that the new roles and gender regime have a paternalistic structure. However, there is an emphasis on the changes in gender roles for the benefit of women with the steps taken in the legal dimension in terms of general structure.

Image 1. One of the first woman representatives Meliha Ulaş



Another legal step where change occurs is the law on the right to vote and be elected. Regarding this law, which represents an important point in the construction of modern women of the new regime, in the 11th grade Turkish Culture and Civilization History textbook (MEB, 2019d, p.57): *"Women who did not have the right to vote and be elected in the first years of the Republic, could take part in the I. and II. assemblies. However, with a law enacted in 1934, women were also given the right to vote and be elected, so that the will of the people was fully reflected in the parliament."* The text emphasizes that the new roles of women in

the public sphere are realized. The second plan of the woman, who is directly associated with the management, is included as in the previous example. With the new image and profession of Meliha Ulaş, who was given as the first female deputy in Image 1, it is seen that the modern woman as a subject of the public sphere is embodied.

The answer to the question of what are the gender roles of women is closely related to the language used. Context is as important as the use of language in critical discourse analysis. Another of the sub-repertoires that construct the basic discourse in the description of women is women as the defense mechanism determined in relation to the context of the texts about women in the textbooks. The meaning desired to be created in these texts is that Turkish women are not passive characters in social and political life, on the contrary, they are active and constructive characters. 11th grade Turkish Culture and Civilization History textbook (MEB, 2019d, p.78) In the text of "The Place of Women in the First Islamic States": *"In addition, women were seen in all areas of social life in this period and there were even women who went on the expedition and participated in the war. Seljuk Sultan Tuğrul Bey consulted with his wife Altuncan Hatun on some issues related to state affairs."* It is possible to see an example of this situation in the statement. As can be seen in this example, although the areas where women are kept unclear when associated with the previous examples, direct attention is drawn to the warrior characteristics frequently encountered in later examples. At the same time, in the example given, it is seen that in a limited area, women are in a position to be consulted or consulted rather than making decisions. When we look at the language structure used, the place where the defense is made is on the place where women take part in war, which is seen as an area that does not belong to women. Therefore, it is understood that it is desired to create an impression that women are included in all areas of social life, and even more, besides historicity.

Various texts on women's defence mechanism have been identified from the sub-repertoires of the discourse, which constitute the basic discourse in the description of women and which constitute a response to certain judgments. In this context, highlighting the value and value given to women: "Sometimes you meet women with their men and then you think these men are servants of women." "One of the interesting attitudes I saw in this region is the extreme respect men show to women. Women were considered superior to men in this country." (MEB, 2019d, p.78), it is stated that the place of women is glorified and superior in the sense constructed. In the previous example, there was a judgment that women existed even outside the sphere of existence under normal conditions. In this text, the state of equality seen in the description of women in the previous examples has evolved into being superior to men. Therefore, this state of defense, which emerges in the basic characteristics of the description of women, has occurred in the form of glorifying the position and value of women contrary to the judgments.

Another sub-repertoire that constructs the discourse in the woman's presentation is military women. It is noteworthy that in the general historical construction of history textbooks, the military characteristics of women are brought to the fore in line with the discourse of "army-nation" or "warrior nation". In the 11th grade Turkish Culture and Civilization History textbook that can serve as an example for this situation: The army organization in the Turks has been an example for many countries. (MEB, 2019d, p.61) emphasizes that there is no discrimination due to this established understanding and that women are potential military power.

Another similar example is a text in the same textbook stating that women have a military force when necessary: *"In the ancient Turks, men and women knew the art of war well. Women would even join the war when necessary. As a result of the army-nation tradition, even children were accustomed to military service from an early age. Today, young people who are sent to the military in accordance with the understanding of the army-nation, which does not lose its meaning, are sent off to the army with drum and turnout ceremonies."* In the text (MEB, 2019d, p.19), it is stated that as can be understood from the structure of the sentence, women are in the second place in terms

of military power, as in the previous examples, but this power of women is used when appropriate. At the same time, it is seen that military service is a voluntary task rather than an obligation, and that women are associated with the duty of defending the homeland. In this direction, the military role has been legitimized as a manifestation of an established understanding.

Image 2. Bâcıyan-ı Rûm (Representational)



Various images were also used to strengthen the basic discourse. The representational picture given in image 2 aims to visualize the military women of the period. In the 10th grade history textbook that associates painting with: "Turkish women, who were masters in horse riding and shooting in the Pre-Islamic Period, participated in wars with men. After the conversion to Islam, this tradition was continued and an organization of women was established in Anatolia under the name of Bâcıân-ı Rûm." In the text (MEB, 2019b, p.77), attention is drawn to equality in the military field in relation to the previous examples. The historicity that builds the discourse is also seen in this example. It is seen that the military role, which is carried out on an abstract plane in terms of context, is made concrete with a representation picture, and the position of women is combined with war, which is an indicator of masculinity.

Different methods are used in the reproduction or transformation of gender roles in history textbooks. In this context, while emphasizing women's military characteristics, the self-sacrifice and sacrifices shown by women in various wars and their exemplary behavior are included.

Image 3. Heroine Nene Hatun



An example of this situation is in image 3 (MEB, 2019c, p.118) in the 11th-grade history textbook in the text "Kahraman Nene Hatun at the 93 War"*Although her husband told her to stay, take care of the child," Nene Hatun entrusted her child to God and joined the crowd... After the Korean War, General Ridgway, a NATO officer in Erzurum, visited Nene Hatun at her home and kissed her hand. "I did my duty at the time," she told Ridgway, who visited her. Today, despite my advanced age, I have the strength and excitement to do the same service in a more perfect way. " once again, she showed the spirit of the heroic Turkish woman "*, showing the example of a woman who put the defense of the homeland before her other roles. Considering the general context of the text and the language structure of the text and the picture used, the roles were concretized through exemplary historical figures and stories, starting from the historical background.

Exemplary figures and stories that support the basic discourse are frequently included in the military women's sub-repertoire. 12th grade Turkish Republic History of Revolution and Kemalism textbook, this situation is observed mainly in the stories of the devoted and devoted women of the homeland who took an active role in the struggle for liberation. For example, in the text of "Şerife Bacı" "I don't read" in this textbook, the following statements are included:

"While Şerife Bacı was carrying ammunition and supplies from İnebolu to Kastamonu; In the barracks near Kastamonu, he froze to death because of the snow and blizzard... This young woman who covered her own quilt in one hand to protect the precious burden of oxen ruminant in her carriage, with a long wand in one hand, stretched her arms and froze to death. Cemil Sergeant; While he was sweeping the snow on the martyr and lifting the woman in tears, he was surprised to hear the voice of a crying child screaming under the blanket. When the martyr pulled the martyr aside and immediately lifted the quilt, what they saw: A girl wrapped in sackcloth placed among cannon balls wrapped in grass, escaped freezing and woke up and started to cry upon intervention. (MEB, 2019e, p.88)

In this text in the textbook, the heroized story of the historical personality who sacrificed his life for the defense of the homeland is conveyed. The symbolic representation of the woman involved in the struggle was provided with motherhood. Thus, by including the stories of the homeland's glorified women, it is possible to construct a meaning that women with military qualifications constitute an important dimension of homeland defense.

In the light of all these findings, the basic features of women's description are that the basic discourse constructed is the subject of the public space. In order to legitimize this discourse, the historical background is striking in all textbooks. However, when the sub-repertoires of the discourse are examined, it is revealed that women in the language used in the texts are in the background, the ambiguity in the expressions about rights and fields, the clarification of traditional roles, women are a part of the private sphere, not the public sphere.

3.2. Basic Characteristics of Women's Gender Roles in History Textbooks

Studies on gender roles basically express the disadvantageous position of women in the discrimination made on gender. This disadvantage is maintained by the historical contexts and references produced by the dominant discourse. As seen in the previous chapter, although the basic discourse produced in the description of women in the history textbooks is in the direction of the subject of the public sphere, the findings revealed that women are a part of the private sphere. Accordingly, in the second problem sentence of the research, the basic discourse produced in the basic characteristics of gender roles is that women are private life subjects with traditional roles. The discourse produced in the basic characteristics of gender roles is that women take part in the traditional roles of motherhood, child-rearing and sewing and embroidery.

The text titled "Boats' Migration to the Plateau" in the 9th grade history textbook supports the determined roles: "... Migration was carried out with bactrian camels (loadlet) or four-wheeled, covered and ox-driven carriages (ox). These cars were almost like a real dwelling in which women spun wool, sewed, gave birth and nursed their children. Migration to the plateaus would become a complete entertainment. Beautiful clothes were put on and cheerful songs were sung along the way. (MEB, 2019a, p.107) mentions the jobs women do in private life, and therefore women's roles have been made functional. It is seen that the motherhood role, which is basically associated with the child, is associated with the home known as a private space. In addition, it is seen that in the motherhood role, emphasis is placed on domestic work and raising children.

The texts studied in gender roles are the product and process of discourse. In this context, the text's grammatical structure and the associated fields provide the determination of the discourse produced about the roles. The following statements in the 11th grade Turkish Culture and Civilization History (MEB, 2019d, p.96) textbook are an example of this: "Volunteer caregivers rushed to help thousands of soldiers injured in the battlefield through this association. In the Society of Hilal-i Ahmer, women as well as men have undertaken important roles and collected plenty of aid. During the Balkan Wars, they provided the materials such as underwear, sheets and bandages required for hospitals by working day and night." Looking at the grammatical structure of the text, it is seen that women are in the second place. Although it is stated that women take different roles, it is noteworthy that they take a role in realizing the work that can be seen as sewing and embroidery. Based on this, it is understood that the works associated with it mostly refer to private areas and traditional roles.

Another example of works involving private field roles is under the title of "Daily Life in the Ottoman Empire" in the 11th grade Turkish Culture and Civilization History textbook: "In Ottoman society, women took part in social life and showed their presence in various fields from economy to property trading, from weaving to housework." (MEB, 2019d, p.86). Although it is stated in the previous text that women assume different roles, it is understood that the work directly in the text is sewing-embroidery and household work, thus drawing attention to the traditional roles of the private space.

It is seen that the main characteristics of women's roles in the public and private sphere conflict in gender roles are mostly related to the private sphere. Supporting this situation, another example in which women are mostly referred to as mother and family roles is included in the 11th grade Turkish History of Culture and Civilization textbook: "In the Turkish family structure, the mother has a very important place in addition to the father. There was no distinction. There is a division of labor for all family activities; the mother would come right after the father in the family. Father in the upbringing of sons; Mother was also prominent in raising daughters. Women did not only do housework, but participated in all activities of the family." (MEB, 2019d, p.70). While the field of activity of the motherhood role associated with the family is specified, it is striking that the woman is made responsible for raising especially girls. Apart from this, it is observed that women are not limited to housework but other activities are left uncertain. In both cases, the area that women are associated with is traditional family roles.

In the discourse that is tried to be legitimized about gender roles, it is seen that traditional roles are emphasized. In these roles, examples highlighting the private sphere were encountered in the public-private sphere discussion. In this direction, it is seen that gender roles in history textbooks produce and clarify the discourse of women as the subject of private life.

3.3. Basic Characteristics of Appropriate Women in History Textbooks

The basic discourse produced in the description of women in history textbooks and the discourse produced in gender roles also reveals the discourse that is appropriate for women. In this context, two different discourses emerge periodically in the desired woman's basic characteristics in the analyzed history textbooks. While the first was women who were associated with pre-Islamic and Ottoman periods and showed military characteristics with traditional roles, the second was seen that the discourse produced about the desirable woman after the regime change was women who took roles in public life.

In the first discourse, emphasis is placed on the position of women and their social activities in the first Turkish communities. More attention is paid to the military characteristics of women. It is then stated that these roles were not interrupted by the adoption of Islam. But basically, the clarification of traditional roles was emphasized in the narration of the subjects related to the Ottoman Period.

To set an example for this situation, in the 11th grade Turkish Culture and Civilization History textbook: *"Turks used to regard the rights they care about and deem sacred as their main right, and they valued and respected women greatly. When the head of the house went to war, women would do all the remaining work in the house. The Turkish woman, who was very fond of honor and chastity, would ride a horse, shoot arrows, go hunting and join the war when necessary. In epics, women warriors such as Selcen Hatun and Banu Çiçek can be found reflecting the alp tradition."* As can be seen in the text (MEB, 2019d, p.73), it is seen that the place of women is glorified by emphasizing the maternal role, family roles and warrior characteristics of the desired woman in the pre-Islamic period. Therefore, the emphasis on traditional roles expressing the special field, whose examples we have also seen in the previous themes, generally reflects the basic characteristics of the desirable women of this period.

In the Ottoman period, when traditional roles became more pronounced, it is seen that the desired woman was defined by the new concept "Ottoman Woman". In the text in the information note given in the 11th grade Turkish Culture and Civilization History textbook, "Woman in Ottoman; The most important factor that kept the family alive was the person who was the most effective in child care and upbringing. The woman had a say in the house. Phrases such as "Ottoman Woman" and "Neither an Ottoman woman were formed as a result of such a woman image" (MEB, 2019d, p.86), which are still used in society today, it is said that women are associated with the family in the private sphere, such as raising children. It is seen that the importance of traditional roles is emphasized.

It is seen that the discourse repertoire produced about the desirable women and roles was affected by the changes and transformations of the period in political and ideological dimensions. In this context, transition to the nation-state model constitutes an important breaking point in Turkish women's basic characteristics. It has been observed that the roles of women in the public sphere, who appeared before us with their traditional roles, became more pronounced. The women of this period became the modern faces of the Republic and the nation in line with the principles of the Kemalist ideology.

It is possible to see examples in which public roles are emphasized in the 12th grade history textbook. Indeed, "Lale Aytaman, who was assigned as a governor of Mugla, was Turkey's first female governor." or in the example of "Tansu Ciller has become Turkey's first female prime minister." (MEB, 2019f, p.227- 233), there is an emphasis on being the first of the roles of two women in the public sphere.

It is striking that women, who have become symbols of modernization, who are directed to the public sphere and are encouraged to take responsibilities, have a break from the previous period in the field of dress. In this context, it is possible to see the representations of the desired women of the period in the 12th grade history textbook in image 4 (MEB, 2019f, p.124)

Image 4. Atatürk and Modern Turkish Women



In general, periodic differences were observed in the textbooks in the discourse repertoire identified in the desired woman's basic characteristics. Until the regime change, it was determined that the desired women were associated with traditional roles in the private sphere, and after the regime change, the public sphere was associated with roles in line with the goals of the Kemalist ideology and supported by images reflecting the spirit of the time.

4. Conclusion and Discussion

The traditional roles of motherhood gender roles of women in history textbooks in Turkey in the study were found to be associated with child-rearing and sewing and embroidery works. Although it is argued in the textbooks that women are the subjects of the public sphere in general structure, it has been observed that the roles of the private sphere are concretized, clarified, legitimized and reproduced with various examples.

In the basic characteristics of the description of women, which is the first of the research questions, it has been determined that the historicity is brought to the fore in the discourse produced about women and that it is legitimized in accordance with the general structure. In the sub-repertoire of equality between women and men that emerged in this direction, it is seen that in addition to equality of women with their husbands in the family, it is also emphasized that equality is achieved in the legal dimension. In this context, it has been understood that the meaning produced is to create the perception that women are equal with men in every field. However, in the language structure used even in the aforementioned areas of equality, the secondary status of women is maintained and it is seen that other areas except those related to the private area remain uncertain. In modern women, who are in another sub-repertoire of discourse, it is seen that the meaning of women is reproduced and transformed with the regime change. With the nation-state model's implementation, it has been determined that the emphasis is placed on women as the subject of the public sphere, and a new image of women has emerged, unlike the previous periods. Modernity is emphasized in the rights and duties given to women. Thus, it is understood that the woman in the reproduced sense is trying to be shown as one of the symbols of the new modern state.

It is seen that women are considered superior to men and are glorified in the sense constructed in the texts, which is one of the sub-repertoire of the discourse, which is determined in the basic characteristics of the description of women and where women take place as a defense mechanism. It has been determined that it is a matter of creating a perception that women are an active and constructive, active rather than passive subject of social life. Even in this state, the woman's secondary state in the language used in the texts continues. It is thought that among the aims to reach is to refute negative judgments about the place and importance of women and to prevent issues that may cause controversy. Finally, the sub-repertoire, which is among the main features of the description of women, is the military women in which the warrior aspects of women are emphasized. It is seen that women, who are shown as defense forces, have warrior features like men are associated with their characteristic structures. In addition to drawing attention to the fact that this situation is directly related to the social structure, it is striking that it is also touted as a source of pride. In this context, while emphasizing military characteristics, it is also emphasized that women are self-sacrificing and self-sacrificing, and concretized with representative pictures.

In the second sub-problem sentence of the study, it is seen that the main characteristics of the gender roles examined are directly emphasized on traditional roles and women are highlighted with roles that highlight the special field, as well as engaging in motherhood, child-rearing, and sewing and embroidery. These roles, which are highlighted, reveal women's position and their rights and duties, and they reflect the dominant discourse's perspective on women. As a result, it is understood that the roles expressed are aimed at maintaining traditional roles. Therefore, it is seen that there is an effort to continue the disadvantage of women in gender roles.

In the third sub-problem sentence of the study, although there are periodic differences in the discourse of appreciated women, it is seen that the desirable woman was clarified with traditional roles in the private

sphere until the regime change, then restructured in line with the goals of the Kemalist ideology and associated with the roles of the public sphere. In the same direction, women have become symbols of modernity and civilization with their clothes and looks, as well as progress, the modern secular state's break from the Ottoman past. Thus, the direct relationship between the meaning produced about women and the dominant discourse was determined.

It is possible to establish a relationship with the history textbooks' results, which were examined with critical discourse analysis in the research, with similar studies in the field. Regarding the masculine nature of the dominant discourse, Köse (2004) stated that all of the images he identified about women in history textbooks reflected the viewpoint of men towards women. In this respect, the finding that history textbooks are shaped by male-dominated discourse results from this research shows that the results of the two studies are parallel. Apart from this study, a connection can be established between the results of the research and the results of different studies. As a matter of fact, in a case study that examined the place of women's history in history textbooks before the curriculum change in 2018, Alpargu and Çelik (2016) stated that the most common roles of women in history textbooks are mothers and wives. In this context, Turkey in the 2019- 2020 academic year, taught history textbooks we have found in the second sub-problem research, motherhood of women in basic features of gender roles, thus it is seen that it continued, in the same way, the co-roles. In his research, Demircioğlu (2014) states that in the texts in history textbooks, women are in passive and second-class positions compared to men, and in the images they are shown while taking care of children or doing various works. In the same direction, Can (2009) stated that the sections in which the information about women are widely included are the sections in which the place and duties of women in the family are explained, which will ensure the continuation of the traditional role of women, Baçoğlu (1996) has a secondary position in social life in his research on high school history books has determined that. The first sub-problem of this study, which is the basic characteristics of the presentation of women, shows that there is a similarity between the results of the studies, as we have determined that the woman is in the second place and the child-rearing and association with the spouse and family.

As a result of examining the images in the 5, 6 and 7th grade social studies textbooks of Karaboğa (2020) in terms of gender roles, findings were determined to reproduce and reinforce gender stereotypes in the image elements of the books. As a matter of fact, it has been determined that concretization of gender roles supports the discourse produced with the images examined in this study. Yılmaz's (2018) thesis about the textbooks that gender roles are used as a tool in the transfer of gender roles directly overlaps with the results of the analyzed history textbooks although it is stated in the textbooks that the gender roles of women are in the public sphere, the emphasis is on the private sphere. It has been determined that motherhood, housewife and child-rearing are involved.

In his research, Çelik (2016) found that women emphasize equality with men in social studies textbooks, show warrior characteristics, and roles expressed as motherhood and child rearing in gender roles. Among the sub-problem sentences of this research, the results obtained in the basic characteristics of gender roles coincide with the sub-repertoires of gender equality and military women's discourse, which are the main features of the description of women. Fingerless (2017) expresses the production of nationalism through the redescription of women, who are sometimes glorified in texts as mothers of the nation who directly or indirectly participate in the war. These women are military women as the devoted mothers of the motherland. Emphasis on military women, both through images and texts, in the presentation of the woman identified in this study supports this judgment. Similarly, Fingersiz (2017) states that the steps taken on women during Kemalist modernization were deemed necessary for women to advance to the level of contemporary civilizations, and in this context, important rights were given to women with the Civil Code and the right to be elected. In this study, the meaning produced in the texts about the Civil Code and the right to be elected, which we have identified in modern women, which is one of the sub-repertoires of the discourse, in the basic characteristics of the description of women is parallel to these expressions.

Trecker (1971), who made studies on US high school history textbooks, states that in addition to the male-dominated structure in the textbooks, women are considered complementary materials. The fact that the secondary school history textbooks, which were examined using critical discourse analysis in this study, were secondary to the context of the texts and the language structure used shows that there is a similarity in the results of the two studies. Schmidt (2012), who made a feminist analysis of the US History textbook curriculum,

which is taught as a basic history book in the USA, states that in the presentation of the woman, the woman is embodied and normalized depending on the home space. Indeed, the gender roles in Turkey as compulsory and elective taught in history textbooks, said the woman was part of a discourse of private life to be produced and shown to be embodied. In this context, there are parallels in the history textbooks of the two countries. Chiponda & Wassermann (2011), based on the findings of the studies on the position of women in Taiwan, the United States, the United Kingdom, Russia and South Africa history textbooks, generally stated that gender roles in these textbooks are patriarchal and male-dominated, and that women are more stereotypical in the home environment. He states that he is depicted in traditional roles. He also states that history textbooks convey a strong educational message that serves to maintain a particular status quo. In this context, in the general results of the research, the fact that history textbooks are male-dominated, emphasizing women's gender roles as traditional roles and using textbooks as a tool in this process shows that the two studies' results are similar. Alayan and Al-Khalidi (2010), as a result of analyzing the history textbooks taught in Palestine and Jordan from a gender perspective, stated that female roles are motherhood and being a wife in relation to the family, in addition to a male-dominated structure. In this context, in the results obtained from the research's problem statement, the association between women's traditional roles with motherhood and child rearing reveals the similarity between the two countries.

In the light of the data obtained from the history textbooks, the roles of the public sphere that are left uncertain, except for the traditional or private sphere roles emphasized on the roles in history textbooks, should be clarified. In the curriculums of the History, Turkish Republic History of Revolution and Kemalism, Contemporary Turkish and World history, it is stated that courses and textbooks need to be designed "considering gender equality were identified as" (Kohlrabi, 2018b). Nevertheless, the subject of "gender equality" has a limited reflection in the textbooks prepared according to the curriculum. Therefore, to eliminate the disadvantage of women in gender roles, a guideline for the authors of history textbooks should be established in the Ministry of National Education History Teaching Programs. Performance indicators regarding the history of women and gender should be defined in the Field Education Competence Information in the History Teacher Special Field Qualification Certificate (MEB, 2011) within history teaching. In the same direction, it should be ensured that the representation of women is at a certain rate for each unit, and the content of women in the topics should be increased.

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Analysis of the Mathematical Thinking Levels of Individual and Team Athletes in Terms of Different Variables

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ABSTRACT

This study was carried out to examine athletes' mathematical thinking levels who do individual and team sports in different variables. The study was conducted with a relational screening model, which is one of the general screening models. The data were collected by a survey method. "Mathematical Thinking Scale" was used to determine the mathematical thinking levels of athletes. The research population was composed of licensed athletes studying in high schools and universities in the 2020-2021 academic year in Turkey, while 459 licensed athletes determined among these students by a simple random method made up the sample group. The Independent-Samples T-Test was applied to determine the differences between the participants' gender, education and branch variables, and their mathematical thinking level. The Pearson Correlation test was applied to determine the relationship between age, sports year, and mathematical thinking levels. As a result of the analysis, a significant difference was observed favouring female participants in the gender variable and mathematical thinking skills sub-dimension. Additionally, it was determined that there was a significant positive relationship between the sports year and the reasoning sub-dimension. As a result, it is thought that the more inclusion of individual or team sports types in education programs will contribute to an individual's mathematics and academic success.

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Keywords:

Individual athletes, team athletes, mathematical thinking

1. Introduction

Thinking is an individual's ability to create mental abilities by analysing and comparing information and reasoning to reach a conclusion (TLA, 2020). Thinking can also be defined as all of the mental behaviours deliberately performed to eliminate the events that lead to psychological and physical imbalances if the individual is disturbed by various external or internal factors (Kazancı, 1989). Thinking is an effective, functional, and targeted action (Rogoff, 1990). According to contemporary psychologists, thinking starts with a problem. The individual takes the problem's solution as a goal, which directs the individual's thinking. Thus, a thinking process starting with a problem is performed (Kalaycı, 2001). Mathematics comes to the fore where there is problem-solving and thinking.

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Mathematics is given to all students to gain logical, analytical, systematic, critical, and creative thinking skills and the ability to collaborate (Sukmadewi, 2014). Although numbers are the first to come to mind, mathematics is also used without numbers while thinking about a significant part of the day. While solving a problem, a person examines the results of the solutions they have found by starting from what they have and tries to reach a result shortly. Of course, not every way of thinking is mathematical, but the contribution of mathematical thinking in problem-solving cannot be denied (Umay, 1996). Mathematical thinking defines how an individual prefers to understand, think, and present mathematical facts and connections with certain internal images or externalised representations (Ferri, 2015). In other words, mathematical thinking is the inquiry process that one goes through while solving problems (Baroody, 2003). It includes important mathematical thinking, reasoning, logical and analytical thinking skills (Devlin, 2010). According to Cotton (2010), every individual can think mathematically, which can be developed through mathematical thinking and reflection. In this context, mathematical thinking is a feature that helps us to understand ourselves and the world.

Mathematical thinking is not just a way of thinking specific to mathematicians. Individuals may have to solve problems at home, work, or school (Biltzer, 2003). This means that every individual will need mathematical thinking at various stages of their life. Studies on the necessity of developing mathematical thinking (Ersoy & Başer, 2013; Ersoy & Güner, 2014; Taşdan, Çelik & Erduran, 2013) supports this. According to the National Council of Teachers of Mathematics (1989) report, the primary goal of mathematics education is developing reasoning, problem-solving, and communication, which are the basis of mathematical thinking. Therefore, using these skills in problematic situations in daily life leads us to conclude that it is not a way of thinking used only in mathematics lessons. Therefore, it is possible to see mathematical thinking in all areas of life. With this feature, mathematical thinking can be easily associated with sports, which has an important place for human health and different fields. Although sports and mathematics seem like two very distant disciplines, sports also have mathematics (Akyüz & Gündüz, 2019). For example, situations such as constructing the offensive organisation on semi-circles in handball or passing to each other in a narrow area by forming a triangle in football express the relationship of sports with mathematics in a simple way (Arslantaş, Malbeleş, & İnan, 2018).

It is known that sports have various benefits. Sport is a good socialiser that effectively changes an individual's behaviour (Özbek & Ercan, 2014). Additionally, it has positive effects on the individual, including effects on psychological factors such as anxiety, depression, and problem-solving skills (Akyüz & Gündüz, 2019; Canan & Ataoğlu, 2010; Küçük & Koç, 2004). In addition to these, it is known that physical exercise also affects cognitive functions in children (Ellemborg & St-Louis-Deschênes, 2010). Sports can be grouped as team sports or individual sports according to the way they are performed. Team sports are an important recreational activity in many societies; they attract their participants to compete or watch and enable them to benefit from such branches commercially. Team sports are often performed by groups that share a common purpose and aim to attack or defend together. Football, basketball, and ice hockey are team sports examples (Gudmundsson & Horton, 2017). Team sports help the individual strengthen communication with people, socialise, and develop their qualities such as winning or losing together, acting together with the team, and helping each other. However, unlike team sports, individual sports are generally done without the need for mutual interactions and usually consist of competitions in which an athlete participates (Jones, 2013). Boxing, wrestling, tennis, swimming, and skiing can be given as examples of individual sports. Individual sports also contribute to developing self-confidence, development of will and self-transcendence (Salar, Hekim & Tokgöz, 2012).

It is also possible to come across studies in the literature on the relationship between sports and mathematical thinking. As a result of a meta-analysis conducted on studies examining the relationship between physical activity and cognitive functioning, it was concluded that there was a positive relationship between physical activity and cognitive functionality in children (Sibley & Etnier, 2003). Additionally, most studies show that physical activity positively affects academic achievements and mathematics performance (Lubans et al., 2018; Howie & Pate, 2012; Castelli et al., 2007). Hillman, Erickson, & Kramer (2008) state that exercise helps improve physical health and academic performances. Since students' physical activity during school days does not negatively affect maths performance and may increase it, it is recommended to add various physical activities during school days (Sneck et al., 2019). Similarly, Phillips, Hannon & Castelli. (2015) concluded that

participation in physical activities facilitates math performances. Studies conducted in Turkey also focused on different types of intelligence and thinking skills, and it was observed that sports contributed significantly to these skills (Tekin, 2009; Certel, Çatıkkaş & Yalçınkaya, 2011; Çinkılıç & Soyer, 2013).

Therefore, it is thought that examining the effects of sports on mental skills will be beneficial for the literature. In the light of these data, individual and team sports, which are thought to contribute significantly to thinking skills, and mathematical thinking skills, which are so involved in life, have also been found worth researching. Furthermore, the sample group's aimed to be reached in this study would be selected from larger branch groups compared to previous studies increases the study's importance. As a result, this study aims to contribute to the literature to examine the differences between athletes' mathematical thinking levels who do individual and team sports in terms of various variables. For this purpose, the study tried to answer the following questions:

- Q1. To what extent do the mathematical thinking levels of individual and team athletes differ?
- Q2. To what extent do the mathematical thinking levels of the athletes differ according to their gender?
- Q3. To what extent do the mathematical thinking levels of the athletes differ according to their education?
- Q4. To what extent do the mathematical thinking levels of the athletes differ according to their age?
- Q5. To what extent do the mathematical thinking levels of the athletes differ according to the year they began to exercise?

2. Methodology

2.1. Research Model

This study was conducted with the relational screening model, one of the general screening models that can be conducted on the whole population or on a certain sample group to make a general judgment about a large population. The "questionnaire" technique, which is frequently preferred in quantitative research, was used to collect data (Karasar, 2009). Participants: The research population was composed of licensed amateurs or professional athletes studying in high schools and universities in the 2020-2021 academic year in Turkey. Whereas, 459 (+ -0.05 sampling error, 95% confidence level) licensed athletes determined among these students by the simple random method formed the sample group (Yazıcıoğlu & Erdoğan, 2004). Information about the sample group is presented in Table 1 below.

Table 1. Distributions Regarding the Personal Information of the Athletes in the Research Group

Features	Groups	n	(%)	
Gender	Female	211	46.0	
	Male	248	54.0	
Education	High School	325	70.8	
	University	137	29.2	
Branch	Team Sports	Football	141	58.2
		Basketball	16	
		Volleyball	71	
		Handball	29	
		Rowing	8	
		Field hockey	2	
	Individual Sports	Bicycle	63	41.8
		Athletics	16	
		Martial arts	48	
		Swimming	9	
Individual Sports	Wrestling	21	192	
	Weightlifting	13		
	Tennis	6		
	Badminton	5		
	Mountaineering	5		
	Archery	6		

Total	16	459	459	100
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According to Table 1 above, 46% (n = 211) of the athletes participating in the study were females and 54% (n = 248) were males. Considering their educational status, it is seen that 70.8% (n = 325) of the athletes were high school students and 29.2% (n = 137) were university students. When the findings are examined, it is seen that 58.2% (n = 267) of the athletes were interested in team sports and 41.8% (n = 192) in individual sports branches.

Table 2: Arithmetic Mean and Standard Deviation Values for Athletes' Age and License Duration Variables

	\bar{x}	Lowest	Highest	sd	Total
Age	17.27	13.00	30.00	3.48	459
Sports Year	6.33	1.00	21.00	3.41	459

The arithmetic mean, standard deviation, lowest and highest values regarding the age and sports year variable of the athletes participating in the research are given in Table 2 above. When Table 2 is examined, it is seen that the average age of the athletes was $\bar{x} = 17.27$, the lowest age value was 13, and the highest age value was 30, the sports year average was $\bar{x} = 6.33$, the lowest period of license value was 1 year, and the highest period of license value was 21 years.

2.3. Data Collection Tools

The data collection tools used in the study consists of three parts. The first section contains information about the research, and the section prepared to obtain participants' consent that they voluntarily participated in the study. There is a "Personal Information Form" prepared to collect information about the athletes' age, gender, educational status, sports year, and sports branch in the second part. In the third part, the "Mathematical Thinking Scale" is included in determining athletes' mathematical thinking levels.

Mathematical Thinking Scale (MTS): MTS developed by Ersoy & Başer (2013) was used to determine athletes' mathematical thinking levels. The measurement tool consists of 25 items, 20 of which are positive and 5 are negative (negative items = item 7, item 15, item 16, item 20, item 22). The highest score to be obtained from the scale is 125, and the lowest score is 25. The measurement tool is a 5-point Likert-type scale and is rated as "1 = totally disagree", "2 = disagree", "3 = undecided", "4 = agree", and "5 = totally agree". As the scores obtained from the scale increase, the level of mathematical thinking increases, and as the scores decrease, the level of mathematical thinking decreases. MTS consists of 'Higher-order disposition', 'Reasoning', 'Mathematical thinking skill', and 'Problem-solving' sub-dimensions. The original scale's reliability (Cronbach's Alpha Coefficient) was calculated as 0.78 (Ersoy & Başer, 2013). Information about the Cronbach's Alpha reliability coefficients of the measurement tool and the skewness and kurtosis values are presented in Table 3 below.

Table 3: Reliability and Normality Values of the Mathematical Thinking Scale

Dimensions	α (Original)	α (Research data)	Skewness	Kurtosis
High Level Thinking Disposition			-0.41	-1.43
Reasoning			-0.39	0.96
Mathematical Thinking Skill	0.78	0.75	-0.22	-0.27
Problem Solving			-0.08	1.22
Total Scale	0.78	0.75	-0.16	0.50

When Table 3 above is examined, it is seen that the data obtained from MTS provided the assumption of normality and the reliability coefficient was at an acceptable rate. For normality test in social sciences and studies using the Likert type scale method, kurtosis and skewness measures are also evaluated. The distribution is accepted as 'normal' if the skewness and kurtosis values are within ± 2 (George & Mallery, 2019; Kalaycı, 2006).

2.4. Analysis of Data

Before analysing the research data, descriptive statistical calculations were made for the data obtained from the personal information form to determine the participant group's characteristics. The data obtained from MTS in the third part of the data collection form were transferred to the SPSS program, and the arithmetic averages of the scores obtained for each dimension were taken. Independent-Samples T-Test (Q1, Q2, Q3) was conducted to determine the differences between the participants' gender, education and branch variables, and

mathematical thinking levels. Finally, the Pearson Correlation test (Q4, Q5) was applied to determine the relationship between the participant's age, sports year, and mathematical thinking level.

2.5. Ethical

Before the data collection process, written permission was first obtained from the researcher who developed the measurement tool. Afterwards, the data collection tool prepared by the research team was submitted to the Sinop University Ethics Committee, it was evaluated in session number 10 on 18.12.2020, and its compliance was approved with the official letter numbered 2020-134. Research data were collected using the "Online forms" technique due to the COVID-19 pandemic, and the participants participated in the study voluntarily.

3. Findings

Table 4: *T-Test Results between Individual and Team Athletes and MTS Sub-Dimensions*

Sub-dimensions	Groups	n	\bar{x}	SD	df	t	p
Reasoning	Team	267	4.01	0.54	457	0.465	0.642
	Individual	192	3.99	0.51			
High Level Thinking Disposition	Team	267	3.87	0.59	457	0.439	0.661
	Individual	192	3.85	0.51			
Mathematical Thinking Skill	Team	267	3.55	0.38	457	1.830	0.068
	Individual	192	3.48	0.36			
Problem Solving	Team	267	3.51	0.46	457	1.391	0.165
	Individual	192	3.45	0.42			

According to Table 4 above, no significant differences were found between individual and team athletes and MTS sub-dimensions. But all mean scores for team athletes in each sub-domain is higher than that for individual athletes.

Table 5: *Results of the T-Test between the Athletes' Gender Variable and MTS Sub-Dimensions*

Sub-dimensions	Groups	n	\bar{x}	SD	df	t	p
Reasoning	Female	211	4.01	0.50	457	0.398	0.691
	Male	248	3.99	0.55			
High Level Thinking Disposition	Female	211	3.84	0.58	457	-0.563	0.574
	Male	248	3.87	0.55			
Mathematical Thinking Skill	Female	211	3.59	0.39	457	3.538	0.000*
	Male	248	3.46	0.35			
Problem Solving	Female	211	3.52	0.45	457	1.664	0.097
	Male	248	3.45	0.44			

According to Table 5 above, apart from the mathematical thinking skill sub-dimension ($t = 3.538$; $p = 0.000$), no significant differences were found in other sub-dimensions. The arithmetic mean between the subgroups was examined to determine which group favours the significant difference in the sub-dimension of mathematical thinking skills. When the values were examined, it was determined that female participants' arithmetic means was significantly higher than that of males in the sub-dimension of mathematical thinking skills (female $\bar{x} = 3.59$, male $\bar{x} = 3.46$).

Table 6: *Results of the T-Test Between the Education Variable of the Athletes and the MTS Sub-Dimensions*

Sub-dimensions	Groups	n	\bar{x}	SD	df	t	p
Reasoning	High School	325	3.98	0.55	457	-1.122	0.262
	University	134	4.05	0.47			
High Level Thinking Disposition	High School	325	3.87	0.58	457	0.322	0.747
	University	134	3.85	0.52			
Mathematical Thinking Skill	High School	325	3.53	0.39	457	0.422	0.673
	University	134	3.51	0.34			

Problem Solving	High School	325	3.50	0.45	457	1.037	0.300
	University	134	3.45	0.44			

According to Table 6 above, no significant differences were found between the education variable and MTS sub-dimensions. But mean scores for high school students in high-level thinking disposition, mathematical thinking skills, and problem-solving sub-domain are higher than those for university students.

Table 7: Correlation Table between Age Variable and MTS Sub-Dimensions

	Age	Reasoning	High Level Thinking Disposition	Mathematical Thinking Skill	Problem Solving
Age	1	-.003	-.037	-.061	-.078

When Table 7 above is examined, it is seen that there are no significant relationships between the age variable and mathematical thinking scale sub-dimensions.

Table 8: Correlation Table between The Sports Year Variable and MTS Sub-Dimensions

	Sports Year	Reasoning	High Level Thinking Disposition	Mathematical Thinking Skill	Problem Solving
Sports Year	1	.111*	.013	.042	.002

When Table 8 above is examined, it is seen that there is a low level of positive correlation between the sports year and reasoning sub-dimension ($p < 0.05$; $r = 0.111$). Thus, it can be said that reasoning sub-dimensions are significantly correlated with sports year.

4. Conclusion and Discussion

This study was conducted to examine individual and team athletes' mathematical thinking levels regarding different variables (gender, educational status, age, and sports year). Findings suggest that the mathematical thinking levels of participants who played individual and team sports were compared in the sub-dimensions of reasoning, higher order thinking disposition, mathematical thinking skills, and problem-solving (Q1). As a result of the analysis, it was determined that there was no statistical difference between individual and team athletes' mathematical thinking levels. When past studies were examined, it was seen that there were findings contrary to the results of this study. When the studies conducted were examined, it was emphasised that there is a significant relationship between doing team sports and problem solving, which is a sub-dimension of mathematical thinking skills (Önal, İnan & Bozkurt, 2017; Canan & Ataoğlu, 2010; Singh, Singh & Singh, 2015). However, in some studies, it was emphasised that there is a significant relationship between individual sports and mathematical thinking skills or problem-solving, which is a sub-dimension of mathematical thinking (Özdemir, Güreş & Güneş, 2012; Yönel, 2018). It is possible that the different results obtained in studies were related to the characteristics of the sample groups studied. In this study, it is thought that this result was obtained because a large sample group from different sports branches was obtained. Therefore, the results obtained in previous studies explain the result that there are no statistical differences between individual and team athletes' mathematical thinking levels. The fact that there is a relationship between physical activity and cognition (Esteban-Cornejo, 2015) concludes that doing individual or team sports affects the level of mathematical thinking.

When the mathematical thinking levels of athletes were examined according to the gender variable, which is the second sub-problem of the study (Q2), it was concluded that female athletes got higher scores in the sub-dimension of mathematical thinking skills. Similarly, Fox et al. (2010) found that female participants exhibited more successful academic performances in their study examining the relationship between high school and secondary school students' participation in physical activities, team sports, and academic achievements. However, studies on the subject indicate that predominantly male athletes have higher mathematical thinking skills than female athletes (Arslantaş, Malbeleş, & İnan, 2018; Tekin, 2009). Contrary to these results, there are also studies indicating no statistically significant differences in mathematical thinking levels in terms of the gender variable (Önal, İnan, & Bozkurt, 2018; Temel & Ayan, 2015; McNaughten & Gabbard, 1993).

According to the education variable, the third sub-problem of the study, the athletes' mathematical thinking levels did not differ significantly (Q3). As is known, mathematical thinking can be developed. However, no

differences in education levels may be related to whether there is an education in this direction or whether this education is effective or not. Suppose the education in the high schools and universities (where the participants study) was carried out with similar classical methods, which do not develop mathematical thinking; in that case, the findings can be considered compatible. Contrary to this result, Önal, Inan, & Bozkurt (2018) found that the individual and team athletes' total scores on mathematical thinking levels at the primary education level were significantly higher than other education levels. They found that athletes with the lowest scores were also those who continued their undergraduate education. Fox et al. (2010) investigated the relationship between high school and middle school student's participation in physical activities and team sports and their academic achievement. They found a significant relationship between physical activities and academic achievements of high school children's participation in team sports and secondary school students' participation in team sports.

According to the age variable, the mathematical thinking levels of the athletes, which is another sub-problem of the study, did not differ significantly (Q4). Similarly, in a study in which the effect of physical activities on cognitive functions was tested, it was determined that it provided equal benefits in different age groups (Elleberg & St-Louis-Deschênes, 2010). However, Arslantaş, Malbeleşi, & Inan (2018) suggested that as the athletes get older, their mathematical thinking skills also increase. Hillman et al. (2009) stated that medium-intensive aerobic exercises could be an important factor contributing to cognitive development and increase in academic performances in pre-adolescent children. It is thought that this situation may be related to the intensity of the participants taking mathematics courses.

A significant low-level relationship was found between the sports year variable (Q5) and the reasoning skill. According to this finding, it can be said that as athletes' experiences increase, there is an increase or improvement in the level of reasoning skills. Considering the effect of sports on mathematical thinking, it can be expected that the level of mathematical thinking will increase in parallel with the increase of the sports year. The mathematical skills of children who learn mathematics in an environment designed with physical activities and music develop significantly more than children who learn mathematics with joint number activities (Elofsson et al., 2018). Have et al. (2018) enabled primary school children to participate in a 9-month physical activity. They concluded that participation in activities positively affected mathematical achievements and stated that physical activities would contribute to higher academic success. Furthermore, using physical activities in academic courses' teaching contributes to mathematics and writing performances (Mullender-Wijnsma et al., 2016). Therefore, it can be said that as the rate and duration of doing sports increases, the level of mathematical thinking will increase.

As a result, mathematics/geometry and physical activity integrated teaching methods are more effective than traditional teaching methods common in schools today (Hraste et al., 2018). When the results obtained in this study are considered, it is thought that the inclusion of individual and team sports in the education programs will contribute to mathematics and academic success.

5. Recommendations

In new studies, it is recommended to conduct a similar study with more participants, including primary and postgraduate students. Additionally, similar studies can be conducted with different branches other than the types of sports included in this study or with the same branches but with more balanced groups in terms of the number of participants.

6. Conflict of interests

The authors declare that there is no conflict of interests.

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Parental Attitudes and Socio-demographic Factors as Predictors of Smartphone Addiction in University Students

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ABSTRACT

The aim of the study is to examine predictive effect of parental attitudes and socio-demographic variables (age, gender, time spent on smartphone, number of siblings, students' feeling social, and parental education level) in university students' addiction to smartphones. Participants included 670 university students whose age ranged between 18-30 years (M=21.6, SD=6.3). Smartphone Addiction Scale (SAS) and Parental Attitude Scale (PAS) and Socio-Demographic Information Form were used to collect data. The results showed that age, gender, parental education level, time spent on smartphone, number of siblings, and state of feeling social and parental attitudes predicted a significant amount of variance (11%) in smartphone addiction. The students' perception of feeling social and parental attitudes functioned as a moderator on their smartphone addiction. It was revealed that the perception to be social softened the relation between authoritarian parental attitude and smartphone addiction. Furthermore, students experienced less smartphone addiction when their perception of feeling social and democratic parental attitudes were taken together. A negative and significant relation was found between democratic and authoritarian parental attitudes and smartphone addiction. A positive and significant relation was established between protective parental attitude and smartphone addiction. The results have important implication for research and practice in the context of university students.

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Keywords:

smartphone addiction, parental attitudes, socio-demographic factors, university students

1.Introduction

With rapid development of information and technology in recent years, and social media use has become a focal point of research (Arslan, Yıldırım & Zangeneh, 2021; Taş, 2017). Human beings who have biopsychosocial spiritual and economic aspects get affected constantly by their contextual factors and college students experience many issues related to these aspects (Tanhan, 2018; Tanhan, Karaman & Nalbant, 2020). One of the fundamental factors of this development is the opportunities provided by digital technologies, computer, internet and social

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networking sites and the quick and easy access to the above-mentioned services, and separation-individuation of people from others can be effective today. Therefore, it is more possible that individuals may benefit from infinite number of services such as communication, health, education, game, and self-realization (Aslan & Çiçek, 2020; Çiçek & Aslan, 2019; Geçer, Yıldırım & Akgül, 2020; Taş, 2019). Individuals are aware of reaching these services through mass communication tools in general through internet use, particularly by using their smartphones. Especially, in recent years, the rapid developments in science and immense evolution in technology have made smartphones important devices in people's lives (Gonçalves, Dias & Correia, 2020). However, the widespread use of internet, social media, and smartphones come forefront with the benefits they provide and with the threats they pose. One of these threats can be smartphone addiction. Although the effects of internet, social media, and smartphone use on psychology and psychological health of individuals have been noted in earlier research (Özaslan, Yıldırım, Guney, Guzel & Iseri, 2021; Sevinç & Taş, 2020; Tanhan, 2020), the wide use of mass communication tools such as internet in general and smartphone in particular by individuals have substantially increased.

The total world population is 7,81 billion according to the report published by "Digital 2020: October Global Statshot" in October 2020 with the title, "We Are Social and Hootsuite", which also includes important information about internet, mobile devices and social media users. For example, in the report, the number of mobile phone users, global internet users, and world-wide social media users have reached 5,20 billion, 4,66 billion, and 4,14 billion, respectively. Furthermore, nine out of 10 internet users in the world connect to the internet through mobile devices. In addition, when it comes to social media use, these users evidently prefer using mobile devices. Kepios analysis, shows that 99% of social media users in the world reach this service through mobile devices, while only one in five users use laptop or desktop devices (We Are Social, 2020a). Moreover, "Digital 2020: Global Digital Overview" of We Are Social reports the prevalence of internet, social media, and mobile device users in Turkey. According to the report, there are 62 million internet users in Turkey. This number makes 74% of the total population. There are 54 million social media users, which make 64% of the population of Turkey alongside 77 million of mobile device users, which make 92% of Turkey's population (We Are Social, 2020b).

Since the sub-structure facilities to make internet access available have developed and smartphones have become widespread and their use rates have accordingly increased, all these reasons have showed an increase in internet access, time spent on the internet and social media. In this context, at a point where the dependence of space and time independence created by the mobile connection to social networks and the dependence on social media and smartphone use are taken into account, studies are carried out on university students who are thought to have more of this addiction (Işık & Kaptangil, 2018). Therefore, when the aims of smartphone use of the young population are examined, these aims are mostly for entertainment and game (Şata, Çelik, Ertürk & Taş, 2016). Therefore, the fact that smartphones are used online more means that there could be a problem in smartphone use, while the literature in the field of internet addiction has documented that long term smartphone usage addiction is related with higher addiction level (Bonilla-Zorita, Griffiths & Kuss, 2020).

Parental attitudes (authoritarian, protective, and democratic), family relations, and individual's socializing state are assumed to have effects on internet, social media, and smartphone usage level of young adults. If an individual has a stronger desire to spend time online, this may create problems for the individual/s (Melodia, Canale & Griffiths, 2020). For this reason, when smartphone addiction is examined, addictive mobile phone use is evaluated as an impulse control disorder similar to alcohol that does not contain an intoxicating substance and pathologic gambling (Park & Lee, 2011; Bian & Leung, 2015). When individuals using smartphone are examined, almost all smartphone users always carry their smartphones with them. In addition, many people on public transport read the news and surf on the social networks via their smartphones.

Furthermore, some people constantly check their smartphones even when they are socializing with their friends. As such, this coercive, inability to control their behaviour, use of smart phones may adversely affect individuals' social, personal, and family relationships (Park & Lee, 2011; Wajcman, Bittman & Brown, 2008). Such behaviors have been more prevalent during the COVID-19 pandemic (Tanhan, 2020). Research conducted during COVID-19 pandemic showed that pandemic related stressors severely affect mental health of people including students

(Arslan et al., 2020; Arslan, Yıldırım & Aytaç, 2020; Çiçek, Tanhan & Tanrıverdi, 2020; Yıldırım & Solmaz, 2020). While positive psychological and behavioural factors were found to positively influence well-being and mental health of individuals (Çeri & Çiçek, 2021; Yıldırım & Arslan, 2020; Yıldırım & Güler, 2021), negative factors adversely affect psychological health during COVID-19 pandemic. Researchers explained well how contextual factors from an ecological systems theory including historical events (e.g., epidemic, pandemic, conflicts, crisis) from micro to macro system levels and even to choronsystem level constantly affect people (Tanhan, 2020).

Therefore, it is considered that this paper will contribute to the extant literature in terms of taking precautions against this addiction by establishing what kinds of predictors have roles in affecting youth adherence to smartphone addiction during the pandemic. The aim of this study is to examine to what extent parental attitudes predict university students' smartphone addiction. This study also aims to examine the effects of socio-demographic factors including gender, siblings number, parental education level, socialization perception, and time spent on smartphone use on smartphone addiction. It is hypothesised that parental attitudes and socio-demographic factors would have significant effects on smartphone addiction.

2. Method

2.1. Research Model

This study was descriptive and relational in nature of a survey method use. Survey method is an approach that aims to describe a case of past or present as it is. They are the survey arrangements carried out on a group of people as whole or part of the population to conclude about the population made up of numerous elements. In general survey method, the case, person or object involved with the investigation are described within their conditions and as they are (Karasar, 2014).

2.2. Research Sample and Procedure

Participants included 670 university students whose ages ranged from 18 to 30 years with a mean age of 21.6 (SD=6.3). Great majority of the participants (70%) were girls. Before the data collection, the necessary permission was obtained from the Batman University ethic committee (Ethic code: 2020/2-13). The data were collected online during the COVID-19 pandemic between 14 May-1 June 2020. At the first page of online survey, the participants were informed about the aim of the study prior their participation in the study. They were not compensated in return for their involvement. Given that the minimum sample size of 100 required for an analysis (Conroy, 2015), the present sample size can be considered adequate for the analysis.

2.3. Data Collection Tools

Socio—demographic Information Form: This form was created by the researchers of this study. The form included the questions about the students' age, gender, time spent on smartphone, number of siblings, feeling themselves social, and parental education level.

Smartphone Addiction Scale (SAS): Smartphone Addiction Short Form Scale developed by Kwon, Kim, Cho & Yang (2013)—was adapted to Turkish by Noyan, Darçın, Nurmedov & Yılmaz (2015). The scale is a 6-point Likert type with 10 items that range between 1 (certainly disagree) and 6 (certainly agree). The high scores refer to higher level of smartphone addiction risk. A total score can be taken from the questionnaire by summing all items and range between 10 and 60. Noyan et al. (2015) found Cronbach alfa value of .92 in their study. In this study, Cronbach alfa value was found as .83.

Parental Attitudes Scale (PAS): Parental Attitudes Scale developed by Kuzgun & Eldeleklioğlu (2005) includes 40 items split into 3 sub-scales as democratic (15 items), protective/requesting (15 items), and authoritarian (10 items). The high scores taken from sub-scales show high levels of individual characteristics from the related sub-scale. The PAS is a Likert type scale, ranging between 1 (strongly disagree) and 5 (strongly agree). An overall score can be estimated by summing the items on the respective scales. In the original study, Cronbach alfa values were

calculated .89 for democratic attitude sub-scale, .82 for protective/requesting sub-scale, and .79 for authoritarian sub-scale. In this study, Cronbach alfa value was found as .72 for democratic attitude sub-scale, .84 for protective/requesting sub-scale and .75 for authoritarian sub-scale.

2.4. Data Analysis

First of all, descriptive statistics including normality tests were estimated. Normality values were examined with skewness and kurtosis whose values ranging between $|2|$ considered as approximately normally distributed at “acceptable” level (Byrne, 2010; Curran, West & Finch, 1996; Kline, 2015). The normality values of the scales were found to be between $|1|$. The data were analyzed through independent t-test, ANOVA, Pearson Product Moments correlation, multiple linear regression and moderation analyses.

3. Findings

Table 1. Descriptive Statistics for Variables

	Mean	SD	Min	Max	Skew	Kurtosis
Age	21.6	6.3	1	3	1.45	0.99
Gender	1.31	0.46	1	2	0.80	-1.37
Father's Education	2.21	0.59	1	3	-0.10	-0.44
Mother's Education	1.59	0.61	1	3	0.50	-0.64
Time Spent on Smart-phone	1.93	0.81	1	4	0.67	0.09
Number of Siblings	3.99	1.26	1	5	-0.92	-0.43
Perception of Being Social	1.37	0.48	1	2	0.54	-1.71
Democratic Parenting	36.60	6.68	12	52	-0.49	0.21
Protective Parenting	35.29	9.71	15	73	0.56	0.38
Authoritarian Parenting	33.70	6.56	10	49	-0.40	0.16
Smart-phone Addiction	28.10	9.22	10	58	0.37	-0.39

Note. $N = 670$. Age: 1 = 18 – 21 years (70%), 2 = 22 – 25 years (23%), 3 = 26 years and above (6%). Gender: 0 = Female (69%) and 1 = Male (31%). Father's Education: 1 = No schooling (9%), 2 = Primary / middle school (60%), and 3 = High school and above (30%). Mother's Education: 1 = No schooling (47%), 2 = Primary / middle school (46%), and 3 = High school and above (6%). Time Spent on Smart-phone: 1 = 0-2 hours (31%), 2 = 3-5 hours (49%), 3 = 6-8 hours (15%), and 4 = 9 hours and above (5%). Perception of Being Social: 1 = Social (63%) and 2 = Not social (37%).

The study basically was made of university students, and the ages of whom ranged from 18 to 30 years. The majority (69%) were females. Most of the students fathers graduated from primary/middle school (60%), and most mothers had either no schooling (47%) or primary/secondary school diplomas (46%). Nearly half of the students (49%) spent three to four hours on smartphone in a day and perceived themselves as social (63%). Skewness and kurtosis values for the main variables of interest were within $|2|$ acceptable range which posed no immediate threat for further analysis.

The results of independent t-test analysis revealed that male participants got higher scores than female participants in only protective sub-scale of parental attitudes ($<.05$). No significant difference was found in smartphone addiction in terms of gender ($>.05$). The students who felt themselves as social had lower scores of smartphone addiction, and ~~that~~ they perceived their parents more democratic and less protective and authoritarian. The results of ANOVA showed that the students aged between 18-21 had significantly high scores on authoritarian parental attitudes ($<.05$). Students with more siblings had significantly higher scores on smartphone addiction and authoritarian parental attitudes sub-scale. The higher smartphone use of students indicated a higher smartphone use scores. On the other hand, no significant difference was found between mother-father education and smartphone addiction. A significant difference was found between parental attitudes and students' perceived parental attitudes.

Correlation analysis in Table 2 indicates that females had more protective ($r = .12, p < .001$), and less democratic ($r = -.08, p < .001$) and authoritarian ($r = -.08, p < .001$). Participants with older ages are less protective than they are ($r = -.09, p < .001$). Having a higher degree is associated with higher scores on all three parenting attitudes; however it is not related to smartphone addiction. As number of siblings increase, parents are less prone to inherit democratic and authoritarian parenting attitudes. Democratic and authoritarian parenting attitudes subscales were correlated most with perception of being social. The more parents report they perceived themselves as being social, the less they inherit democratic ($r = -.32, p < .001$) and authoritarian parenting attitudes ($r = -.33, p < .001$). Protective parenting style subscale is also correlated with the perception of being social; however, those reporting that they perceived themselves as being social inherited protective parenting characteristics more ($r = .24, p < .001$). Perception of being social is also correlated with smartphone addiction ($r = .20, p < .001$).

Table 2. Correlations Among Variables of Interest

	1	2	3	4	5	6	7	8	9	10	11
1. Age	-										
2. Gender	0.11**	-									
3. Father's Education	-0.02	0.08*	-								
4. Mother's Education	-0.05	-0.04	0.36***	-							
5. Time Spent on Smart-phone	0.00	-0.04	0.00	0.00	-						
6. Number of Siblings	0.06	-0.06	-0.28***	-0.39***	-0.01	-					
7. Perception of Being Social	-0.01	-0.01	-0.09*	-0.12**	0.07	0.11**	-				
8. Democratic Parenting	-0.07	-0.08**	0.11**	0.14***	0.03	-0.14***	-0.32***	0.72			
9. Protective Parenting	-0.09*	0.12**	0.09*	0.02	0.07	0.03	0.24***	-0.26***	0.84		
10. Authoritarian Parenting	-0.08	-0.08**	0.13**	0.14***	-0.02	-0.15***	-0.33***	0.83***	-0.25***	0.75	
11. Smart-phone Addiction	0.01	-0.07	0.00	0.03	0.21***	-0.04	0.2***	-0.01***	0.18***	-0.09**	0.83

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Reliability estimates (Cronbach's α) are stated in bold on diagonal. Correlations for Democratic Parenting and Authoritarian Parenting subscales are based on reduced forms.

Table 3. Multiple Regression Results

Variable	Model 1: Background				Model 2: Background + Parenting attitudes			
	Est. (SE)	t	Standardized β	η^2	Est. (SE)	t	Standardized β	η^2
Intercept	20.74(2.86)***	7.24	0	0	15.33(3.93)***	3.90	0.00	0
Age	0.35(0.58)	0.61	0.02	0	0.57(0.57)	1.00	0.04	0
Gender	-1.33(0.75)	-1.78	-0.07	0	-1.65(0.74)*	-2.23	-0.08	0.01
Father's Education	-0.04(0.63)	-0.06	0	0	-0.25(0.62)	-0.41	-0.02	0
Mother's Education	0.44(0.64)	0.68	0.03	0	0.28(0.63)	0.44	0.02	0
Time Spent on Smart-phone	2.24(0.43)***	5.25	0.2	0.04	2(0.42)***	4.76	0.17	0.03
Number of Siblings	-0.38(0.3)	-1.25	-0.05	0	-0.43(0.3)	-1.43	-0.06	0
Perception of Being Social	3.8(0.72)***	5.3	0.2	0.04	3.27(0.76)***	4.32	0.17	0.02
Democratic Parenting					0.34(0.09)***	3.63	0.24	0.02
Protective Parenting					0.15(0.04)***	3.95	0.16	0.02

Authoritarian Parenting	-0.29(0.09)**	-3.10	-0.21	0.01
	Adj. R ² =0.08	Adj. R ² = 0.11		
	F(7,662) = 9.34***	F(10,659) = 9.54***		

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. SE=standard error (in parenthesis). η^2 = eta-squared that represents proportion of variance in the dependent variable explained by the independent variables. Dependent variable is smart-phone addiction.

We analyzed the data with lme4 package (Bates et al., 2015) in R statistical computing environment (R Code Team, 2020). We ran a regression model that included demographic variables and some background questions (Model 1) which explained 8% of the variance in the smartphone addiction. Time spent on smart-phone use and perception of being social were significant and positive predictors of smartphone addiction ($\beta = 0.20$, $p < .001$ and $\beta = 0.20$, $p < .001$, respectively). When parenting attitudes were added in Model 2, the new variables caused a significant change in the model. Model 2 explains 11% of the variance in the smartphone addiction. Model 2 indicated that democratic and protective parenting attitudes were positively associated with the smartphone addiction ($\beta = 0.24$, $p < .001$ and $\beta = 0.16$, $p < .001$, respectively), whereas authoritarian parenting style was negatively related ($\beta = -0.21$, $p < .01$).

Table 4. Moderation Analyses

Variable	Moderator: Gender				Moderator: Age				Moderator: Perception of Being Social			
	Est. (SE)	t	β	η^2	Est. (SE)	t	β	η^2	Est. (SE)	t	β	η^2
Intercept	20.32(8.84)*	2.30	0	0	31.64(7.56)***	4.18	0	0	30.10(8.67)***	3.47	0	0
Age	0.52(0.58)	0.90	0.03	0	-7.08(4.68)	-1.51	-0.46	0	0.57(0.57)	0.99	0.04	0
Gender	-1.04(5.56)	-0.19	-0.05	0.01	-1.73(0.75)*	-2.31	-0.08	0.01	-1.78(0.75)*	-2.38	-0.09	0.01
Father's Education	-0.22(0.63)	-0.35	-0.01	0	-0.22(0.62)	-0.36	-0.01	0	-0.40(0.63)	-0.63	-0.03	0
Mother's Education	0.42(0.64)	0.66	0.03	0	0.43(0.64)	0.67	0.03	0	0.60(0.64)	0.94	0.04	0
Time Spent on Smart-phone	2.14(0.42)***	5.06	0.19	0.04	2.18(0.42)***	5.15	0.19	0.04	2.18(0.42)***	5.17	0.19	0.04
Number of Siblings	-0.43(0.30)	-1.44	-0.06	0	-0.45(0.30)	-1.51	-0.06	0	-0.39(0.30)	-1.31	-0.05	0
Perception of Being Social	2.86(0.77)***	3.72	0.15	0.02	2.93(0.77)***	3.81	0.15	0.02	-3.82(5.57)	-0.69	-0.20	0.02
Democratic Parenting	-0.22(0.36)	-0.61	-0.16	0.01	-0.36(0.31)	-1.14	-0.26	0.01	0.20(0.37)	0.55	0.15	0.01
Protective Parenting	0.10(0.12)	0.82	0.10	0.01	-0.02(0.10)	-0.19	-0.02	0.01	0.07(0.12)	0.60	0.08	0.01
Authoritarian Parenting	0.21(0.36)	0.58	0.14	0	0.09(0.31)	0.28	0.06	0	-0.56(0.36)	-1.56	-0.40	0
Moderator x Democratic Parenting	-0.03(0.24)	-0.11	-0.04	0	0.07(0.21)	0.35	0.16	0	-0.33(0.24)	-1.36	-0.48	0
Moderator x Protective Parenting	0.01(0.08)	0.14	0.03	0	0.10(0.07)	1.41	0.25	0	0.04(0.08)	0.46	0.10	0
Moderator x Authoritarian Parenting	-0.01(0.24)	-0.05	-0.02	0	0.08(0.21)	0.37	0.16	0	0.54(0.24)*	2.24	0.78	0.01
	Adj. R ² =0.10				Adj. R ² =0.10				Adj. R ² = 0.11			
	F(13,656) = 6.60***				F(13,656) = 6.82***				F(13,656) = 7.13***			

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. SE=standard error (in parenthesis). η^2 =eta-squared that represents proportion of variance in the outcome explained by the corresponding predictor variable. Dependent variable is smart-phone addiction.

Moderation analyses revealed that gender and age did not moderate the relationship between parenting attitudes and smartphone addiction. However, although not statistically significant it should be noted that standardized coefficients for age moderation were not very small, which may warrant further investigation. Parenting attitudes in conjunction with perception of being social tended to result in more severe smartphone addiction for older ages (democratic parenting: $\beta = 0.16$, *n.s.*, Protective Parenting: $\beta = 0.25$, *n.s.*, authoritarian parenting: $\beta = 0.16$, *n.s.*). Perception of being social moderated the relationship between authoritarian parenting and smart-phone addiction ($\beta = 0.78$, $p < .05$), meaning that authoritarian parenting in conjunction with perception of being social results in more severe smartphone addiction. Perception of being social also moderated the relationship between democratic parenting style and smartphone addiction ($\beta = -0.48$, *n.s.*), suggesting that democratic parenting in conjunction with perception of being social results in less severe smartphone addiction.

4 . Conclusion and Discussion

This study was carried out in order to determine to what extent parental style and socio-demographic variables predict smartphone addiction among university students. The results showed that age, gender, parental education level, time spent on smartphone, number of siblings, students' feeling of being social and perceived parental attitudes were significant predictors of smartphone addiction. Similar to some other recent studies, the findings of this study comply with other research (Tanhan, 2020).

A negative and significant relation was found between democratic and authoritarian parental attitudes, and smartphone addiction. On the other hand, the study revealed that there was a positive and significant relation between protective parental attitude and smartphone addiction. This shows that the children of parents who are in protective attitude to their children have higher smartphone addiction. Limited studies are available in the literature in relation to smartphone addiction and parental attitudes in university students. These results are considered to contribute to parents' understanding of their attitudes (Özaslan & Yıldırım, 2021) so that they can bring up their children in a democratic environment, and their children can be more social in the future, and they will experience less telephone addiction. Also, it is possible to conclude that the parents' authoritarian attitude towards their children and drawing strict borders are effective in their spending less time on smartphones. At this point, it should be noted that whether students' perceptions of their parents' attitudes as authoritarian will have the same effect on smartphone addiction in the following periods should be considered as an important problem area (Çiçek, 2020). Since parents' attitude and behaviour patterns towards children lay the groundwork for the emergence of unwanted behavioural problems in children in the future (Çiçek & Aslan, 2020).

A positive and significant relationship was found between the time spent by students on smartphones and their smartphone addiction. As the time spent by the students on smartphones increased, their smartphone addiction increased. Similar results have been reported in previous studies (Geçgel, 2020; Yaran, 2020). Tanhan (2020) in a quite new and innovative qualitative study called Online Photovoice (OPV) found that college students reporting technology addiction during the COVID-19 pandemic as one of the most important barriers to their mental health. In their study, Noyan et al. (2015) reported that there had been a positive relation between time spent on smartphones and smartphone addiction in university students. The result of this study also showed that as the time that university students spend on smartphones increases, the smartphone addiction occurrence risk increases as well.

Another important result of the study was that the smartphone addiction level of the students who did not regard themselves as sociable revealed to be higher than those who regarded themselves as sociable. These results demonstrate that the students find smartphones as a tool to cope with challenges. Although there are not any studies conducted between direct social self-perception and mental phone addiction, a positive relationship was found between students' depression levels and situations of loneliness (Tanrıverdi, 2017). In this context, it may be assumed that university students who do not have sufficient social relations and who experience loneliness spend more time on their smartphones to cope with these situations and therefore, they are more vulnerable to the risk of smartphone addiction than social people. Furthermore, the results showed that students who viewed themselves as social reported that their parents' attitudes were more democratic. It appears that both the perception of students as social and their parents' attitudes as democratic feed each other. In addition, the scores of authoritarian and protective parent attitudes perceived by students who viewed themselves social were low. This suggests that students' social feelings are related to their perceived parental attitudes. No research has been found in this context in the available literature.

According to gender variable, it was found that the scores significantly differed from protective parental attitude sub-scale. In this study, male perception of parental attitude was more protective than females. Similar findings have been reported in earlier research (Eker & Kaya, 2018; Yıldırım & Sezer, 2018). For instance, Sezer & Oğuz (2010) obtained the similar results in their study. On the other hand, in this study, no significant difference was found according to gender in democratic and authoritarian parental attitudes which is in accordance with previous studies (Çiftçi & Gülaçtı, 2019). Eker & Kaya (2018) reported no significant difference in gender variable according to university students' perception democratic parental attitudes. Contradicting results have also been

reported (Yıldırım & Sezer, 2018). For instance, a significant difference was found in the authoritarian parental attitude in gender variable in the study carried out by Eker & Kaya (2018).

Moreover, there was no significant difference between the gender variable and smartphone addiction scores. This result is consistent with previous findings (Chen et al., 2017; Kwon et al., 2013; Tateno et al. 2019). On the other hand, some studies found that there are significant differences in smartphone addiction according to the gender variable (Demirci, Akgönül, & Akpınar, 2015; Tavakolizadeh, Atarodi, Ahmadpour, & Pourghesar, 2014). The results of the study conducted by Choi et al. (2015) showed the smartphone addiction of girls was significantly higher than that of boys.

A significant difference was found between the number of siblings of the students and the authoritarian parental attitude they perceived. On the other hand, no significant difference was found between the democratic and authoritarian attitude and the number of siblings. Students who grew up in families with many siblings viewed their parents less authoritarian than children with fewer siblings. There are studies that examine the relationship between the number of siblings and perceived parental attitudes among university students (Alshehri, Yildirim & Vostanis, 2020; Eker & Kaya, 2018; Yıldırım & Sezer, 2018). In the study conducted by Eker & Kaya (2018), a significant difference was observed between the perceived democratic parental attitude of university students and the number of siblings, while no difference was found between perceived authoritarian and protective parental attitudes and the number of siblings. According to the results obtained from the study, it was revealed that the perceived parental attitudes of the students according to the education level of the fathers differ significantly. Likewise, the perceived democratic and authoritarian attitude differed significantly according to the mother's educational status. On the other hand, there was no significant difference in perceived protective parental attitude according to the mother's education level. In our study, it was found that the higher the education level of the parents was, the more students perceived their parents as democratic, and the lower their education level was, the more they perceived their parents as authoritarian. These findings are in line with previous findings (Yıldırım & Sezer, 2018). Kaya, Bozaslan & Gülten (2012) reported that a significant difference emerged between the perceived democratic, protective and authoritarian parental attitudes and the education level of the parents among university students.

The results of regression analysis showed that university students' perceived parental attitudes, gender, parents' education status, time spent on smartphones, social feeling and number of siblings together, were significant predictors of smartphone addiction, and they constituted 11% of smartphone addiction. In the light of these results, the way parents raise their children may cause the emergence of some undesirable behaviours in their adulthood. In this context, it is thought that especially students' not feeling social, may cause them to spend more time with smartphones and experience the risk of smartphone addiction as some previous researchers warned against at the beginning of the pandemic (Doyumğaç et al., 2021; Tanhan, 2020).

5. Limitations and Recommendations

It is possible to acknowledge several limitations regarding this research. First, the fact that the study was conducted during the COVID-19 period, this situation may have caused students to spend more time on their smartphones due to compulsory stay at homes. This situation may also have been reflected in the research results. Secondly, although the variables (parental attitudes, time spent on smartphones, gender, age, parents' education status, feeling social) were considered as significant predictors of smartphone addiction, the current study is limited with only these variables. It would be appropriate for researchers to conduct new studies to include more related variables (e.g., quality of life, psychological well-being, negative evaluation, discrimination, satisfaction with one's campus) across contextual levels as some researchers highly recommended (Demir et al., 2021; Uğur, Kaya, & Tanhan, 2020). Third, students may have been biased in their answers as data were collected online. Therefore, it may be healthier to conduct studies using different methodology like face-to-face interview. It is crucial to bring innovative and qualitative or mixed method studies that provide space to capture participants' unique experiences from their own perspective while collaborating with and for them as some researchers have used such methods recently and strongly called for such methods rather than solely cross-sectional quantitative

studies (Tanhan, 2019). Finally, the study was applied only to university students. The reason for this is that there are adults who have the average age of university students but do not attend university. With this in mind, conducting studies on all people at a certain age range may result in different situations. Education programs about addiction may be prepared in schools.

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The Effect of School and Student-Related Factors on PISA 2015 Science Performances in Turkey

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ABSTRACT

The Program for International Student Assessment (PISA) is a research project conducted by the Organization for Economic Co-operation and Development, which evaluates the knowledge and skills gained by 15-year-old students over three-year terms. Within this study's scope, the PISA 2015 data were analysed to determine whether school-related factors [including the schools' economic, social, and cultural status (ESCS)] were related to Turkish students' science performances. Due to its nested structure, the released PISA 2015 data were analysed using the hierarchical linear model (HLM). Two models were considered to examine how Aggregated ESCS at the school level makes a difference. Thereby in model 1 shortage of educational material, staff shortage, student behaviours, and teacher behaviours were included in the analysis; in addition to these variables listed, aggregated ESCS was also added to the analysis in Model 2. The results of the analysis revealed that school-related factors - in particular, staff shortage, student behaviours, and aggregated ESCS indexes - were statistically related to students' science performances. When the aggregated ESCS was controlled, it is observed that the school-level variables had a higher effect on students' science performances.

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Keywords:

HLM, PISA, science literacy, science performance, school resources, school ESCS

1. Introduction

The International Student Assessment (PISA) Program is an international comparative student surveillance and assessment process conducted every three years by the Organization for Economic Co-operation and Development (OECD) to determine students' success levels aged 15 years in the participating countries in science, mathematics, and literacy. This assessment allows cross-country comparisons in terms of skills in science, mathematics, and literacy and the level of performance of students. Additionally, PISA also aggregates other data related to different variables considered to influence the quality of education, such as parents, schools, and economic, social, and cultural status (ESCS). PISA focuses on a different skill in each application, for example, reading skills, mathematics literacy, or science literacy (Bybee, Fensham, & Laurie, 2009).

Science literacy, one of the focal subjects of PISA, is defined as "the ability to engage with science-related issues" (OECD, 2016); thus, through this item, PISA aims to measure scientific competencies, understandings, and attitudes toward science (Bybee et al., 2009). PISA science literacy is based on the assumption that a student's specific science-related response requires skills and knowledge and depends on their willingness to engage in the topic (OECD, 2016). Although many variables affect students' science literacy levels and science performances, when the literature is examined, one of the most important factors determining students'

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literacy levels seems to be the ESCS (Perry, 2010). However, it is known that students who come from families with low ESCS have a lower risk of stroke (Stacey, 2010). Additionally, student affective characteristics - such as motivation, self-efficacy, readiness, self-control, and epistemological beliefs as well as school-related factors including quality of educational materials, qualification of teachers, and physical characteristics (Çelebi, 2010; Karabay, 2013) also play an important role in determining student performances. Sun, Bradley, and Akers (2012) also pointed out that the value and positive attitudes of parents directly affect students' science performances. The results obtained from the Turkish samples were similar to those from other OECD countries, showing that parents' education level and variables, such as the number of books at home, significantly impact students' science performance (Erbaş, 2005; Karabay, 2012, 2013). Although ESCS cannot directly explain this effect, this view is also supported by the findings of the research conducted by Lin, Hong, and Huang (2012), who reported that emotional factors, such as interest and entertainment, have a significant influence on the literacy levels of students. This raises another question, "*is ESCS a consistent variable in explaining the science performance and literacy levels of students?*". According to Çeçen (2015), the answer is yes. Çeçen evaluated the PISA results for 2003, 2006, 2009, and 2012 through a survey and found that ESCS was a good predictor of student performances and literacy levels.

The impact of students' family backgrounds, socioeconomic status (SES), and school-related factors on their academic performances have been an important issue since the Coleman Report's publication (Coleman et al., 1966). Under Coleman's leadership, this study conducted in the USA argued that SES variables are more important than the school resources in determining the students' educational achievements. The first serious objections to this research came with the work of Edmonds (1979), who focused on schools that were successful despite their poverty (low SES) and, later, Hanushek (1997), who supported Coleman's findings that no strong or consistent relationship existed between school inputs and student performances. Similarly, Heyneman and Loxley (1983) reported that, while the variance of school-related variables in high-income countries accounted for 35% of the students' performances, this was 18% in low-income countries. They also stated a negative and significant relationship between school-related factors and the variance rate explained by GNP per capita. This finding, described as the "Heyneman-Loxley Effect", provided concrete evidence that variation in school resource quality may be more important than variations in family input in low and middle-income countries (Bouhlila, 2015). Despite the critics (Riddell 1989a, 1989b), these findings have been the basis of discussions in the interpretation of TIMSS results from 2002 to 2010 (Baker, Goesling, LeTendre, 2002; Bouhlila, 2015; Heyneman, & Lee, 2012). According to Baker et al. (2002), the Heyneman-Loxley Effect demonstrates the strength of schooling at the social level and families' socioeconomic status and the social impact such as school quality on students' academic achievements. Even if they are not as effective as the controversial effect of school resources and family history on success (Riddell 1989a), it explains the differences in a countries' science and mathematics performances (Baker et al., 2002), such as Turkey. The improvements made in the quality of school-related factors have positively impacted student achievements (Authors, 2013).

School-related factors expressed as variables related to schools' quality are school environment, school ESCS, staff shortage, and educational material shortage. The concept that examines these variables' effect on students' academic achievement is the "opportunity to learn" (OTL). Since the 1960s, OTL has been one of the most important concepts in explaining schools' impact on students' success. Carroll (1963) emphasised that OTL is one of the school learning models' critical structures and defined it as the time allocated to the student to learn a particular task. In the following years, the OTL concept expanded to include different effects on the schools' success. Today, OTL refers to conditions or possibilities that promote learning in schools and classrooms, such as curricula, learning materials, physical conditions, teachers and their teaching experiences, as educational programs and a policy tool (Cooper, & Liou, 2007; Newman, Myers, Newman, Lohman, & Smith, 2000; Wijaya, 2017). OTL argues that differences in students' (or schools) academic achievements are due to unequal learning conditions rather than students' abilities (Schwartz, 1995). Therefore, OTL is considered an essential concept to investigate possible causes of students' poor performances (Brewer, & Stasz, 1996; Hiebert & Grouws, 2007) and explain the differences between student performances in international comparative studies of countries with different education systems (Schmidt, McKnight, Valverde, Houang, & Wiley, 1997; Valverde, Bianchi, Wolfe, Schmid, & Houang, 2002).

It is known that ESCS is one of the greatest predictors of student academic achievements (Şirin, 2005). However, it is the ESCS of the individual and the ESCS of the school that has this effect (Ho, & Willms, 1996; OECD, 2004; Rumberger & Palardy, 2005; Şirin, 2005; Willms, 1999). Although Coleman's findings have been suggested to have some problems (Gamoran, & Long, 2007), many studies have shown that features such as school ESCS, school environment, and school resources have an impact on student academic achievements (Fuller, & Clarke, 1994; Greenwald, Hedges, & Laine, 1996; Lee, 2000; Rutter, & Maughan, 2002; Van Ewijk, & Sleegers, 2010). Perry and McConney (2010) suggested that students may have higher performance levels in a school with high ESCS, and their performances may be reduced if the school ESCS is low. This indicates that schools' average ESCS has a higher correlation with students' ESCS in explaining students' academic achievements (Perry, & McConney, 2010). Therefore, to determine students' performances within PISA's scope, the ESCS of schools must be calculated and controlled in the PISA analyses. Although the literature states that schools ESCS variables and the schools quality can have a significant impact on students' science performances (Lee, 2000; Rutter, & Maughan, 2002; Van Ewijk, & Sleegers, 2010), Schleicher (2009) states that directly linking countries low performances to ESCS would be wrong. He emphasised that some economically lagging countries have achieved success in PISA by reducing inter-school variance. Therefore, the extent to which school ESCS variables can affect students' science performances is an important question, especially in countries with high inter-school variances, such as Turkey. Examining the school ESCS variable's role in student performances may offer a different perspective, especially considering that schools benefit from the government-distributed resources at similar rates due to the Turkish education system's central structure. From this perspective, this research aims to determine (1) how students' science performances are affected by school-related and student-related factors in Turkey and (2) given that the school ESCS is calculated and determined as an independent variable, how students' science performance is affected by school-related factors.

2. Method

Data Source

In this study, the data obtained from PISA 2015 were used. In PISA studies, the preferred sample design is the two-step stratified sampling. In the first step, the individual schools in which 15-year-old students are enrolled are sampled. In the second step, students are selected from the schools identified in the first step (OECD, 2016). The number of samples per school cannot be less than 20 (OECD 2016). Data were collected from 187 school principals and 5895 students to answer the research questions. Thus, the data source is nested and consists of two levels; student level (*level 1*) and school level (*level 2*). PISA 2015 student and school questionnaires and student science performance tests were used as data collection sources within the research scope. All variables included in the study are presented in Table 1 and Table 2 below with metrics, definitions, and Cronbach Alpha values. Additionally, the descriptive statistics for all variables in the study are provided separately in Table 3.

Dependent Variables

In this study, students' science performances were determined as a dependent variable. There are two dimensions of the science test in PISA. The content dimension covers physics, chemistry, biology, and earth science. In contrast, the cognitive dimension encompasses knowing, applying, and reasoning skills. The item response theory method is used to determine students' science performances (Martin, Mullis, Foy & Stanco, 2012). Additionally, ten plausible values were calculated for each student by PISA. All plausible values were used in the analysis carried out in this study.

Plausible values are used to show the students' science performances. In PISA's scope, instead of obtaining a point estimate, the probable values of a student are estimated to have a probability for each of these values. Plausible values are obtained randomly from this (estimated) distribution for each student (OECD, 2009; Wu, 2005). This definition shows that plausible values are not the actual individual test scores collected at the

student level. Although this may seem to be a limitation, very detailed statistical techniques are used to control this within the PISA study.

Independent Variables

In the PISA study context, two background questionnaires are used to determine factors that affect students’ performances; the school questionnaire was distributed to the school’s principals, and the student questionnaire was distributed to all of the participating students. According to the data structure, independent variables were selected from these two sources - the student questionnaire (Level 1) and the school questionnaire (Level 2).

Level 1 (student-level) independent variables:

Gender, arriving late for school, skipping school, economic, social, and cultural status (ESCS), teacher support, and disciplinary climates were investigated at the student level. Student questionnaires collected the student-level independent variables, and these variables are shown in Table 1 below.

Disciplinary Climate: Disciplinary climate index (DISCLISCI) was constituted from students’ reports on how often (“every lesson”, “most lessons”, “some lessons”, “never or hardly ever”) about the following situations: “Students don’t listen to what the teacher says”; “There is noise and disorder”; “The teacher has to wait a long time for students to quiet down”; “Students cannot work well”; and “Students don’t start working for a long time after the lesson begins”.

Teacher support to students: The index of teacher support to students (TEACHSUP) has been calculated from students’ responses (“every lesson”, “most lessons”, “some lessons”, “never or hardly ever”) on expressions such as “The teacher shows an interest in every student’s learning”; “The teacher gives extra help when students need it”; “The teacher helps students with their learning”; “The teacher continues teaching until students understand the material”; and “The teacher gives students an opportunity to express their opinions”.

PISA index of ESCS: The ESCS index “was derived, as in previous cycles, from three variables related to family background: highest parental education, highest parental occupation, and home possessions, including the number of books at home” (OECD, 2016c, p. 243).

Skipping school: PISA asked students how many school days they skipped in the last two weeks before the assessment.

Skipping some classes: PISA asked students how many lessons they had skipped in the last two weeks before the assessment.

Arriving late for school: PISA asked students how many times they were late to school in the last two weeks before the assessment.

Table 1. Student-Level Scale Indices and Variables

Variable/Scale	α	Items	Response
Disciplinary climate (5 items)	0.893	- “Students don’t listen to what the teacher says;”	“every lesson”, “most lessons”, “some lessons”, “never or hardly ever”
		- “There is noise and disorder “	
		- “The teacher has to wait a long time for students to quiet down”	
		- “Students cannot work well”	
		- “Students don’t start working for a long time after the lesson begins”	
Teacher support to students (5 items)	0.915	- “The teacher shows an interest in every student’s learning”	“never or hardly ever”
		- “The teacher gives extra help when students need it”	
		- “The teacher helps students with their learning”	

	- "The teacher continues teaching until students understand the material"	
	- "The teacher gives students an opportunity to express their opinions"	
Number of times <"skipped a whole day">		"never",
Number of times <"skipped some classes">		"one or two times",
		"three or four times" or
Number of times <"arrived late for school">		"five or more times"
Index of ESCS (economic social and cultural status)		
Gender (Female=1, Male=2)		

Level 2 (school-level) independent variables:

School resources (staff shortage and educational material shortage), school climate (teacher behaviours and student behaviours), and aggregated ESCS were selected for the analytic model for the school level. The school-level independent variables are shown in Table 2 below.

School Resources: PISA asked eight questions to measure school principals' perceptions of school factors affecting teaching quality. STAFFSHORT was examined under four different factors: lack of teaching staff, inadequate teaching staff, lack of assistant staff, and inadequate or inadequately assisted staff. Lack of educational materials (e.g. textbooks, IT equipment, library or laboratory materials), insufficient or low-quality educational materials, lack of physical infrastructure (e.g. building, floor, heating/cooling, lighting, and acoustic systems) and poor or poor quality physical infrastructure. Positive values in these indices indicate that school principals think that the quality of education in their schools affects the quantity and/or quality of these resources to a greater extent than the OECD average.

School climate: This index measured school principals' perceptions about the school climate, especially teachers' and students' perceptions that could prevent students' learning. The student behaviour index (STUBEHA), which prevented learning, consisted of five dimensions: students' degree of preparation, students who did not skip courses, students who did not respect teachers, students who used alcohol or illegal drugs, and those who intimidated and forced other students. The teacher behaviour index (TEACHBEHA), which prevents learning, consisted of five dimensions: meeting the individual needs of students, absenteeism, resisting change, being too strict towards the students, and not being prepared for the lessons.

Aggregated ESCS: In the PISA dataset, the ESCS variable was only available at the student level, and there was no calculated data for ESCS at the school level. A new variable called "aggregated ESCS" was produced at the school level by aggregating the student-level ESCS values using the SPSS software package to use the ESCS variable at the school level in the analyses. From the individual ESCS index score of the students attending the same school, an average ESCS score was generated for each school.

Table 2. School-level Scale Indices

Variable/Scale	α	Items	Response
Staff shortage (4 items)	0.804	- "a lack of teaching staff"	"not at all", "very little", "to some extent" and "a lot"
		- "inadequate or poorly qualified teaching staff"	
		- "a lack of assisting staff"	
		- "inadequate or poorly qualified assisting staff"	
Shortage of educational material (4 items)	0.905	- "a lack of educational material"	"not at all", "very little", "to some extent" and "a lot"
		- "inadequate or poor quality educational material"	
		- "a lack of physical infrastructure"	
		- "inadequate or poor quality physical infrastructure"	

Student Behaviour (5 items)	0.751	<ul style="list-style-type: none"> - "student truancy" - "students skipping classes" - "students lacking respect for teachers" - "students using alcohol or illegal drugs" - "students intimidating or bullying other students"
Teacher Behaviour (5 items)	0.802	<ul style="list-style-type: none"> - "teachers not meeting individual students' needs" - "teacher absenteeism" - "staff resisting change" - "teachers being too strict with students" - "teachers not being well-prepared for classes"

As part of PISA, scaling studies are carried out, and these studies are described in detail in the PISA Technical Report (OECD, 2017). Cronbach's alpha values have been calculated for each index to indicate the study's scale's internal consistency. A scale can be considered sufficiently reliable if Cronbach's Alpha is 0.7 or higher (Nunnally & Bernstein, 1991). Thus, it is considered that the high Cronbach alpha values in Table 1 and Table 2 are proof of the reliability of the PISA indices. Therefore, factor analysis was not done separately. Single items such as school truancy/skipping school (3 items) and gender were included in the analysis. Because more information can be associated with an index and the amount of measurement error is less for indices than single items, indices should be preferred to single items whenever possible (OECD, 2009). However, single-item measures included in the study are likely to suffice because of their simple (one-dimensional) and concrete constructs that are well understood. Such single items probably contain a small amount of measurement error. Nevertheless, using single items can be considered one of the weaknesses/limitations of this study.

The descriptive statistical values of students and school variables and correlations between these variables are given in Table 3 below. When Table 3 is examined, it is seen that almost all variables have a significant relationship ($p < .01$) with others at the student level. Additionally, there is a significant relationship ($p < .01$) between the variables, except the relationship between teacher behaviours hindering learning and the aggregated ESCS at the school level. This situation was interpreted as teacher behaviours not being affected by the average ESCS scores.

According to Table 3 above, both the disciplinary climate in science classes and teacher support in science classes are significantly negatively correlated with students' truancy, whereas ESCS is positively correlated with student's truancy. Besides, at the school level, a shortage of educational materials and a shortage of educational staff have a significantly positive relationship with the aggregated ESCS. Additionally, the study's descriptive statistics indicated a stronger significantly positive correlation between a shortage in educational materials, a shortage of educational staff, and student behaviours hindering learning.

Table 3. Descriptive Statistics and Bivariate Correlations

Student Level (n=5895)	M	SD	1	2	3	4	5
1. ESCS (Index of economic, social, and cultural status)	-1.45	1.66	1				
2. Teacher support in science classes	0.20	1.00	-0.06**	1			
3. Disciplinary climate in science classes	-0.13	0.96	-0.01	0.15**	1		
4. In the last two full weeks of school, how often: I<skipped> a whole school day	1.72	0.93	0.09**	-0.07**	-0.13**	1	
5. In the last two full weeks of school, how often: I<skipped> some classes	1.65	0.88	0.09**	-0.09**	-0.14**	0.58**	1
6. In the last two full weeks of school, how often: I arrived late for school	1.74	0.93	0.05**	-0.07**	-0.12**	0.35**	0.42**
School Level (n=187)							
1. Teacher behaviours hindering learning	0.13	0.89	1				
2. Student behaviours hindering learning	0.27	0.95	0.46**	1			
3. Shortage of educational materials	0.27	1.28	0.31**	0.35**	1		
4. Shortage of educational staff	0.62	1.15	0.32**	0.29**	0.49**	1	
5. Aggregated ESCS	-1.57	0.71	0.01	-0.17*	-0.38**	-0.27**	1

** . Correlation significant at 0.01

Analytical Models

Since the PISA data was collected at both student and school levels, the dataset's structure was nested. For this type of dataset, using ordinary least squares regression for analysis would cause a loss of characteristic dependencies and increase the likelihood of Type I errors (Raudenbush, & Bryk, 2002). Therefore, HLM was used to model all data levels to overcome these limitations. HLM can analyse the relationships within and between different levels in data sets with a hierarchical structure. Therefore, it is more effective in calculating variance between variables at different levels than other analyses (Woltman, Feldstain, MacKay, & Rocchi, 2012).

HLM assessment was performed in three steps (considering the data's nested structure and preventing the errors listed above). In the first (fully unconditional) step, the variance was divided into its parts between school and in-school in science performances; this preliminary model is equal to a one-way ANOVA with random effects (Saed, & Hammouri, 2010). Intra-class correlation (ICC) was calculated as an indicator of inequality between the country's schools. Additionally, the reliability of the science performance score was estimated in this step. The second step was to produce a random (partially conditional) coefficient model to test the relationship between the student-level predictor factors and the outcome variable (science performance) and to determine the relative strength of the effects of the student-level variables (Woltman et al., 2012; Raudenbush, & Bryk, 2002). The third model (which is the model of fully conditional intercepts and slopes) examined whether students' average science performances within the same school was influenced by the level-2 factors and how much variance of science performances between schools could be explained by these factors.

Student-level predictors are generally group-centred variables to examine the effects of student-level and school-level variables independently. Centring at the school level, in most cases, is only necessary when other variables are needed to be controlling; as advised by Enders and Tofighi (2007), school-level predictors should be centred around the grand mean (Algina, & Swaminathan, 2011). In light of the aforementioned article, gender, skipping school, skipping some classes, arriving late to school, economic, social, and cultural status

(ESCS), teacher support, and disciplinary climate have been centred around the group mean. School resources (staff shortage and shortage of educational materials), school climate (teacher behaviours and student behaviours), and aggregated ESCS have been centred around the grand mean.

Fully Unconditional – Unconstrained Model

The aim here was to verify that the variability in the outcome variable was significantly different from zero at level 2 (school level); this enables determining whether there are variations in the outcome variable at the group level and whether HLM is required (Woltman et al., 2012). The following equations are used in the fully unconditional model:

Level 1 (student level):

$$Y_{ij} = \beta_{0j} + r_{ij}, \text{Var}(r_{ij}) = \sigma^2 = \text{within} - \text{group variance in science performance.}$$

Level 2 (school level):

$$\beta_{0j} = \gamma_{00} + u_{0j}, \text{Var}(u_{0j}) = \tau = \text{between} - \text{group variance in science performance.}$$

β_{0j} indicates the mean of science performance in school j , and r_{ij} indicates the error variance for student i in school j for the student-level model. γ_{00} represents the grand mean science performance, and u_{0j} represents the random effect associated with school j for the school-level model (Raudenbush, & Bryk, 2002).

Random Intercepts Model (Partially Conditional)

The equations used for the partially conditional model are as follows:

Level 1 (student level):

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Gender}) + \beta_{2j}(\text{Skipped whole day}) + \beta_{3j}(\text{Skipped some classes}) + \beta_{4j}(\text{arrived late}) \\ + \beta_{5j}(\text{Disciplinary climate}) + \beta_{6j}(\text{Teacher support}) + \beta_{7j}(\text{ESCS}) + r_{ij}, \text{Var}(r_{ij}) = \sigma^2.$$

Level 2 (school level):

$$\beta_{0j} = \gamma_{00} + u_{0j}, \text{Var}(u_{0j}) = \tau_{00}; \beta_{1j} = \gamma_{10} + u_{1j}, \text{Var}(u_{1j}) = \tau_{11}; \beta_{2j} = \gamma_{20} + u_{2j}, \text{Var}(u_{2j}) = \tau_{22}; \beta_{3j} \\ = \gamma_{30} + u_{3j}, \text{Var}(u_{3j}) = \tau_{33}; \beta_{4j} = \gamma_{40} + u_{4j}, \text{Var}(u_{4j}) = \tau_{44}; \beta_{5j} = \gamma_{50} + u_{5j}, \text{Var}(u_{5j}) \\ = \tau_{55}; \beta_{6j} = \gamma_{60} + u_{6j}, \text{Var}(u_{6j}) = \tau_{66}; \beta_{7j} = \gamma_{70} + u_{7j}, \text{Var}(u_{7j}) = \tau_{77};$$

In the equations given above, σ^2 (in level 1) represents the student-level residual variance, and γ_{00} (in level 2) denotes the average school means of science performances among the 15-year-old students in the same school. The increment regarding school j is expressed as u_{0j} (in level 2). γ_{10} is the mean slope between gender and science performances, and the increment to the slope related to school j is represented by u_{1j} . γ_{20} (skipped a whole day), γ_{30} (skipped some class), and γ_{40} (arrived late for school) respectively represent the mean slopes between students' truancy and students' science performance. The increments to the slope related to school j are represented respectively as u_{2j} , u_{3j} , and u_{4j} . γ_{50} characterises the mean slopes between disciplinary climate and students' science performances, and the increment to the slope related to school j is represented by u_{5j} . γ_{60} characterises the mean slopes between teacher support and students' science performances, and the increment to the slope related to school j is represented by u_{6j} . γ_{70} characterises the mean slopes between ESCS and students' science performances, and the increment to the slope related to school j is represented by u_{7j} (Saed & Hammouri, 2010).

Fully conditional models (means-as-outcomes model)

The fully conditional model examined whether the level-2 factors affected students' average science performances within the same school and how much these factors could explain the variance in science

performances among schools. Two models were considered to examine how Aggregated ESCS at the school level makes a difference. Thereby in model 1, shortage of educational materials, staff shortage, student behaviours, and teacher behaviours were included in the analysis; in addition to these variables, aggregated ESCS was also added to the analysis in Model 2. The equations used in these models were:

Model 1:

Level 1 (student level):

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Gender}) + \beta_{2j}(\text{Skipped whole day}) + \beta_{3j}(\text{Skipped some classes}) + \beta_{4j}(\text{arrived late}) + \beta_{5j}(\text{Disciplinary climate}) + \beta_{6j}(\text{Teacher support}) + \beta_{7j}(\text{ESCS}) + r_{ij}, \text{Var}(r_{ij}) = \sigma^2.$$

Level 2 (school level):

$$B_0 = \gamma_{00} + \gamma_{02}(\text{Shortage of educ. material}) + \gamma_{03}(\text{Staff Shortage}) + \gamma_{04}(\text{Student behaviour}) + \gamma_{05}(\text{Teacher behaviour}) + u_{0j}.$$

Model 2:

Level 1 (student level):

$$Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Gender}) + \beta_{2j}(\text{Skipped whole day}) + \beta_{3j}(\text{Skipped some classes}) + \beta_{4j}(\text{arrived late}) + \beta_{5j}(\text{Disciplinary climate}) + \beta_{6j}(\text{Teacher support}) + \beta_{7j}(\text{ESCS}) + r_{ij}, \text{Var}(r_{ij}) = \sigma^2.$$

Level 2 (school level):

$$B_0 = \gamma_{00} + \gamma_{01}(\text{Aggregated ESCS}) + \gamma_{02}(\text{Shortage of educ. material}) + \gamma_{03}(\text{Staff Shortage}) + \gamma_{04}(\text{Student behaviour}) + \gamma_{05}(\text{Teacher behaviour}) + u_{0j}.$$

3. Results

The analyses undertaken in this study aimed to determine the extent to which school-related factors could explain the variance in students’ science performances and provide a detailed understanding of the effects of these differences on students’ science performances. For this purpose, firstly, the unconditional model was applied to determine whether the dataset conformed to the hierarchical data analysis. The results of the fully unconditional model are shown in Table 4 below.

Table 4. The Results of the Fully Unconditional Model for Science Performance

γ_{00} (Grand mean)	409.64
Between-school variability ($\tau_{00}^2_{SEP}$)	3576.29
Within-School variability across all students (σ^2)	2924.68
Intraclass correlation (ICC)	0.55

The results of the fully unconditional model showed that the school science performance mean (γ_{00}) was 409.64. There was a significant variation between schools in terms of science performances. For example, the between-school variability in science was 3576.29, and the within-school variability was 2924.68. To determine the percentages of variance that could be attributed to the group and individual levels in science performances, ICC was calculated, and it was found that 55% ($\chi^2(186) = 7465.87, p < 0.001$) of the variance in science performances occurred at the group level. ICC's value, .25 or above, requires the application to HLM (Heinrich, & Lynn, 2001). Thereby, the results of the analysis supported the use of hierarchical linear modelling.

The partially conditional model was tested to determine the effect of the variables determined at the student level on the students' science performances. The results of this analysis are shown in Table 5 below. This model consisted of two demographic variables (ESCS and gender) and five individual behaviour variables (teacher support, disciplinary climate, and students' truancy). Beta coefficients indicated that only two of these seven student variables were significant predictors ($p < 0.05$) of student performances.

Table 5. *The Effects of Student-level Variables on Students' Science Performance*

Fixed Effects	Coefficient (SE)	p-value
INTRCPT2, γ_{00}	409,57 (5.55)	0.000
Gender, γ_{10}	5.89 (2.24)	0.009
Number of times <skipped a whole day>, γ_{20}	0.85 (1.36)	0.530
Number of times <skipped some classes>, γ_{30}	-1.43 (1.25)	0.253
Number of times <arrived late for school>, γ_{40}	1.25 (1.03)	0.224
Disciplinary climate, γ_{50}	3.21 (1.34)	0.021
Teacher support to students, γ_{60}	1.15 (1.19)	0.339
ESCS (economic social and cultural status), γ_{70}	1.35 (0.88)	0.126
Random Effect	Var. Component	p-Value
INTRCPT1, U0	3584.92	0.000
Gender slope, U1	97.48	0.126
Number of times <skipped a whole day> slope, U2	34.11	0.024
Number of times <skipped some classes> slope, U3	17.89	>.500
Number of times <arrived late for school> slope, U4	14.64	0.388
Disciplinary climate slope, U5	23.92	0.276
Teacher support to students slope, U6	7.01	>.500
ESCS (economic social and cultural status) slope, U7	15.63	0.336
Level-1 effect σ_{ij}	2806.54	

The results of the HLM analysis for the partial conditional model showed that, when the other variables at the student level were controlled, only gender ($\gamma_{10}=5.89$, $p < 0.05$) and disciplinary climate ($\gamma_{50}=3.21$, $p < 0.05$) were significantly related to student performances, which means that boys' performances in science were better than girls. Furthermore, students who reported a better disciplinary climate in their science lessons performed better in science. Students' truancy, teacher support, and ESCS were not significantly related to student's performances in science at the student level.

The fully conditional model was used to estimate the effects of school-level variables on students' science performances. The results are presented in Table 6 below. The results of the HLM analysis related to the second research question (Table 6) showed that teacher behaviours and a shortage in educational materials did not significantly affect science performances in Model 1 (respectively $\gamma_{05}=7.65$ and $p=0.140$; $\gamma_{02}=-6.02$ and $p=0.094$) and Model 2 (respectively $\gamma_{05}=-0.44$ and $p=0.926$; $\gamma_{02}=1.60$ and $p=0.670$). As expected in both models, staff shortage (respectively $\gamma_{03}=-13.85$ and $p < 0.001$; $\gamma_{03}=-7.71$ and $p=0.043$) and student behaviours (respectively $\gamma_{04}=-19.74$ and $p < 0.001$; $\gamma_{03}=-15.74$ and $p < 0.001$) had a significant negative effect on science performances.

When the school ESCS score was included in the analysis, the shortage of education materials still did not significantly affect student performance variation. However, the coefficient value increased from -6.02 to 1.60. A similar change was observed in the variable of staff shortage, which declined to -13.85 from -7.71. This situation can be interpreted as follows - the variables of staff shortage and a shortage in educational materials implicitly contain ESCS-related variables and the school ESCS variable. When ESCS is calculated as an independent value and included in the analysis, the implicit ESCS effect was excluded from these variables, thereby revealing their contribution. However, as stated before, these two variables were not significant in both models. Similarly, teacher behaviours were not significant in both models; however, this variable's

coefficient contributions decreased when the ESCS index was added. Student behaviours were significant in both models, and the coefficient of this variable changed when the school ESCS was included in the analysis.

Table.6. *Estimated Effects of the School-Level Variables on Students' Science Performance*

	Model 1		Model 2	
	Coefficient (SE)	p-value	Coefficient (SE)	p-value
INTRCPT2, γ_{00}	409.87 (4.16)	0.000	414.09 (3.64)	<0.001
ESCS (Aggregated) γ_{01}	-	-	49.98 (6.31)	<0.001
Shortage of educational material, γ_{02}	-6.02 (3.57)	0.094	1.60 (3.76)	0.670
Staff shortage, γ_{03}	-13.85 (4.12)	0.001	-7.71 (3.79)	0.043
Student behaviour, γ_{04}	-19.74 (4.93)	0.000	-15.74 (4.21)	<0.001
Teacher behaviour, γ_{05}	7.65 (5.16)	0.140	-0.44 (4.76)	0.926
	Model 1		Model 2	
Random Effect	Var. component	p-value	Var. component	p-value
INTRCPT1, U0	2694.10	0.000	1508.86	<0.001
Gender slope, U1	98.36	0.126	107.36	0.089
Number of times <skipped a whole day> slope, U2	34.04	0.024	34.32	0.028
Number of times <skipped some classes> slope, U3	17.93	>.500	24.80	>0.500
Number of times <arrived late for school> slope, U4	16.42	0.386	18.49	0.393
Disciplinary climate slope, U5	24.44	0.273	25.60	0.245
Teacher support to students slope, U6	6.46	>.500	7.80	>0.500
ESCS (economic social and cultural status) slope, U7	15.43	0.348	15.83	0.461
level-1 effect rij	2807.46		2767.13	

4. Discussion

This research aimed to determine how students' science performances are affected by school-related and student-related factors in Turkey, and when the school ESCS is calculated and determined as an independent variable, how students' science performances are affected by school-related factors. According to the results, in terms of gender variation (one of the significant variables at the student level), it was determined that boys' science performances were better than girls in both models. The examination of previous PISA studies results revealed clear differences between male and female students (OECD, 2004, 2016b). González de San Román and de La Rica (2016) investigated the differences between male and female students to demonstrate the effects of gender inequality and gender roles. The results were in favour of the male students. Another significant variable that influences science performances at the student level is the disciplinary climate. In all countries and economies (except Argentina and Korea), students have better science performances in science lessons conducted in a better disciplinary climate (OECD, 2016). However, when the school aggregated ESCS score is examined (Model 2), the disciplinary climate variable was not significant in science performances. This finding suggests a relationship between teachers' classroom management skills and the ESCS levels of school and students. This has two possible reasons; (1) teachers in the low ESCS group may be less attentive to the students and less willing to engage in classroom management, and (2) the proportion of teachers with competent classroom management skills is low in schools with a low ESCS index. However, only qualitative research can help better understand the underlying cause or causes of this situation.

Other variables at the student level (students skipping school, teacher support, and ESCS) were not significantly related to students' science performances in either model. As stated above, Turkey's current examination system is test-oriented, which leads most students to seek extracurricular courses, private tutoring, and academic support. This may be why these three variables were not significantly related to students' performances in science. On the other hand, in the literature, some researchers have suggested that the results of skipping school can lead to additional problems other than low academic success. The frequent absence from school may be associated with working in low-paid jobs, unwanted pregnancy, drug and alcohol use, and attempting suicide (Baker, Sigmon, & Nugent 2001; Barber, Stone, & Eccles 2010; Hallfors, Cho, Brodish, Flewelling, & Khatapoush, 2006; Henry, & Huizinga, 2007; Juvonen, Espinoza, & Knifsend, 2012; Valeski, & Stipek, 2001). Therefore, the high rate of school truancy in Turkey than other OECD countries must be investigated.

The fact that ESCS is less than -1 at both the student and school levels shows that most 15-year-old students are disadvantaged in Turkey. Disadvantaged students were reported as 69% in PISA 2012; this rate was reported as having decreased to 64% for PISA 2015. Although there is a worthy decrease in the percentage of disadvantaged students in time (69% in PISA 2012; and 64% in PISA 2015), the proportion is still considerably high. Disadvantaged students tend to have lower science scores in PISA and require more teacher support (OECD, 2016). To make the most of learning opportunities, students need the school staff's support, especially teachers (Klem & Connell 2004). Students, including those with disadvantages, develop more positive attitudes and are better motivated when provided with attention and support from their teachers (Skinner, Pitzer, & Steele, 2016; Ricard, & Pelletier, 2016). Despite the positive relationship between ESCS and truancy, the negative relationship between ESCS and teacher support, and the negative relationship between truancy and teacher support, it was determined that these variables were not significant predictors of student performances in either model. One of the possible explanations for this situation is that, as mentioned above, students in Turkey usually seek additional educational support outside school.

When the aggregated ESCS was controlled, it is observed that the school-level variables had a higher effect on students' science performances. As expected, staff shortage and student behaviours negatively affected students' science performances in both models. Especially in Model 2, where the ESCS variable at the school level was controlled, these variables' effect on science performances was reduced. When the quality and quantity of resources decrease, school conditions deteriorate; it is well-known that poor school conditions have reduced students' academic success (OECD, 2016). In this study, however, there was no significant relationship between the shortage of educational materials and students' science performances. Student-related problems reported by the school principal (such as truancy or bullying) are more clearly related to science performances than teacher-related problems (such as teacher absenteeism or staff resisting change). Therefore, it is better to have a teacher in the classroom than having no teacher, even if the teacher occasionally misses classes or is not well prepared for class. In education systems with small differences between schools, students are not classified based on need or ability. Differences between schools are inevitably more evident in education systems that attempt to meet the students' different needs and guide students to make career-related decisions at an early age. Therefore, these systems tend to produce different outputs with varied training programs and approaches. This study's sample consisted of students from Turkey, a country in which the education system is test-oriented and has high school diversity with different curriculums; thus, there were considerable differences in students' performances in science (ICC=55%). Considering the impact of social effects such as school quality on students' academic achievements (Baker, et al., 2002), it can be stated that school diversity is one of the main reasons for the differentiation of students' science performances.

A higher intra-class correlation means greater between-school variation. Turkey has one of the highest between-school variations in OECD countries; this finding shows that Turkey's schools are very differentiated in gaining science skills. In this case, the quality and equity in science education are not sufficient due to lower science performance and high school diversity. There is a broad range of ICC values across countries, from less than 10% for schools in Iceland, Finland, and Norway to 55-60% for the schools in the Netherlands, Hungary, and Turkey (OECD, 2017). School diversity with different curricula is shown as one of the causes of the high variation in student performances between schools (Berberoğlu, Çalışkan, & Karşlı, 2019; Agasisti, Avvisati, Borgonovi, & Longobardi, 2018; Authors, 2013).

Science teachers should create conducive learning environments for better student understandings. One of the requirements for creating a conducive learning environment is having fewer disciplinary problems and more teacher support in science lessons (Ma, & Willms, 2004). Descriptive statistics at the student level showed that students' truancy was less under the circumstances perceiving teachers' support more and in a better disciplinary climate. Additionally, findings suggest a significant correlation between a shortage of educational materials, a shortage of educational staff, and students' behaviours hindering learning. Hence, further research could investigate the effect of the improvements in the shortage of educational materials and the shortage of educational staff on students' behaviours hindering learning.

5. Conclusion and Recommendations

Findings obtained within this research scope reveal that ESCS is one of the most important variables in determining student performances, whether at the student or school level. In addition to this finding, it was understood that school-based factors such as lack of staff and lack of educational materials were indirectly affected by the school ESCS variable as expected. In this research, we found that a teacher's classroom presence positively influences student performances, although it is not well-prepared. PISA emphasised that students who report a better classroom environment in science classes perform better in science (OECD, 2016). When all these findings are interpreted with school ESCS findings, the school ESCS variable's effect on student performances becomes clearer. Although it is not possible to improve schools' ESCS indexes under these conditions in a short time, it can be seen that students' science performances can be improved by eliminating the lack of educational materials or staff because the schools differ greatly in terms of sociocultural structure, unlike other OECD countries. In this case, both low science performances and performance differences between school types make it difficult to ensure equality of quality and opportunity in science education. According to Yıldırım (2012), the effect of ESCS decreases as the effect of school-related variables and classroom climate variables on student performances increases. However, he emphasised that Turkey's quality of teaching practices is not good enough to reduce the performance differences caused by ESCS. Therefore, it may be possible to overcome these differences with education reforms in the long term. Still, the finding that students' science performance can be improved by eliminating the lack of educational materials and teacher shortages in the short term is one of the most concrete outcomes of this research. It is recommended to carry out studies focusing on revealing the relationship between student performances between schools in the same school type and school ESCS.

Limitations of the Study

This study has some limitations, and the results should be considered under these limitations. Firstly, since PISA is a cross-sectional and observational study, the findings cannot be considered as causal assertions. Secondly, the findings are valid only for 15-year-old students attending schools. Thirdly, there is a limitation to how students are measured; for example, the measure of participation is not always a truancy measure, since some students may have not been able to attend school because of illness or other accepted excuses. Thus, the measure of participation should be considered as a measure of absenteeism. However, in this study, "school truancy" is consistent with PISA's conceptual framework. Finally, even though the detailed statistical techniques are used to control the limitation of the usage of plausible value for students' science performances, using the plausible values as a dependent variable can also be seen as another limitation of the study.

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Being a Female Domestic Worker During the Pandemic Period from the Hope Perspective

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ABSTRACT

Pandemic processes are important factors triggering the changes in the psychological and sociological structure of society. The COVID-19 outbreak has embodied many variables affecting people's lives in several terms in Turkey as in the whole world. People have appeared to face many psychosocial and economic difficulties due to the social and economic conditions changing with the pandemic period. During this period, domestic workers are the first people who experience these problems in multiple ways. Hope is an important concept in terms of protecting and improving the well-being of domestic worker women who have serious problems in terms of social security, social relations and economic income. Therefore, this research aims at examining the hope mechanisms developed by female domestic workers against the difficulties they experience during the pandemic period between March-June 2020. As it known, hope increases the well-being of people. 15 female domestic workers participated in the research, which was designed in a descriptive phenomenological pattern. The analyses obtained as a result of the interviews held with the female domestic workers revealed that the findings were related to the themes of sources of hope and adaptation process during the pandemic. When the sources of motivation in the structuring of hope are reviewed, it is noteworthy that they are divided into the subthemes of social and inner sources. Considering the relationship of hope with the adaptation to the pandemic period, on the other hand, the subthemes of efforts on reducing concerns, rearrangement of the financial life and view of the future come to the fore.

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Keywords:¹

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1. Introduction

COVID-19 seriously affects the mental health of the general population (Mazza et al., 2020). When the psychological outcomes of COVID-19 are reviewed, it is seen to lead to many psychological and sociological problems such as panic, anxiety, depression, post-traumatic stress disorder, and skepticism in the individual (Jakovljevic, Bjedov, Jaksic, & Jakovljevic, 2020). Against these problems, hope has a significant role in protecting the mental health and improving the well-being during the pandemic period (Shanmugam, Juhari, Nair, Ken, & Guan, 2020; Yıldırım & Arslan, 2020).

Miller (1988) states that hope is an important emotion existing in the nature of humans. Erikson (1959) asserts that hope appears in the basic trust vs mistrust stage, which covers the first years of life. The hope of the child

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whose needs are adequately met by the caregiver is also developed. Peterson and Seligman (2004) associated the concept of hope with thinking about the future, expecting that the desired results will be achieved, acting to enable the achievement of the desired results, and being sure that these efforts will enable the achievement of the desired results. Morse and Doberneck (1995) claim that hope develops as a response to a threat. Snyder (2000, 2002) states that traumatic experiences such as loss of a relative, loss of a job, and death will lead to the loss of hope. Individuals with high hopes act with curiosity against a new situation and exhibit a successful motivation in working under stressful circumstances. It is seen that hope increases the well-being of the individual in terms of his mental health (Ong, Edwards & Bergeman, 2006; Sheldon, Kasser, Smith & Share, 2002) and hopelessness has negative effects on the mental health of the individual (Beck, Steer, Kovacs and Garrison, 1985). In the research conducted by Yildırım and Arslan (2020) during the COVID-19 period, hope was found to have a protective effect in terms of subjective well-being and psychological health. In a research carried out in Malaysia, people were reported to eat more healthily, question the meaning of life, and have the chance of communicating with their families more often during the quarantine (Shanmugam, Juhari, Nair, Ken, & Guan, 2020). In the study executed with 657 health professionals in the USA, participants expressed that they did exercise, joined virtual support groups and fulfilled their prayers to cope with stress during the COVID-19 period. As seen on these researches, most of the participants were found to be optimistic and improve their goals and approaches to the meaning of life (Shechter et al., 2020).

The pandemic has serious economic, sociological, and psychological outcomes (WHO, 2020). Around the world, many countries have taken quarantine precautions to control the infection during the COVID-19 period. Together with the quarantine, workplaces were shut down, and dismissals, downsizing and unemployment, which threatened the job security of the workers, were practiced. Due to this process, many people have had to cope with financial problems as well as their health-related concerns resulting from the pandemic (International Labor Organization, 2020; Wenham, Smith, & Morgan, 2020). However, in a crisis like COVID-19, altruism, empathy, trust and friendship are observed in individuals at an improved level, and they tend to help each other. In the face of a crisis that affects psychological health in many areas such as the pandemic, a tendency has emerged in people to endure, heal and be stronger. Domestic workers are at the forefront of those who experience the problems in multiple ways during this period. Domestic workers have experienced a serious crisis in meeting their basic needs such as unemployment, shelter, nutrition and health (International Labor Organization, 2020). All these challenging life events, that are difficult to cope with, have caused negative feelings for domestic workers. Beyond the negative emotions such as anxiety and fear experienced by domestic workers who work without social security and lost their jobs during the Covid 19 process, it is important to reveal sources of hope that have an important role in protecting their psychological health. This research was conducted for this purpose, aiming at revealing the sources of hope, which have a significant role in protecting the psychological health of female domestic workers during the pandemic.

2. Material and Methods

In this research, the phenomenological approach, one of the qualitative research patterns, was adopted. In this study, the meanings attributed to a certain experience (hope) by female domestic workers during the pandemic were described according to their viewpoints. For this purpose, the research method developed by Giorgi (2009) named "the descriptive phenomenological research pattern", which is based on Edmund Husserl's transcendental phenomenology, was used as the research pattern. In this direction, the data collection process was provided through semi-structured interview forms, and direct quotations were included to reveal the essence of the participants' feelings, thoughts and experiences. The following steps of descriptive phenomenological analysis were followed in the study: (i) The reading of transcripts/texts obtained from interviews from a phenomenological perspective and reaching an impression regarding the whole phenomenon (ii) differentiating meaning units that reveal different aspects of the whole, (iii) revealing the psychological aspects of the existing situation as much as the content of the narratives allow, (iv) revealing the general structure of the experienced phenomenon.

2.1. Study Group

This study was conducted with domestic workers women who are unable to go to work due to the COVID-19 outbreak. Participants were reached via social media (Facebook and Instagram). The interviews held within the scope of the research were conducted by the researchers themselves via telephone. The criterion sampling

method, (Patton, 2002) which is one of the purposeful sampling methods and would facilitate studying the cases complying with the research problem, was used in the research. For determining the sample, the criteria of "working for household chores, being a woman and not having a permanent illness that influenced the daily life and mental health" were taken into consideration. Since there was no certain size of a study group stated in qualitative studies, 15 individuals were interviewed within the framework of the existing time, conditions and the main objective of the study (Morse, 2000). The female domestic workers resided in Istanbul (10) and Izmir (5), which are among the metropolises of Turkey. Participants' ages varied between 30 and 52, and the average was 38 (SD = 2.35). The highest education level is high school, and the number of children is maximum 3. Moreover, one of the participants got divorced from her husband.

Table 1. Demographic Information of Participants

Code	Age	Education	Husband's work status	Number of children
P1	38	Primary school	Yes	2
P2	37	Primary school	No	2
P3	36	Primary school	Yes	2
P4	40	Primary school	Divorced	3
P5	38	Primary school	No	3
P6	39	High school	Yes	1
P7	35	Secondary school	No	2
P8	42	Secondary school	No	3
P9	40	Secondary school	Yes	2
P10	35	Secondary school	Yes	2
P11	32	Secondary school	Yes	2
P12	37	Secondary school	Yes	2
P13	40	Primary school	No	3
P14	30	Secondary school	Yes	2
P15	52	Illiterate	No	3

2.2. Data Collection Tools

A semi-structured interview form was used for data collection in the research. The relevant interview form was prepared by reviewing the literature on domestic workers and hope, and then it was finalized based on the opinions of the three academicians, who were experts in the areas of hope, indomitableness and social justice. The functionality of the questions was tested with two pilot studies. The basic question samples related to the interview questions are as follows: "What do you do to feel good during the day?", "What did you find important for yourself during the quarantine period?", "What do you feel/foresee about the direction of this period?", "How is your relationship with your employer now?".

2.3. Data Collection

Ethical permission for the research had been obtained from the Ethical Committee of the Istanbul Sabahattin Zaim University. A semi-structured interview form was used for data collection in the research. The relevant interview form was prepared by reviewing the literature on domestic workers and hope in the context of coping, the sources of hope, secure attachment, commitment, and trust. It was finalized based on the opinions of the academicians, who were experts in the areas of hope, indomitableness and social justice. The functionality of the questions was tested with two pilot studies. The interviews held within the scope of the research were conducted by the researchers themselves via telephone due to the COVID-19 pandemic. With pre-interviews, participants were informed and asked for appointments; then, their consent for the audio record was received. To better understand the conditions of the participants during the pandemic, a demographic information form was firstly used. In line with the questions of the semi-structured interview form, the participants were asked questions about their daily routines while staying at home during the pandemic, social support systems, financial situation of the family, and their predictions about the course of the pandemic. These questions were deepened with probe questions to understand their hope statutes regarding the pandemic period.

2.4. Analysis and Interpretation of Data

The data obtained from the interview were first decoded. The 4-step data analysis process suggested by Giorgi (2009) was used since it was aimed to reveal the perceptions and experiences of female domestic workers regarding their hopes during the COVID-19 pandemic. In this sense, for the analysis of the data, bracketing (researchers' suspension of all their knowledge, values, perceptions and experiences regarding the subject of the research), phenomenological reduction (referring to the determination of meaning units related to the experiences of female domestic workers during the COVID-19 period, which were stated in interview texts), imaginative variation (reaching the structural themes of the hope phenomenon based on the meaning units revealed via phenomenological reduction), and finally, the synthesis of the resulting meanings and essences were applied.

In this study, it was tried to provide internal validity via long-term interaction, in-depth data collection, expert's examination and participant's confirmation, while external validity was provided through detailed descriptive and purposeful sampling methods. Besides, consistency examination was performed for internal validity and confirmation examination for external validity. Prior research subjects of the researchers and their sensitivity towards social justice have led them to this study. The researchers' subjective study experiences formed a supportive basis for the analysis and interpretation of the data.

3. Results

As a result of the analysis of the interviews held in the research and in line with the opinions of the female domestic workers who participated in the study, basic themes and subthemes related to the structure and essence of the hope phenomenon during the COVID-19 outbreak are stated and explained in detail with citations from the qualitative data below.

3.1. Sources of hope

The main theme of sources of motivation consists of the subthemes of inter and intrapersonal factors. It is seen that the participants carried on their communication with their social environments during the pandemic, although not face to face. Participants, who kept their social support networks by staying in touch with their social environments via devices like cell phone, express that spending time and sharing with family members increase their well-being levels. During the pandemic, participants are observed to resort to religious beliefs as a source of coping, try to interpret the happenings within their beliefs and thank God by thinking that there must be a meaning in it although it is a disease, use their intrapersonal factors by praying to be healthy and raise their hopes for the future.

3.1.1. Interpersonal factors

The sub-theme of social sources is comprised of the codes of the social environment, supportive relationships between spouses, and getting closer to family members. Participants state that they see their family members face to face because they share the same building with their close relatives and live in a family building, interacting with their social environment, although in a limited way, help them feel good to overcome the pandemic period and they try to overcome the period with mutual support. P12's narrative is a good example of this experience: *"Since we are in a family building, we are kind of trying to overcome it somehow. For example, we spent time together; they visited me, I visited them. We tried to overcome the period at home."*

A part of the participants states that they stay in touch with some of their employers via telephone. Staying in touch and feeling others' support make participants feel valued during the pandemic. It is seen that participants consider their bond with their employers friendly.

P12: We are always in touch with each other; we support and text to each other. They call me, I'm thankful to them. This is moral support, which is very important: feeling loved.

Participants are observed to stay in touch with their friends, whom they cannot see face to face, via video calls, etc., to try to break the isolation in this way, and to improve their support networks.

P14: We continuously talked over video calls or audio calls. It felt nice. I always talk to my elder sister. Even talking makes you feel good.

It is seen that the participants have obtained the support of their husbands when they could not work, and the house income has decreased during the pandemic. They have been supported by their husbands when it comes to both house income and their COVID-19-related concerns. The financial and moral support of husbands has improved the well-being of the participants.

P9: He says that it will not remain the same and it will be fine. He says that I will start to work and we will live within our means.

In this period, participants are observed to have played games with their children, watched movies, and fulfilled household responsibilities altogether. Besides the activities performed with children, they got closer to their husbands, as they stated.

P13: We spent more time with our family. I communicate with my children and husband. When you cannot go out and do anything, then you start planning things for yourself and your family. Let's watch a movie and make popcorn. We even do clean-up together. We have got closer to each other in this period.

3.1.2. Intrapersonal factors

The subtheme of inner sources includes the codes of praying, questioning the meaning of life and being thankful. Participants are seen to pray, fulfil their religious duties and wish for health for themselves and humanity to reduce their concerns during the pandemic.

P6: I always prayed for the survival of my beloved ones. They should live and stay alive. I just wanted the people around to exist. I pray and read the Quran. It feels good.

Participants say that they have understood how important health is, even financial power is not enough to protect their health, and they have remembered the significance of their families and friends. Participants stress that health is of primary importance, remember their need to communicate with people and make use of their available sources.

P10: I don't want anything to happen to my children, my relatives and my friends. There's nothing else. People I love are important to me. Life has almost no meaning. No matter how much property you have. None of them feels useful when it comes to this disease. As long as we are healthy, it is fine; nothing else matters.

Participants are thankful that they are alive and healthy especially after the losses during the pandemic.

P3: Luckily, we know we are not sick. This is a big happiness for me.

Despite the financial losses and difficulties, participants are observed to be able to maintain their lives with help and to be thankful by saying that they are healthy and there are people in worse conditions than them.

P1: Even if the whole world is yours, it doesn't matter if you are not healthy. This is what I have noticed the most. I've thought I have good health, healthy children and a healthy husband even if I have nothing at home.

Participants state that they have relied on their beliefs to interpret the period they have gone through, everything has a meaning, even if it is a disease, it has a purpose, and still, we should be thankful. Emphasis is laid on being thankful, not reacting negatively, being in expectation for a better future and keeping hopes.

P7: If something happens, there must be a reason for it. We should be thankful for it so that we can come across better conditions in the future. A negative reaction does not have any use for anyone.

3.2. Adaptation during the pandemic

The main theme of adaptation during the pandemic consists of the subthemes 'efforts on reducing concerns, rearrangement of the financial life and view of the future'. It is seen that participants' hobbies, beliefs and exercise are important in protecting their psychological health. Participants find solutions by planning their priorities via the rearrangement of your financial problems and needs resulting from the loss of a job. They are also observed to make plans for the future and make efforts to achieve these goals.

3.2.1. Efforts on reducing concerns

The subtheme of efforts on reducing concerns includes the codes of contact with nature, suggestion, exercise, music and hobby. P11 says that she is in contact with nature to relax: "I lie down on the floor and listen to myself

by looking at the stars. This makes me feel relaxed. As if my soul leaves my body. It makes me happy even if I see the sky through a small gap. It feels like my brain is fully emptied. I like reading the Quran. I do it because it feels like the other side is only listening to me."

Participants said that they restarted their hobbies such as exercise, handicraft, knitting, and cooking to reduce their concerns about COVID-19. They express that these hobbies relax them, prevent them from thinking about the disease and feeling worried, and they make use of their spare time, which results from not going to work, efficiently.

P8: I listen to music with headphones. I do handwork. A headcover. I do lacework to spend time. At least, I feel good.

In coping with the anxiety related to the disease, they are seen to resort to autosuggestion and try to keep their hopes and beliefs that everything will be fine.

P12: When I experience something like that, I give advice and suggestions to myself: "Calm down, everything will be normal, everything is fine". I dealt with something else. For example, I cooked, I made milk puddings. I do exercise at home. I do cleaning, watch series, read a book, etc.

3.2.2. Rearrangement of the financial life

The subtheme of the rearrangement of the financial life consists of the codes of contenting, limitation of needs, and external financial support. Participants cannot go to work, and therefore, go through financial losses. However, participants, who often experienced financial difficulties in the previous periods of their lives, are adapted to this situation more quickly.

P4: We are managing it. We have been managing it since our childhood. We are used to it. Thank God, we are supporting ourselves.

Participants are trying to arrange their lives by minimizing their needs. With the pandemic, they have lost their jobs together with the sources to fulfil the daily needs of the household. Since the income earned per day before the pandemic was hardly enough to maintain their daily lives, they are observed to have no savings. Therefore, they are seen to rearrange their lives to meet their daily needs.

P3: We had not saved anything before. In this period, we have been down without any money. You have to think when a bill comes. How will I pay for it? For example, I got our natural gas subscription cancelled a long time ago so that no bills could come. I have begun to be more careful. I tell my son to turn off the lamp. You start to think about even 1 Turkish Lira. When you go to the market, you buy the cheapest things.

It is observed that a part of the participants had partial incomes from the lands in their hometowns, husbands of some participants went on working during the pandemic, others were helped by the families whom they visited for clean-up, but the husbands of another part did not work and could meet their needs only by applying for the credit opportunity of the state.

P15: Well, in our hometown, we have a hazelnut business. This is a side income for us. We are very thankful to my husband's workplace. It did not cut his salary and completed the money given by the state.

P6: The houses I visited helped me financially. I hope we will be all fine.

P13: I received a loan deferred for six months. Thus, we support ourselves with the credit.

3.3. View of the future

The subtheme of view of the future includes the codes of the belief that everything will be fine, the ability to socialize, expectations related to family members, and expectations related to oneself. Participants are hopeful that the pandemic period will be over; they believe they should keep their hopes, give priority to being healthy and be healthy.

P7: It will happen over time. God should give health first. Then, the rest will happen. My children, my husband and all the people on earth should be healthy. The rest will happen.

Expressing that it is their priority to spend time with their friends as soon as the pandemic period is over, the participants state that they previously had problems with allocating time for their friends and gave priority to

their work, etc. but they will give priority to their friends and delay their other work as soon as the pandemic is over. They are observed to expect that isolation will be over in the future.

P2: If the coronavirus disappears right now and if my friend calls me, I will leave my work aside and immediately leave. Work can always be done, when friends and family are away.

Participants who mentioned about the significance of seeing the family members outside the nuclear family stated that they dreamed about coming together with them and being together, chatting and hugging each other made them feel very good.

P8: I always believe that this period will be over hopefully in a short time.

P13: We have missed our elder family members. We will try to allocate time to these people. I have realized the importance of family bonds.

Participants are observed to dream about strolling around and spend time with their family members outside the home without any concerns. Participants dream of the future of their dreams and make plans about having a future altogether. It is seen that participants who talk about their dreams wish for the realization of their dreams and rely on their religious beliefs for it.

P2: I want to go out with my husband and children. I want to do something for my children. We dreamed about buying a house. I want to make it come true. Hopefully. We had beautiful dreams about the future. My only hope is to realize them before I die if God gives me a life long enough.

Participants are observed to have plans about getting a job with social security benefits and have become more insecure during the pandemic due to working without security benefits as domestic workers. Participants continue their education and make an effort to find a job with social security benefits and regular income.

P11: I will go to the Turkish Employment Agency on Wednesday and apply to work at the pay desk in a hospital. I have to sustain my life. One of the decisions I have made during this period is to graduate from high school as soon as possible, study at university and find a proper job. I am making an effort for it.

4. Discussion

The COVID-19 outbreak has embodied many variables affecting people's lives in several terms in Turkey as in the whole world. People have appeared to face many psychosocial and economic difficulties due to the social and economic conditions changing with the pandemic period (Soylu, 2020). During this period, domestic workers are one of the people who experience these problems in multiple ways. This research has a fundamental purpose of how domestic workers, who have experienced a serious crisis in meeting their basic needs such as unemployment, housing, nutrition and health (Domestic Workers Solidarity Union, 2020), cope with the challenges of the process and maintain their hopes. It was revealed that female domestic workers basically kept their hopes in two ways: sources of motivation and adaptation process during the pandemic. Several researches emphasize the importance of a positive viewpoint for solidarity (Walsh, 2016). Hope is important in terms of rebuilding the energies and lives and increasing the efforts on coping during the periods of stress and desperation. People tend to stick to their hopes in the middle of uncertainty (Walsh, 2020). In this aspect, in the study conducted, it can be said that putting forward the sources of hope of female domestic workers who suffered from intensive stress and anxiety constituted a significant source for increasing well-being and indomitableness.

In a study approaching the COVID-19 pandemic period in respect of post-traumatic stress disorder in China, young people, women and people with responsibilities were found to tend to exhibit more traumatic symptoms (Jiang, Nan, Lv, & Yang, 2020). Women from the lower socio-economic section and worked as domestic workers, who also comprised the study group of this research, can be told to be more open to the traumatic effect due to their gender and financial responsibilities. Female domestic workers are observed to benefit from some coping mechanisms to cope with the negative experiences and to be protected during the pandemic. In this research, where the experiences of female domestic workers during the pandemic period between March and June 2020 were discussed in terms of hope, the obtained data were shaped under the titles of sources of motivation and adaptation to the pandemic period. It was remarkable that inter and intrapersonal factors appeared quite effectively in coping with the negative outcomes of the pandemic period. According to Southwick, Vythilingam & Charney (2005), social support is highly important for the protection of physical

and mental health. It is reported that positive social support can increase the flexibility of the individual, protect the individual against the psychopathological development related to the trauma, reduce the functional outcomes of the trauma-related disorders such as PTSD. In this research, social support attracts attention as an important source in coping with the negative outcomes of the pandemic period, which has resulted in deaths and been extended all over the world.

The structuring of hope is crucial for the well-being of both the individual and the family the individual is included in. According to Walsh (2020), it is necessary to help families redirect their hopes while studying on the COVID-related losses. During the restructuring of hope, individuals can be provided with hope perspectives for the future while support is offered so that they can put up with long-term uncertainties and long recovery periods. As the studies have revealed, flexibility is provided by focusing on the effort to control what is possible, accepting what is uncontrollable, and coming to terms with what is unchangeable (Walsh, 2016). Also, in this research, the association of hope with various interpersonal factors seems important in terms of individual and family well-being as indicated by Walsh (2020). In a study conducted by Simmons et al. (2009) with 161 employees of an assisted living center, it was observed that secure attachment had a meaningful and positive relationship with hope and trust between employees and their supervisors. This finding is in line with the result of this research that the continuation of the contacts of the participants with their employers is effective in maintaining their hope level.

In a study conducted with health professionals in New York (Shechter et al., 2020), 80% of the health professionals were found to perform coping activities such as meditation and exercise. In another study carried out in Zimbabwe (Chirombe, Benza, Munetsi, & Zirima, 2020), activities such as in-house games, exercise, listening to music and dealing with the garden were performed as coping mechanisms during the pandemic. In this study, it is noted that female domestic workers resort to positive coping mechanisms such as contact with nature, suggestion, exercise, music and hobby although they have gone through quite a difficult period financially and morally. Especially intrapersonal factors shaped in women by praying, questioning the meaning of life and being thankful appear to result from becoming introverted and knowing themselves more closely by staying at home. It is thought that the use of rather moral sources is a cultural outcome.

In the report by the IMECE Domestic Workers Union, which was written in June 2020 and summarized the experiences of the female domestic women during the pandemic rather from a legal and economic perspective, it is stressed that female domestic workers have been faced with dismissal and most of them have experienced serious financial difficulties since they have no social security. In this study, it was seen that almost all the participants had serious economic problems. Although these difficulties, it was found out that women who felt helpless took measures to rearrange their financial lives and made new plans to shape the future.

5. Limitations and Recommendations

This qualitative study was conducted in quite a unique subject to research the hope levels of domestic workers. This study reveals how hope can be maintained in difficult times such as a pandemic. The study group consists of domestic workers, and the qualitative interviews in the research, which was carried out during the pandemic period, were held via telephone due to the isolation process. This is a limitation that visual and non-verbal cues cannot be observed in phone calls. Besides, many professional groups are working on daily wages; however, this study is limited to female domestic workers as a section of the daily wage workers. Additionally, the findings of the research were obtained from 15 female domestic workers who participated in the study from Istanbul and Izmir. It is assumed that the investigation of how the hope level works in female domestic workers in regions with different cultural structures will contribute to similar studies. Also, it is seen that among the activities that are good for the participants in their narratives are "reading books, trying to spend quality time and investing in yourself". However, it is seen that education policies for this are not carried out in our society. Therefore, as the forgotten and ignored segment of the society, it is considered important to provide educational support to domestic workers to improve themselves.

6. Conclusion

An individual thinks about the future, expects to achieve his goals, acts to obtain these results and waits for the outcome in safety. It is noteworthy that female domestic workers who have faced both financial and moral

difficulties during the pandemic are hopeful about the future, have made plans to arrange their own lives no matter if the pandemic is over, and have started acting to achieve their goals.

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Perspectives Related to Socio-Scientific Issues According to the Scientific Attitude Points of Secondary School Students*

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ABSTRACT

Individuals have different opinions and views on many socio-scientific issues such as stem cells, influenza vaccine, cloning, nuclear power plants, and organ transplantation that affect social life. Scientific attitudes and scientific literacy of individuals can affect their approach to socio-scientific issues. This research aims to reveal how 8th-grade secondary school students' opinions towards socio-scientific issues change according to their scientific attitudes. For this purpose, the "Scientific Attitude Scale" and "Socio-Scientific Issues Evaluation Form" were applied to the students. The study used a mixed research method that included both qualitative and quantitative data collection. The students' levels of scientific attitude were determined based on the quantitative findings of the study. The students were observed to have a moderate scientific attitude in general. According to their scientific attitude scores, students were divided into three groups: lower, moderate, and upper. The opinions of the students in the lower and upper groups on socio-scientific issues were analyzed based on both qualitative and quantitative findings. According to the findings, students who have a high scientific attitude have more awareness and opinions on socio-scientific topics than students who have low scientific attitude.

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Keywords:

Socio-scientific Issues, Secondary School Students, Science Curriculum, Scientific Attitude

1. Introduction

The topic of what should be the goals of science education has been discussed and investigated for a long time. The content and characteristics of scientific literacy, which is at the forefront today, coincide with the aims of science education. Discussions on the meaning and purpose of scientific literacy are important for the development of all students. Although science education is unified in developing scientific literacy for all students, variables that affect scientific literacy need to be determined. Students' ability to be as creative and productive as the problems they can solve in daily life should be supported (Roberts, 2007). Teachers should use Socio-Scientific Issues (SSI) to make their students scientifically literate (Zeidler, Sadler, Simmons, & Howes, 2005). Because SSI offers teachers a coherent conceptual framework by taking students' moral and emotional development into account (Zeidler, Walker, Ackett, & Simmons, 2002).

Socio-scientific issues generally include the products of scientific processes that cause controversy in social life, and have arisen in recent years cover typically many topics such as nuclear power plants, stem cells, flu vaccine, cloning, blood sugar test for the pregnant, genetically modified foods, cosmetic surgery, global

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warming, cholesterol drugs, and organ transplantation (Sadler and Zeidler 2005: 112). In addition to these topics, reproductive technologies and abortion (Dawson, 2011); use of antibiotics (Friedrichsen, Sadler, Graham, & Brown, 2016); alternative medicine, biodiversity, and human genome project are also considered as socio-scientific issues (Topçu, Mugaloğlu, & Güven, 2014). Sadler (2011) included fluoride addition to water resources in treatment facilities, different diseases such as cystic fibrosis, AIDS or SARS, local and global environmental problems, and water and air quality among socio-scientific issues. SSI has a multidimensional structure. SBK has a multifaceted structure. It is based on science and occurs within the framework of scientific knowledge, has moral and ethical dimensions, relates to science and society, is on the agenda and in the media, includes risk-cost analysis by comparing the interactive relationship between risk and values, has social, economic and political dimensions. It requires decision making in the social environment and personal situations (Ratcliffe & Grace, 2003). In this respect, socio-scientific issues are based on science, technology, and society. While the science-technology-society approach aims to integrate science, technology, and society into science education for meaningful science learning, the environmental dimension has been added to this approach over time.

For this reason, the science, technology, and society approach has turned into a Science-Technology-Society-Environment approach by including the environment (Öztürk & Irmak, 2020). When the scope and characteristics of socio-scientific issues are examined, they can be collected under different titles. These are scientific developments, social dilemmas, informal and socio-scientific reasoning, argumentation, scientific modeling, nature of science, risk analysis, character education and identity, moral and cultural values, and media (Topçu, 2017).

To develop the individual's critical thinking and reasoning skills, the necessity of taking the SSI in the science program emerges (Çakırlar Altuntaş et al., 2017). Also, bringing socio-scientific issues to the agenda in science lessons is an essential tool for both the student's individual development and the development of society (Yavuz Topaloğlu & Balkan Krier, 2018). Topçu (2017) emphasizes that many countries state that socio-scientific issues are important for science education and that socio-scientific subjects are included in their curriculums. In Turkey, it has been said by the Board of Education under the Ministry of Education that socio-scientific issues have been included in the objectives and content of the Primary Science Education Curriculum (Ministry of National Education, [MoNE], 2013; MoNE, 2018).

In science classrooms, it is critical to teach socioscientific issues. The presence of socio-scientific issues contributes significantly to students' scientific literacy (Genç, 2020). To improve scientific literacy, the scientific attitude needs to be developed positively. Individuals with a scientific perspective are eager to recognize problems and seek solutions.

Based on these considerations, in this study, it is crucial to know the level of scientific attitudes of secondary school students during their education and determine their effect on their perspective on socio-scientific issues. When the researches were examined (Çavuş, 2013; Karışan, 2014; Kutluca, 2012; Lee, Chang, Choi, Kim, & Zeidler, 2012; Öztürk, 2011; Turan, 2012), it was seen that students' perspectives on socio-scientific issues were studied, and the relationship between socio-scientific issues and their scientific attitudes is an important issue that needs to be investigated. However, there is no national study examining the effect of secondary school students' scientific attitudes on their perspective on socio-scientific issues. It is aimed to contribute to the literature regarding this study.

This study aims to reveal how the opinions of 8th-grade secondary school students towards socio-scientific issues change according to their scientific attitudes. For this, it aims to determine the students' scientific attitude levels first and reveal their opinions on socio-scientific issues accordingly.

2. Methodology

2.1. Research Model

The research has the feature of mixed research. This method states that it would be better to include quantitative or qualitative data together in the study than to use each one individually (Creswell, 2012; 535). In this study, the Scientific Attitude Scale was used to gather quantitative data to determine the students'

levels of scientific attitude. The Socio-Scientific Issues Evaluation Form was used to collect both quantitative and qualitative data in order to determine the students' socio-scientific opinions based on their scientific attitude levels. In the qualitative aspect of the study, the phenomenological design was used to determine students' thoughts about a socio-scientific event. This method is widely known but provides more detailed analysis (Mayring, 2000; Yıldırım & Şimşek, 2008).

2.2. Research Sample

Secondary school 8th-grade students from four different schools in the Western Black Sea region were chosen as the study group in this study. Two study groups were formed in line with the aims of the study. The first study group was formed to determine the scientific attitude levels of the students. For the first study group, 298 students from a private secondary school, an "imam hatip secondary school", a village secondary school, and a central secondary school in the 2017-2018 academic year were included. Thus, it was aimed to ensure maximum diversity by including school types at different socio-economic levels. However, since 38 students did not fill the scale entirely and meticulously, the study's data analysis was done with data collected from 260 middle school students. There were 120 female students (46.15%) and 140 male students (53.85%) in the study group. On the other hand, the second study group consisted of students at a low and high level according to the scores they obtained from the scientific attitude scale applied in the first study group. In these groups, the study was conducted with 97 students, 49 of whom had a high scientific attitude, and 48 of them had a low scientific attitude, to determine their point of view on socio-scientific issues. While maximum diversity sampling was preferred in the first stage of the study, the study group selected by criterion sampling was chosen for the next stage. Students' participation in the second stage was done voluntarily (Büyüköztürk et al., 2009).

2.3. Data Collection Tools and Procedure

The Scientific Attitude Scale was created by Moore and Foy (1997), and Demirbaş and Yağbasan adapted for use in Turkey (2006). The scale's original version is written in English and has six dimensions. The number of items on the scale is 40. Demirbaş and Yağbasan (2006) determined that the scale should have only one factor due to the Turkish adaptation. The scale is a five-point Likert type, with "Strongly Agree," "Agree," "Undecided," "Disagree," and "Strongly Disagree" representing the degree of students' agreement with the statements in the answers. The Cronbach alpha reliability coefficient in the Scientific Attitude Scale's original study is 0.76 ($\alpha = 0.76$). The alpha value was found to be 0.83 in analysis of this study.

In the study, "Socio-Scientific Issues Evaluation Form" was used to determine how students' opinions on socio-scientific issues changed according to their scientific attitude scores. The form has been developed by Çavuş (2013) and covers socio-scientific topics that students may encounter both in daily life and in lessons. The current original version of the form was examined, and socio-scientific issues that students might encounter in social life were included in the study. By reviewing the curriculum's acquisitions and topics and excluding the elements that were not suitable for the study's issue, the open-ended question form was rearranged. There are three sections to the Socio-Scientific Issues Evaluation Form. In the first part of the form, there are questions about students' gender, parental education level, mother and father occupation types, and the family's monthly income level. In the second part, some questions examine the source of the students' applications about science and the information they obtain about socio-scientific issues. In the third part, there are open-ended questions about different socio-scientific issues. Findings obtained from the first and second parts were analyzed through descriptive analysis.

2.4. Data Analysis

The Scientific Attitude Scale results, from which quantitative data were collected, were analyzed using the SPSS 20.0 (PASW 20.0) statistical package program. Students' scores on the scientific attitude scale were calculated and categorized into three groups: low, moderate, and high. While making this classification, the formula developed by Alamolhodaei (1996) was used. According to this formula, students who score more than the score obtained due to adding a quarter of the standard deviation to the mean are classified as "having a high scientific attitude". Those who have a score less than the score obtained by subtracting one-quarter of the standard deviation from the mean are classified as "having a low scientific attitude", and the ones between

these two numbers are classified as "having a moderate scientific attitude" (Black Pine and Fire, 2010; Sari, Altıparmak and Ateş, 2013). Students with a moderate scientific attitude were excluded from the study.

Analyzing the findings obtained from the Socio-scientific Issues Evaluation Form, frequency and percentage were used for quantitative data, and content analysis was performed for qualitative data. Content analysis is a method that allows for the regular and sequential analysis of written, visual or verbal data objectively (Tavşancıl Aslan, 2001; Cohen, Manion, & Morrison, 2007). Based on students' expressions, categories were created from plain data thanks to open coding. The obtained data were classified according to categories, and meaningful integrity was provided.

The data were analyzed by another expert familiar with qualitative research. An expert's opinion was taken about this coding process, and the codes were revised in line with the suggestions. In this way, coding was carried out by the purpose and problem of the study. Thus, the validity of the research was provided (Cresswell & Plano Clark, 2011). Besides, Miles and Huberman's (1994) durability formula are applied. Two independent people did coding, and the agreement between coders was calculated as 90%. Reliability calculations above 70% are considered reliable for research (Miles & Huberman, 1994).

The frequencies that emerged after the coding was tabulated. Direct quotation expressions about coding were included. In the students' direct quotations from filled forms, the first 49 of the students were numbered between S1-S49 as those with a high scientific attitude, while the students with a low scientific attitude were numbered between S50-S97.

3. Findings

3.1. Secondary school students' scientific attitude scores

The Scientific Attitude Scale was used to determine the scientific attitude levels of 8th-grade secondary school students, and the descriptive statistics obtained from the scale are shown in Table 1.

Table 1. Descriptive Statistics of the Scores the Students Obtained from the Scientific Attitude Scale

	\bar{X}	Sd	Min.	Max.
SAS	100,35	11,13	73	132

\bar{X} : average Sd: standard deviation

The mean score on the scale is = 100.35 (Sd = 11.13) when the descriptive statistics in Table 1 are examined. This data shows the mean value students get on the scale to get between 40-200 points. In this study, the lowest score obtained from the scientific attitude scale is 73, and the highest score is 132. The scores obtained by the students from the scientific attitude scale were calculated and divided into three categories as low, moderate, and high. Within this classification scope, the classification distributions made according to the students' scores from the scientific attitude scale are presented in Table 2.

Table 2. Distribution of the Study Group by Total Scores They Got from Scientific Attitude Scale

Classification	Score Interval	f	%
Low	73-97.57	107	41,15
Moderate	97,58-103,12	50	19,23
High	103,13-132	103	39.62
Total		260	100

f: frequency %: Percent

103 students with high scientific attitude scores and 107 students with low scientific attitude scores were identified in the classification. The research group consisted of 49 volunteers with a high scientific attitude and 48 volunteers with a low scientific attitude

3.2. Perspectives of students with different scientific attitudes scores on socio-scientific issues

Those who have different scientific attitude scores from the participants were researched about their activities related to science, the source of their information about socio-scientific issues, and their views about socio-

scientific issues. Participants were given a series of science-related activities and asked how often they did them. According to different scientific attitude levels, the frequency levels of the participants' activities towards science are presented in Table 3.

Table 3. Findings on Activities Carried Out by Participants in Science Subjects

Activities	Students with High Scientific Attitudes (f)				Students with Low Scientific Attitudes (f)			
	I never do	Sometimes I do	I often do	I do regularly	I never do	Sometimes I do	I often do	I do regularly
Watching documentaries, etc., on science.	5	35	6	2	9	35	3	2
Borrowing or buying science books	10	28	10	0	24	21	3	1
Visiting websites related to science subjects	7	26	14	1	12	25	12	0
Reading science-related news in newspapers	22	22	4	0	27	19	3	0
Following science-related magazines (Science Kids, National Kids, etc.)	18	23	5	2	22	22	3	2
Participating in science-related activities (Travel, Science Club activities, etc.)	16	23	6	3	19	25	5	0
Reading books on science topics	8	28	11	1	16	30	2	1
Total	86	185	56	9	129	177	31	6

In Table 3, it has been determined that the frequency of choosing the expressions "I do often" and "I do regularly" among the activities that the participants have done in science subjects are higher in students with high scientific attitudes than students with low scientific attitudes. This difference is observed more particularly in borrowing or buying and reading books on science subjects. The number of students who say "I never do" activities related to science is more common in low scientific attitude levels. According to these findings, it has been determined that students with a high scientific attitude level have a higher frequency of performing science-related activities. Also, a series of activities were given to the participants, and they were asked what activities they thought they could easily do on their own (Table 4).

Table 4. Activities That Participants Think They Can Do Easily on Their Own

Activities	Students with High Scientific Attitudes (f)				Students with Low Scientific Attitudes (f)			
	I cannot do this	It's hard for me to do	I can do if I try this	I can do this easily	I cannot do this	It's hard for me to do	I can do if I try this	I can do this easily
Recognizing the underlying problems when reading a newspaper article dealing with a health problem	5	4	30	9	6	11	28	4
Explaining the problems caused by unconscious drug use	5	3	19	21	7	7	19	16
Explaining the reasons for the proper collection and treatment of wastes	2	3	19	24	4	7	19	19
Predicting how environmental problems may affect the survival of living things	1	2	16	29	4	5	18	22
Understanding the product information given on foodstuff labels	5	4	17	22	7	8	14	20
Distinguishing renewable and non-renewable energy sources	2	0	13	33	1	6	14	28
Explaining the factors that cause acid rain to occur	1	3	17	27	6	7	19	17
Total	21	19	131	165	35	51	131	126

According to Table 4, the frequency rate of students with a high scientific attitude level generally says "I can do easily" is seen more than students with a low scientific attitude level. Also, the frequency of thought of the participants who say "I can not do" or "It's hard for me to do" the activities stated in the table is observed more in students with a low scientific attitude. As a result, students with a high scientific attitude think that they can understand, explain, distinguish, and predict the reasons for various subjects related to science more easily than students with a low scientific attitude.

Participants were asked where they get their information on socio-scientific issues in science from (Table 5).

Table 5. Sources of Information on Socio-Scientific Issues Related to Science They Reach

Socio-Scientific Issues	Students with High Scientific Attitudes (f)							Students with Low Scientific Attitudes (f)						
	From no source	From the teacher	From Media (TV, radio, newspaper, etc.)	From my friends	From my family	From the books	From the Internet	From no source	From the teacher	From Media (TV, radio, newspaper, etc.)	From my friends	From my family	From the books	From the Internet
Organic agriculture	6	19	7	0	13	1	3	3	19	11	0	6	0	9
Blood donation	3	11	21	0	9	2	3	2	7	22	0	9	0	8
Organ donation	4	10	25	0	3	0	7	0	7	25	0	6	0	10
Unconscious drug use	4	3	21	0	13	1	7	2	8	24	0	9	0	5
Substances that cause addiction	5	11	15	1	10	0	7	1	3	19	1	11	0	13
Visual and hearing impairment	11	11	14	4	5	2	2	4	9	15	2	5	2	11
Endangered animals and plants	3	18	11	0	4	3	10	0	23	4	0	0	4	17
Environmental problems	3	17	16	2	1	3	7	0	25	9	1	1	4	8
Determination of gender	11	15	2	1	18	1	1	9	18	1	0	11	3	6
Consanguineous marriages	8	6	7	2	25	0	1	11	1	7	0	26	1	2
Genetic diseases	2	14	14	1	10	5	3	1	18	7	0	9	3	10
Biotechnology, genetic engineering applications	6	24	10	1	0	3	5	2	26	7	0	0	2	11
Nuclear energy	5	28	10	2	0	2	2	2	24	5	0	0	1	16
Recycling	4	31	10	2	1	0	1	1	26	5	0	5	2	9
Total	75	218	183	16	112	23	59	38	214	161	4	98	22	135

The majority of students with high and low scientific attitudes choose "teacher" as their knowledge source, as seen in Table 5. Students mostly saw the teacher as a source of information on organic agriculture, endangered animals and plants, environmental problems, genetic diseases, biotechnology, genetic engineering, nuclear energy, and recycling in both groups. Similarly, the media, the family, and the Internet took place as a source of information, respectively.

Findings on "Organic Products"

At this stage, students were asked to complete a conversation about "consuming organic products" related to the "organic products" subject. The codes determined from the answers of the students in two different groups are shown in Table 6.

Table 6. Findings on the Answers Given by the Study Group about the Importance of Organic Agriculture

Codes	Students with High Scientific Attitudes (f)	Students with Low Scientific Attitudes (f)
Being eaten by animals	3	1
Being organic	16	14
Being natural	12	12
Not being genetically modified	3	3
Free of drugs and chemicals	6	11
Having vitamins	3	0
Being fresh	1	0
Being healthy	4	1
Being harmful	0	3
Should not be consumed	3	1
Being useful	1	0
I do not know	1	1
No idea	0	3
Unanswered	2	1
Total	53	51

Considering the participants' answers to the question regarding the consumption of organic products, both students with a high scientific attitude and students with a low scientific attitude mostly expressed their opinions about the "being organic" and "being natural" characteristics of the products. Also, the students emphasized the feature of being free of drugs and chemicals. Particular individuals with a low scientific attitude emphasized this more.

Students with a high scientific attitude emphasized such features of organic products as "having vitamins", "being healthy", and "being eaten by animals", as well as "should not be consumed" more often than the other student group. According to this result, it can be said that students with a high scientific attitude put forward a more comprehensive perspective on organic products.

The opinions of the participant S3, from the group with a high scientific attitude, about the consumption of organic products, are given below:

"Apple worms enter and eat natural, fresh, and healthful apples (foods). Therefore, this apple can be eaten. We shouldn't waste them just because they have worms inside."

The student coded as S87, who is in the group of students with a low scientific attitude, expressed his/her view as *"It is eaten as it is natural"*.

Findings on "Substances That Cause Addiction"

To reveal their thoughts on substances that cause addiction, participants were asked to write down what kind of information they are planning to provide, considering that they will give a seminar to their friends about "substances that cause addiction" in their schools. Table 7 shows the codes and frequency of the codes determined after content analysis of the participants' answers to this query.

According to the analysis results in Table 7, both students with high scientific attitudes and low scientific attitudes emphasized the "substances that cause addiction" code. The students with a low scientific level preferred to "give advice" more about substances that cause addiction.

Unlike the other student group, students with a high scientific attitude also emphasized the Content/nature of substances, being a harmful substance, religiously forbidden, and the need for education. As a result, students with a high scientific attitude suggested more diverse topics about substances that cause addiction.

S25 from a student group with a high scientific attitude expressed his/her opinion as: *"I would talk about drug use, cigarette and alcohol addiction in Turkey. Because the current generation is very fond of these substances. Finally, I would share that terrorist organizations earn most of the money from drugs."* S91, from students with a low scientific attitude, listed the substances that cause addiction by saying, *"Substances that cause addiction are like alcohol, cigarettes, and drugs, but these are caused by friends also"*.

Table 7. Findings on the Answers Given by the Participants About Substances That Cause Addiction

Codes	Students with High Scientific Attitudes (f)	Students with Low Scientific Attitudes (f)
Health effects	8	6
Substances that cause addiction	15	19
Social damages	0	1
Content/nature of substances	2	0
Being a harmful substance	5	0
Psychological effects	1	2
Religiously forbidden	1	0
Giving advice	6	14
Fatal effects	4	2
Emphasis on education	2	0
Addictive	3	2
The influence of the friend environment	5	6
Indifferent answer	0	1
Unanswered	1	0
Total	53	53

Findings on the Subject of "Genetically Modified Organisms"

The students' opinions about foods containing genetically modified organisms (GMOs) and the areas where GMOs are used were tried to be determined by asking various questions. Participants' thoughts on GMO-containing foods were obtained through this question: "Do you know what genetically modified food is? Please explain briefly." The codes determined from the participant responses and the frequencies of these codes are shown in Table 8.

Table 8. Findings on the Study Group's Answers About GMO-Containing Foods

Codes	Students with High Scientific Attitudes (f)	Students with Low Scientific Attitudes (f)
Knowledgeable	20	21
Partially knowledgeable	9	7
Not knowledgeable	14	7
Incorrect information	4	7
Indifferent answer	0	6
Unanswered	2	0
Total	49	48

According to Table 8, among the participants with a high and low scientific attitude, the frequencies of those who have information about GMO foods are close to each other. It has been determined that 14 of the participants who have a high scientific attitude about GMO foods stated that they lacked information on this subject. The participants with a low scientific attitude gave seven wrong and six irrelevant answers. As a result, students with a high scientific attitude claim to have no more knowledge, while students with a low scientific attitude gave more incorrect and irrelevant answers. Students with a high scientific attitude were more cautious about the subjects they did not know, rather than giving wrong answers.

S43, one of the students with a high scientific attitude, defined genetically modified foods as "They ensure that the foods are genetically changed with some drugs, and thus they do not spoil for a longer time." S72, one of the students with a low scientific attitude, said "I don't know, for example, normal chicken is 10kg, GMO chicken (20kg). The weight numbers are not real." and this shows that he/she has misinformation.

Options were presented to determine the participants' opinions about the purpose for which GMO products are produced and their common areas of use. They were asked to mark one or more of these options according to their own opinions and rank them in terms of importance. Thus, the production purposes and the areas where these products are used have been tried to be determined. The frequency distributions and categories of the participants' responses to this question are shown in Table 9.

Table 9. *Opinions on Production Reasons and Common Uses of GMO Products*

Codes	Students with High Scientific Attitudes (f)							Students with Low Scientific Attitudes (f)						
	1st Premise	2nd Premise	3rd Premise	4th Premise	5th Premise	Total	1st Premise	2nd Premise	3rd Premise	4th Premise	5th Premise	Total		
Production purposes	Resistance to pests and drugs	15	3	1	2	0	21	10	3	4	4	2	23	
	Increasing nutritional value and quality	2	19	2	2	0	25	3	17	5	3	1	29	
	Extending the shelf life of the product	6	4	24	0	0	34	18	9	15	0	0	42	
	Increasing the amount of product	3	3	2	18	1	27	3	11	9	13	3	39	
	For diagnosis and treatment purposes	1	0	2	0	8	11	2	1	2	4	5	14	
Common usage areas	Agriculture	33	1	0	0	0	34	37	3	1	1	0	42	
	Animal husbandry	0	26	1	0	0	27	1	23	7	2	0	33	
	Medical applications	1	2	10	1	0	14	3	7	7	0	0	17	
	Other	0	0	4	8	1	13	3	2	1	6	0	12	
	No idea													

According to the data obtained from the participants regarding the production purposes of GMO products, the students with a high scientific attitude mainly focused on the option of "resistance to pests and drugs" (15) as the first premise and the choice of "increasing nutritional value and quality" (19) as the second premise. It is seen that students with a low scientific attitude primarily refer to the option of "extending the shelf life of the product" (18) as the first premise and the option of "increasing the nutritional value and quality" (17) as the second premise. Considering the total values, "extending the shelf life of the product" and "increasing the amount of product" are among the most marked options for both groups. Also, although the premise rankings for both groups are different, there is a consensus that GMO is to extend the shelf life of the product and increase the amount of product.

When the common usage areas of GMO products are examined, it is seen that those who have a high scientific attitude focus on the option of "agriculture" (33) as the first premise and the option of "animal husbandry" (26) as the second premise. On the other hand, those with a low scientific attitude concentrated on the "agriculture" (37) option as the first premise and the option "animal husbandry" (23) as the second premise. Also, there were some participants from both groups who did not answer this question.

Findings on "Organ Donation"

To determine the importance of organ donation, the participants were asked to imagine themselves as a relative of a patient waiting for organ donation and prepare a text that will take place in the print media to help their relatives regain their health. The situations expressed by the participants in the texts they prepared were divided into codes, and the frequencies of these codes are presented in Table 10.

When Table 10 is examined, the frequency of "making requests for relatives" is seen as the highest code for both groups. However, this code's emphasis was approximately twice as high in students with low scientific attitude than the other group. Also, groups made requests for organ donation through social messages, creating slogans, giving a religious notice, awarding and announcing advertisements. Students with a high scientific attitude also requested organ donation with messages containing an emotional approach.

One of the students with a high scientific attitude, S47, gave an emotional message by saying "I will talk about how good organ donation is and how good it is to help people". On the other hand, another student with a low scientific attitude, S62, gave an example of the category of providing a religious message by saying, "Emergency kidney is expected. Those who want to do good deeds, take this news into consideration".

Table 10. Findings on the Answers of the Study Group about the Importance of Organ Donation

Codes	Students with High Scientific Attitudes (f)	Students with Low Scientific Attitudes (f)
Social message	8	6
Emotional approach	5	0
Creating a slogan	6	3
Religious message (for God's sake, for reward, etc.)	8	5
Awarding (Money etc.)	5	4
Making announcements, advertisement	1	6
Making requests for relatives	11	20
Indifferent answer	2	3
Unanswered	3	1
Total	49	48

Findings on "Human and Environment" Subject

Students' opinions on "Human and Environment" were determined by asking questions about "environmental problems encountered" and "nuclear energy".

Environmental Problems: Participants were asked to draw a cartoon or a picture or write a poem, story, or an article on the subject by stating that they would participate in a contest about environmental problems, and thus their views on the subject were tried to be determined. Next, they were asked to briefly explain what they did and suggest solutions for the problem they chose, and the codes of their answers were determined. The frequency distributions of these codes are given in Table 11.

Table 11. Findings on the Answers Given by the Study Group about the Activities They Did Relate to Environmental Problems

	Type of the Study	Students with High Scientific Attitudes (f)	Students with Low Scientific Attitudes (f)
Activity Type	Art	36	32
	Poetry	3	1
	Prose	2	2
	Empty	8	13
Problems they addressed at the events	Environmental pollution	17	14
	Nature problems	10	6
	Air pollution	9	7
	Water pollution	4	3
	Recycling	6	3
	Harming living things	4	2
	For warning or suggestion	9	11
	Unanswered	3	4
	Total	62	50
Solution suggestions for the problems	Raising awareness of people	11	9
	Using environmentally friendly methods	6	0
	Installing filters in factory chimneys	13	9
	Afforestation	0	2
	Recycling	3	9
	Not littering	13	5
	Classification of garbage	2	4
	Having a penalty/reward system	4	12
	Unanswered	4	4
	Total	56	54

When the participants' activities on the subject of environmental problems are examined in Table 11, it is discovered that both students with a high scientific attitude and students with a low scientific attitude attempted to explain their opinions primarily through painting. Also, considering the subjects emphasized in their studies, it has been determined that students with a high scientific attitude worked on the codes of "nature problems" and "environmental pollution" and participants with a low scientific attitude worked on the code of "environmental pollution". When the total values are examined, it is seen that students with a high scientific attitude (62) deal with more types of problems than students with a low scientific attitude (50).

S12, one of the students with a high scientific attitude, drew a picture showing the factory's environmental impact. In his/her statement about the painting, he/she stated that the factory fumes caused acid rain and posed a risk to living beings' lives in the picture where the factory showed its effect.

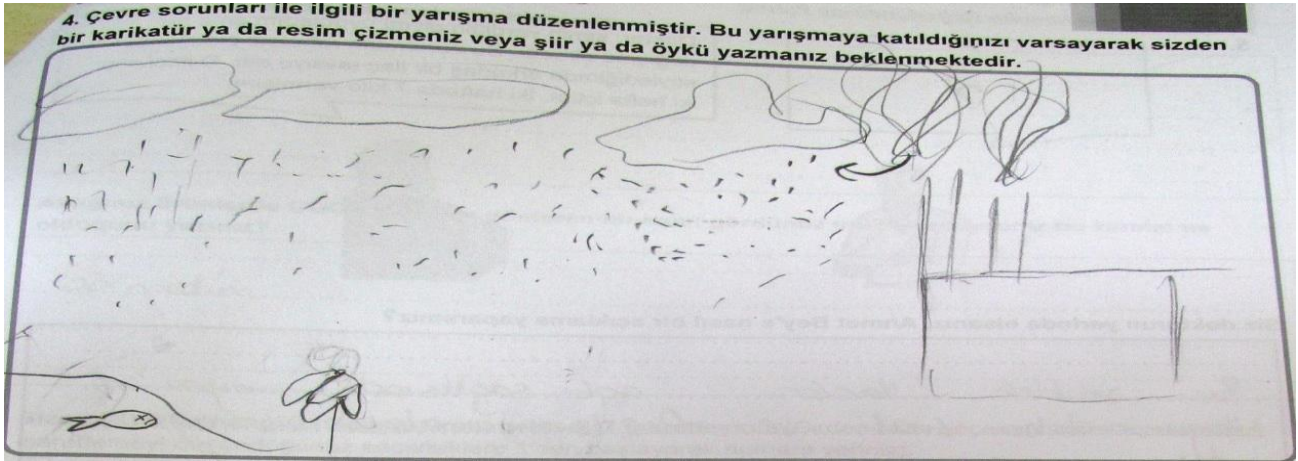


Figure 1. The Picture Drawn by the Student with High Scientific Attitude (S12)

S83, one of the students with a low scientific attitude, drew the negative behaviors of an individual in his/her picture. In his/her statement, he/she stated that people throw garbage on the ground, not in the garbage can.

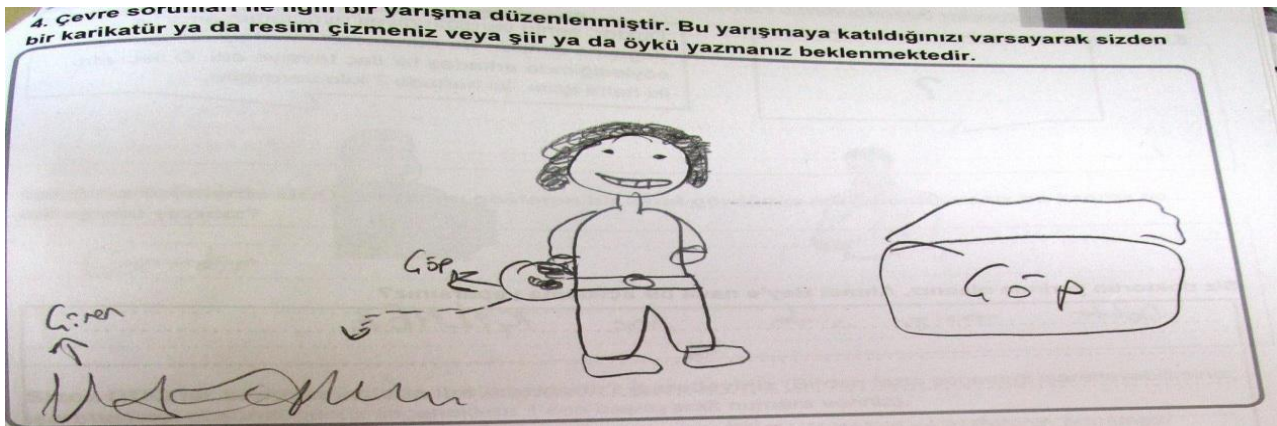


Figure 2. The Picture Drawn by the Student with Low Scientific Attitude (S83)

When the participants' opinions on how to solve environmental problems were analyzed, it was discovered that students with a high scientific attitude expressed the codes of "installing filters in factory chimneys" (13) and "not throwing waste and garbage" (13) the most frequently. On the other hand, students with a low scientific attitude stated the code of "having a penalty/reward system" (12) most often.

While students with a high scientific attitude mostly made statements about taking precautions before environmental pollution and environmental problems occur (raising awareness of people, installing filters in factory chimneys, using environmentally friendly methods, not littering), students with low scientific attitudes made more suggestions for the solution after the formation of the problem (penalty/reward system, garbage classification, and recycling).

Nuclear Energy: To determine the participants' opinions about nuclear energy, which is the most striking socio-scientific subject of today, a newspaper article covering this subject was used. It was stated in the article that a nuclear power plant will be installed in the town of Akkuyu in Mersin, and 4,800 megawatts will be produced in this power plant, which can meet approximately 6% of Turkey's electricity production. The students were asked to write about their thoughts on establishing this power plant in their town, considering they live in this region. Codes were determined depending on the participants' opinions about the nuclear power plant, and the frequency distributions of these codes are presented in Table 12.

Table 12. Findings on the Answers of the Study Group about Nuclear Power Plants

Themes	Codes	Students with High Scientific Attitudes (f)	Students with Low Scientific Attitudes (f)
Positive Opinion	Contribution to the national economy	1	2
	Meeting the energy needs	7	4
	Contribution to country development	2	1
	Supporting	6	2
Negative Opinion	Harming nature	7	4
	Harming living things	3	2
	Harmful to human health	3	8
	Dangerous	0	6
	Opposing	11	7
	Protest	0	6
Making suggestions		4	4
Supporting both sides		5	7
Unanswered		2	2
Total		51	55

When the participants' responses about "nuclear energy", which is an essential socio-scientific issue, are examined in Table 12, it is seen that students with a high scientific attitude expressed positive opinions with 16 frequencies and negative opinions with 24 frequencies in total. Participants with a low scientific attitude emphasized positive opinions with nine frequencies and negative opinions with 33 frequencies. Among the positive opinions, "meeting the energy needs" was prioritized in both groups. In negative opinions, both of the groups used expressions stating that they are opposed to nuclear energy. As a result, students of both groups expressed their negative views on nuclear power plants more. Moreover, the students made some suggestions besides having opinions supporting both sides.

One of the students with a high scientific attitude, S4, stated his/her positive and negative opinions by saying "It is a good thing to provide electricity production. It should not be forgotten that this causes air pollution and harms people, animals or plants, and precautions should be taken in return." On the other hand, one of the students with a low scientific attitude, S68, approached the issue in two directions and made a different suggestion by saying, "I think it is good for electricity but bad for the environment. Geothermal can be used instead".

4. Conclusion, Discussion, and Recommendations

This research sought to expose students' socio-scientific viewpoints based on their scientific attitude ratings. The arithmetic mean of the scientific attitude scores of the students participating in the study was found to be 100.35. The participants were found to have a moderate scientific attitude, according to this finding. The scientific attitude levels of the students were moderate in other studies (Kılıç, 2011; Mıhladız and Duran, 2010; Büyük, Koç and Erol, 2013) that calculated the scientific attitude score.

In the study, the students with a low scientific attitude and a high scientific attitude were examined in terms of the activities they do related to science, their source of information about socio-scientific issues, their opinions on socio-scientific matters, organic products, substances that cause addiction, genetically modified organisms, organ donation, environmental problems, and nuclear energy.

The research discovered that students with a high scientific attitude level have more frequency of performing science-related activities. Furthermore, it is expected that students in this category will be better able to understand, explain, discern, and forecast various science-related subjects' explanations than students with low scientific attitudes (Başaran, 1992; Okan, 1993). Moreover, students in both groups see the most teachers as a source of information.

When students' opinions on organic products, which is a socio-scientific subject, are investigated, it is discovered that students with a high scientific attitude have more detailed views on organic agriculture, whereas students with a low scientific attitude have more limited knowledge on this topic. In the study of Toraman (2013), students with a high scientific attitude stated that this type of agriculture is healthy and beneficial and sorted more organic agriculture features. It is important that students understand the value of this form of agriculture. The environmental and agricultural awareness of young people can make positive contributions to the lives of current generations, especially in the following years (Akgül & Macaroğlu Akgül, 2011), therefore, it is of particular importance to include organic agriculture in curriculums (Çeken, 2010).

Although it is seen that students with a high scientific attitude about substances that cause addiction have a wide variety of information on many subjects such as substances that cause addiction, their contents, harm, educational needs, and religious aspects, the explanations about the substances that cause addiction are the most discussed topic in both groups. Similarly, when the related literature is reviewed, it is found that primary school, middle school, and high school students have sufficient information about the harms of substances that cause addiction, especially tobacco (Atan, Durmaz, Erkuş, Sevil and Taşçı, 2005; Bahar and Çuhadar, 2007; İnal and Yıldız, 2006;). In their study, Öztürk and Bıkmaz (2007) stated that including subjects related to addictive substances in the secondary school science curriculum will contribute to creating health awareness at young ages.

When the students' opinions about GMO foods are examined, it is seen that the frequency of those who have information in both groups is close to each other. Students with a low scientific attitude, on the other hand, were found to have more incorrect and insignificant responses. In another study, it was stated that 8th-grade students were informed that the concept of GMO is related to changing organisms' genetics (Demir & Düzleyen, 2012). While students with a high scientific attitude in GMOs' production purposes emphasized resistance to pests and drugs, students with a low scientific attitude stated that extending the products' shelf life is their first priority. In the participants' opinions regarding GMO products' common usage areas, both groups emphasized agriculture and animal husbandry in the first two places. In line with this study, Bilen and Özel (2012) indicated in their research that the participants stated that Genetically Modified Organisms were mostly used in agriculture and animal husbandry.

It has been determined that the participants especially emphasized the expressions containing messages and slogans about the importance of organ donation, which is one of the current problems. It has been found out that students with low scientific attitudes prepared more texts for organ requests for their relatives than students with high scientific attitudes. According to Toraman (2013), students have varying levels of awareness about organ donation. Özkan and Yılmaz (2009) stated in their study that patients' relatives have incomplete information about organ donation. At the same time, it was determined that their attitudes and behaviors towards organ donation differ, and very few of those, who stated that they want to donate organs verbally, donated organs. Sakmen, Genç, and Arslan (2020) stated in their study that middle school students had negative attitudes and positive attitudes towards organ donation. They stated that some students were indecisive because they did not have enough information.

Participants answered different questions about environmental problems at different frequencies. Participants mostly prefer to draw pictures while clarifying their views about environmental problems. It has been observed that students mostly chose to draw pictures to express social problems (Ersoy & Türkkan, 2010). It has been seen that students with high scientific attitudes deal with more types of problems than students with low scientific attitudes. In solving the problems, students made more precautionary suggestions without polluting the environment, while students with low scientific attitude suggested interventionist methods. From the first step of education, it is thought that activities and practices should be prepared about environmental problems in science lessons (Ayvacı & Şenel Çoruhlu, 2009). When the views of the participants

on nuclear energy are examined, it has been found out that students in both groups stated that nuclear power plants mostly harm the environment and are harmful to health. However, they had positive aspects of them.

As a result, students' way of dealing with socio-scientific issues, their interpretations, judgments, and solution suggestions can change according to their scientific attitude scores. Students with a high scientific attitude generally provided a more detailed, varied, and comprehensive view on socio-scientific issues. Students with a low scientific attitude reported more limited and sometimes incorrect opinions. It is important to develop socio-scientific perspectives for individuals to think reasonably, make decisions, and produce creative solutions to all kinds of issues and problems they encounter. Therefore, socio-scientific issues can be addressed in curriculums from an interdisciplinary perspective. Activities that improve the socio-scientific aspects of students can be organized in learning environments. Since students mostly consider teachers as a source of information, professional development activities that will enhance teachers' socio-scientific teaching skills can be organized. Also, for research, similar studies can be made by adding current and different socio-scientific topics. It can research socio-scientific perspectives according to different variables other than scientific attitude.

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Science Teachers' Argument Types and Supporting Reasons on Socioscientific Issues: COVID-19 Pandemic

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ABSTRACT

This study examines the types of arguments and supporting reasons of science teachers on socioscientific issues. The case study was used in this study conducted with seven science teachers. Data were collected through three scenarios developed about vaccination, curfew and distance education in the context of COVID-19. Within the context of the data obtained, the argument types of the teachers were evaluated through the deductive content analysis, and the supporting reasons they presented for their arguments were evaluated through the inductive content analysis. Study results showed that the science teachers offered more arguments, including a claim and the reasons supporting this claim and that the arguments where the pros and cons analysis was performed and the reasons for the different aspects of an issue are presented in detail could be presented less. In addition, although there were differences in the supporting reasons of the teachers according to the content of the scenario, these reasons were concentrated on the subject areas of health, social, value and personal experience. The findings can contribute to improving the science teachers' argumentation qualifications and increasing the quality of in-class argumentation practices.

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Keywords:

Argument types, COVID-19, science teachers, socioscientific issues, supporting reasons

1. Introduction

Scientific literacy has become an educational slogan, a buzzword and a contemporary education goal in the world (Laugksch, 2000). This may be due to the increasing acceptance of the understanding that the primary purpose of science education is to impart science literacy to students (Millar, 2007). It is stated that there are two general perspectives of the scope of science literacy. While from the first perspective, science literacy is about gaining content knowledge, according to the second perspective, it is an element that serves the benefit of society and a necessity to adapt to the challenges of a rapidly changing world (Holbrook & Rannikmae, 2009). Accordingly, it can be stated that science literacy should serve the function of making people prepared and adaptable to the problems brought by scientific and technological advances, to new situations and events, as well as of making them acquire the content knowledge.

Some controversial contents brought about by scientific and technological developments are defined as socioscientific issues (SSIs). For example, contents, such as cloning, genetically modified organisms and global warming are considered to be SSIs as they have both scientific and social dimensions. It is expected that individuals should be able to make informed decisions when confronted with such SSI where conflicts are experienced at scientific and social dimensions (Öztürk, 2011). Therefore, being a science literate also involves the ability to make informed decisions about SSIs (Lee, 2007).

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That SSIs concern and affect society (Sadler, 2004) makes it even more significant to have qualified argumentation processes and to make conscious decisions about these issues. Given the controversial nature of SSIs and that they have both scientific and social dimensions, it can be stated that making decisions on these issues requires conducting pros and cons analyses, using scientific data and considering different perspectives. An important element of the decision-making process is defined as argumentation (Patronis et al., 1999). Therefore, it is advocated that the argumentation strategy should be used to support the understanding of SSIs and to make qualified decisions on these issues (Lee, 2007).

Argumentation is a verbal, social and logical activity that aims to increase the acceptability of a point of view by citing appropriate justifications or rebuttals (van Eemeren & Grootendorst, 2004). In a social context, argumentation requires students to respond to others' claims with their own and counterarguments, form explanations, ask questions, and refute alternative ideas (Chin & Osborne, 2010). For this reason, it is stated that argumentation is an appropriate strategy for addressing SSIs. SSIs do not have a definite answer, they are evaluated from different perspectives; therefore, their controversial nature gives students the opportunity to engage in argumentation processes. However, despite the importance given to argumentation in science education, opportunities for students to participate in argumentation processes in science classes are rare (Sampson & Blanchard, 2012).

It can be stated that one of the factors affecting students' participation in the argumentation processes in classrooms is teachers because teachers are people who apply argumentation in classrooms (Zhao et al., 2021) and students need to be supported by teachers to present arguments (Berland & Reiser, 2010). The results of the study conducted by Zohar and Nemet (2002) revealed the significance of teachers in students' performing a qualified argumentation process. In the study conducted by Zohar and Nemet (2002), the findings showed that students initially tended to deny different perspectives, not to justify their thoughts, to speak with a high tone of voice and not to listen to each other (Zohar, 2007). After they were provided with the appropriate teacher support, it was seen that the students discussed the subject from different perspectives, defended their opinions, refuted each other's thoughts and explained why other people's opinions could be wrong (Zohar, 2007). Teachers can support their students in the process of presenting arguments only if they are well-equipped in this respect. Thus, discovering how science teachers form and support their argumentation is crucial in terms of experiencing qualified argumentation processes in classrooms. In the present study, the argument types presented by the science teachers in the context of COVID-19, which is a current SSI, and their supporting reasons were tried to be revealed.

The COVID-19 pandemic is an issue that has affected the whole world in a short time. This pandemic continues to affect human life not only in the field of health but also in different fields, such as education, economy, and social life. Different data about the pandemic are published in the media every day, new rules that are expected to be followed are announced, and various types of information about ways of protection are shared. This information and the decisions made by governments sometimes cause controversy in society and require citizens to make decisions about their lives. For example, the curfews imposed in the United States cause reactions by some segments of society and can be seen as restrictions of freedoms. On the other hand, practices, such as the order of treatment, not offering treatment at all or discontinuing the treatments that have been initiated, especially against the elderly and vulnerable groups, which are more common in Italy, give rise to ethical issues (Büken, 2020). Hence, the COVID-19 pandemic is considered to be a SSI as it affects society to a great extent; different scholars can express differing opinions about it, different people can make different decisions about it and it may cause disputes in society (Evren-Yapıcıoğlu, 2020).

COVID-19, which induces both health problems and various social difficulties, can be defined as content that can be addressed with subject-based teaching (Sadler et al., 2020). As a subject-based teaching, it is emphasized that SSIs are used in science education with the purpose of improving students' reasoning ability, scientific thinking habits and decision-making skills (Ministry of National Education (MEB), 2018) because, with science education, it is significant to equip individuals with the knowledge and skills necessary to understand multidimensional issues and make evidence-based decisions (Dawson & Carson, 2020). Since the COVID-19 pandemic period is a SSI that has confronted individuals with many scientific, ethical and moral dilemmas, this issue should be included in the curriculum to improve the decision-making skills, scientific thinking habits and reasoning abilities of individuals regarding similar issues (Evren-Yapıcıoğlu, 2020). Thus, it can be stated that besides providing opportunities for students to think sociologically, examining data and question human

practices (Reiss, 2020), it can also serve the function of improving the public understanding of science (Saribaş & Çetinkaya, 2021) by focusing on explaining the nature and effects of uncertainty in science. In the current study, the subject of COVID-19 was preferred as an issue that is both current, new and whose effects are still felt in many areas. Research questions that guided this study in the context of COVID-19 are given below:

- a) What are the argument types presented by science teachers within the context of the COVID-19 pandemic?
- b) What are the reasons presented by science teachers to support their arguments within the context of the COVID-19 pandemic?

1.1. Rationale of this Study

With science education, it is aimed that individuals have the skills and understanding necessary to make informed decisions about scientific issues that may affect their lives and to participate in social debates (Dawson & Venville, 2010). In this connection, students should be equipped with the skills to use their scientific knowledge in real-life situations, address a subject together with its social, cultural and economic values and evaluate different options related to the subject (Dauer & Forbes, 2016). It can be stated that argumentation processes will contribute to the achievement of the goals of science education, as it gives students the opportunity to present and defend evidence-based claims, as well as engage in the evaluation processes of arguments presented by others (McNeill et al., 2016). Indeed, studies have shown that teachers should engage students in argumentation processes for them to evaluate scientific evidence and have a scientific perspective free of prejudices (Lee, 2007).

Despite the importance given to argumentation in science education, discussions in which students actively participate in the classroom are rarely observed (Roth et al., 2006). One of the reasons for this situation can be attributed to the teachers' inadequacies in this matter. Studies have shown that science teachers and pre-service teachers are insufficient in forming arguments. In the study conducted by Türköz and Öztürk (2019), it was revealed that before any training was given, pre-service science teachers presented more arguments consisting of a simple claim on SSIs and did not adequately address the rebuttal element containing opposing perspectives. Sampson and Blanchard (2012) found that the arguments presented by most science teachers did not comply with the definitions and frameworks proposed in the literature and that teachers could not support their arguments; therefore, they concluded that the science teachers participating in the study should be informed more about the structure of a scientific argument. Zhao et al. (2021) also found that pre-service science teachers had deficiencies in forming arguments and supporting their claims with data from different dimensions. In another study conducted by Yalçın (2018), the pre-service science teachers were observed to give more place to claims and justifications, and they gave little place to opposing opinions and refuting the opposite opinion with evidence in their arguments. In the study conducted by Cebria'n-Robles et al. (2018), the findings showed that the pre-service science teachers were insufficient to provide justification and evidence to support their arguments before implementation of the study. Therefore, there are studies in the literature that suggest that the arguments presented by pre-service science teachers and teachers and their supporting reasons are not at the desired level.

Determining how science teachers form their arguments and how they defend them is significant in terms of influencing the argumentation-based teaching they will give. In fact, science teachers' ability to form arguments is the basis for their science teaching (Zhao et al., 2021). However, there appear to be relatively few studies examining science teachers' understanding of argumentation (McNeill et al., 2016), how they participate in discussions, how they evaluate explanations, or how they form arguments (Sampson & Blanchard, 2012). It is seen that studies conducted have largely concentrated on pre-service science teachers (Cebria'n-Robles et al., 2018; Zhao et al., 2021).

Schwarz et al. (2003) used the concept of type to characterize the features and structure of the arguments (consisting of only one claim and supporting reasons for this claim, presenting contradictory statements besides supporting reasons, and defending the claim by revealing its positive and negative aspects) presented. In the present study, it was deemed appropriate to use the concept of type, as it was aimed to examine the claims of science teachers, who were actively teaching, presented in their arguments on SSIs, their supporting reasons and their state of dealing with the positive and negative aspects of the issue. The present study aimed to investigate the supporting reasons presented by science teachers as well as their argument types. At the end

of this study, it was expected to obtain findings of the argument types and supporting reasons presented by science teachers and how the deficiencies of the teachers, if any, would be eliminated, in terms of which items their arguments should be supported and on which dimensions their supporting reasons were concentrated and should be developed. These findings to be obtained are thought to contribute to the steps to be taken to improve the argument qualifications of science teachers, to increase the quality of argumentation applications of teachers and to guide in-service training programs to be organized in this direction.

2. Methodology

2.1. Research model

The current study employed the case study design, one of the qualitative research methods. Qualitative research method is used in studies conducted to explain an existing situation in detail without any intervention (Fraenkel et al., 1993). Case study is also a qualitative research design that allows in-depth, versatile investigation of complex problems of real life (Crowe et al., 2011). The present study aims to reveal the argument types and supporting reasons of science teachers about the COVID-19 pandemic as a real life issue; it was decided to follow the case study research process.

2.2. Study Group

The data of the study were collected from the science teachers who could be reached using the convenience sampling method. Convenience sampling is a sampling method that saves time, labour, and money (Büyüköztürk et al., 2008) and is widely used in studies in the literature because it offers researchers such conveniences (Baltacı, 2018). Due to the pandemic we are in, face-to-face communication and data collection were thought to be difficult; thus, the convenience sampling method was preferred in this study and it was planned to reach teachers via social media. Science teachers who could be reached via social media tools were informed about the purpose and significance of this study. Seven teachers who volunteered to participate in this study were determined. All the science teachers were working in public schools and five of them are females and two of them are males. One of the teachers has experience for two years, two of them for seven years, one of them for seven and half years, one of them for six years and two of them for 17 years as a science teacher at different middle schools. The demographic features of the science teachers are given in Table 1.

Table 1. *The Demographic Features of the Science Teachers*

Teacher No	Male / Female	Professional experiences	Place of Work
T1	F	7,5	Kocaeli
T2	M	6	Manisa
T3	F	7	Muğla
T4	F	2	Bursa
T5	F	7	Muğla
T6	F	17	Muğla
T7	M	17	Muğla

2.3. Data Collection Tools and Process

Scenarios developed by the researcher were used as the data collection tool. The COVID-19 pandemic was preferred as the SSI to be addressed in the current study because it is defined as one of the most up-to-date SSIs and its effects are still felt in many areas. In this context, as the issues of vaccination, curfew and continuing distance education were found to have the contents causing the hottest and most widespread controversies, it was determined to develop the scenarios on these issues. For example, while vaccination is specified as the most effective method for countries to return to normal life, uncertainties, such as the duration of production and side effects of vaccines, have resulted in people's developing different ideas on vaccines. The curfew has also caused controversy in terms of restricting freedoms, although it is accepted as a solution to reduce the rate of spread of the COVID-19 pandemic. On the one hand, while distance education has been implemented as an option to continue education during the COVID-19 pandemic, it has been criticized for its nature and limitations (such as not having a computer in every home and internet connection problems). For this reason, education, health and curfew have been handled as SSIs that have a multidisciplinary structure,

and cause concerns and debates in society. In addition, since these three issues are among the most controversial issues, directly affecting people’s lives and voiced the most in the media, it was decided to develop scenarios in the context of these issues in the current study. Therefore, three scenarios named “Yes or no to vaccination?”, "Stop or continue distance education?" and "Are we against or for the curfew?" were developed. In the process of developing the scenarios, firstly, the news about these issues in the media were read and listened and then the contents of the scenarios were tried to be created in the most interesting and up-to-date manner. In the writing of the scenarios, care was taken to include information about COVID-19 that would reveal the controversial aspects, advantages and disadvantages of the situations we encounter in our daily lives. Atabey et al. (2018), in their analysis of the SSI scenarios in the literature, revealed that the scenarios included positive and negative aspects and a question sentence that would create a dilemma. In the current study, at the end of the scenarios, individuals were asked to make a decision about the given issue by associating the content with their daily life and to explain the reasons and justifications for their decisions, taking into account their daily experiences, scientific knowledge and counter-arguments. In this connection, the arguments of the teachers and their supporting reasons were tried to be determined through open-ended questions. Sample scenario contents are presented in the Appendix A and B sections.

After the scenarios were written, they were read by a faculty member, one of his/her fields of study was SSIs and a Turkish teacher. In light of the received feedback, the required corrections were made. The piloting of the scenarios was performed on three teachers and then they were finalized. After the scenarios were finalized, they were sent to seven teachers via e-mail and social media tools, and the teachers' answers regarding the scenarios were collected back through the same ways. This process took an average of 2 weeks.

2.4. Data Analysis

In the present study, it was aimed to reveal the argument types and supporting reasons of science teachers about COVID-19. To this end, both the inductive content analysis and deductive approach were used in this study. The deductive content analysis is used to test or compare an existing theory in a different situation while the inductive content analysis is used when there has been no previous study for the case (Elo & Kyngäs, 2008). In the present study, as the argument types of the teachers were analyzed according to a pre-existing analytical framework, the deductive approach was adopted at this stage. As a pre-existing theory was not used for the reasons that supported teachers’ arguments and new analytical units were produced the inductive approach was adopted at this stage. How each analysis was carried out is explained in detail under the related headings below.

2.4.1. Analysis of the data about the argument types: The deductive content analysis was used in the analysis of the teachers’ argument types. In the deductive content analysis, a pre-existing code, category, concept, model, theory or hypothesis are tested in the context of new data or content (Kyngäs & Kaakinen, 2020). In the current study, analysing the arguments presented by the science teachers about the COVID-19 pandemic with the criteria previously described by Schwarz et al. (2003) made it necessary to use the deductive content analysis. The criteria developed by Schwarz et al. (2003) are presented in Table 2.

Table 2. *Argument Types and Criteria*

Criteria	Argument type
Arguments unsupported with any reason	First type of argument
Arguments, including conclusions supported with a reason or a series of reasons	Second type of argument
Arguments, including reasons both support and challenge the conclusion. The analysis of the pros and cons on the issue is not clear.	Third type of argument
Arguments in which a conditional statement that redefines or constraints the stated problem is generated and an analysis of the pros and cons is made on the issue and negative and positive aspects of the issue are discussed.	Fourth type (compounded) of argument

Source: Schwarz et al. (2003, pp. 16-17).

According to the criteria determined by Schwarz et al. (2003), the first type of arguments are arguments for which no defense is presented for the idea proposed or the conclusion reached. In the second type of arguments, ideas or conclusions are supported with one or more than one reason. If reasons that contradict

the ideas are presented along with the reasons that defend the conclusions or ideas, then it is considered as the third type of argument. There are no clear pros and cons analysis for the ideas proposed or the problem situation in the third type of argument. If a clear pros and cons analysis is made, if the positive and negative aspects of the issue are addressed, and if the problem situation is redefined and constrained with expressions, such as "it depends, if, but if", such arguments are considered as the fourth type. In this way, Schwarz et al. (2003) tried to reveal whether the arguments are one-sided, two-sided or compounded according to these criteria.

During the data analysis process, 21 responses were obtained from seven teachers for the three scenarios named "Yes or no to vaccination?", "Stop or continue distance education?" and "Are we for or against the curfew?". Three responses for each scenario and thus, a total of nine responses for three scenarios were read and evaluated by two researchers. Between the researchers, an agreement was reached for seven responses out of nine. Then, an agreement was also reached on the remaining two responses through discussion by the researchers. Afterwards, the other responses were analyzed by the researcher. The obtained data were presented together with their frequency values and quotations made from teachers' responses.

2.4.2. Analysis of the data about the supporting reasons: The reasons presented to support their arguments by the science teachers were tried to be revealed using inductive content analysis. Inductive content analysis is used when the preliminary information about the investigated situation is not sufficient and clear (Elo & Kyngäs, 2008). In inductive content analysis, researchers use concepts, categories, or themes to reduce and group data (Kyngäs, 2020) and concepts are derived from the data obtained through this content analysis (Elo & Kyngäs, 2008). Erlingsson and Brysiewicz (2017) defined the following stages for this type of content analysis: reading the interviews repeatedly, identifying or coding names or tags that best explain the unit of meaning emphasized by the participant, grouping the codes that are related to each other concerning content or context and creating categories. In the current study, the answers given by the teachers to the scenarios to reveal the reasons they gave for their arguments were read again and again by the researcher and a researcher specialized in qualitative research, SSIs and argumentation. During this process, firstly, the supporting reasons that the teachers presented to defend their own decisions were determined, then it was determined in which subject areas these reasons could be included. Each supporting reason and subject area was presented together with sample quotations from teacher responses.

2.5. Ethical Procedures

All steps in the present study were carried out by observing ethical rules. Ethics Committee approval (Date and Number: 30.12.2020-15612) was taken for this study.

3. Findings

In this section, findings related to the types of arguments presented by the science teachers regarding the scenarios about COVID-19 and the supporting reasons are presented.

3.1. Findings related to the Argument Types

The frequency values for the types of arguments presented for "Yes or no to vaccination?", "Stop or continue distance education?" and "Are we for or against the curfew?" scenarios were calculated. Then, sample quotations are presented. Frequency values for the argument types are presented in Table 3.

Table 3. *Frequency Values for the Argument Types*

Teacher	Argument types		
	the scenario regarding vaccination	the scenario regarding education	the scenario regarding curfew
T1	2	3	2
T2	2	3	2
T3	2	2	4
T4	4	4	4
T5	3	2	3
T6	3	2	3

T7	2	3	2	
Argument types	The total argument types presented for the scenarios			
	for Vaccination Scenario	for Education Scenario	for Curfew Scenario	Total
2 nd Type	4	3	3	10
3 rd Type	2	3	2	7
4 th Type	1	1	2	4

As can be seen in Table 3, from among all the responses given to the scenarios, 10 responses were obtained for the second type of argument, seven responses for the third type of argument and four responses for the fourth type of argument. Another finding as shown in Table 2 was that the first type of argument was not presented for the scenario named "Yes or no to vaccination?" and that four teachers presented second type of arguments, two teachers presented third type of arguments and one teacher presented a fourth type of argument. Some quotations from teacher responses classified within different types of arguments are given below.

Quotations for the "Yes or no to vaccination?" scenario

The following quotation was considered to be a second type of argument.

"I'm afraid of getting vaccinated and I wouldn't because I don't know how long it will protect me. It has been produced in a very short time. I don't know what's inside. I don't know yet on how many people it has been tried and what the effects are on them.... While Chinese products already contain excessive carcinogenic substances, what will be the quality of their vaccine? I think like this. Maybe, we can acquire immunity in natural ways." (T7)

The following quotation was considered to be a third type of argument.

"My decision would be to get vaccinated because currently, the most scientific and concrete thing to be used against the virus is the vaccine. But this vaccine is a virus blocker that has been studied and tested by scientists. It has been produced in a short time, yes. Maybe, there will be health problems in the future, but now I have to trust this. At least, I feel psychologically relaxed."(T6)

The following quotation was considered to be a fourth type of argument.

"I have heard through social media that there are concerns about the conventional vaccines not providing sufficient immunity. Vaccination of everyone in the same process is a solution that should be applied to end this pandemic because I do not think that the herd immunity method is a very valid way. As someone who has had COVID 19 myself, it is possible for someone who got sick to get sick again after 3-6 months. Thus, even if we have recovered from the disease, permanent immunity cannot be achieved. In this case, I think herd immunity is not a valid solution.In this case, vaccination seems to be the only solution and there is no way to escape. However, vaccines should be administered by minimizing the negative effects that may arise in the long term My opinion on this matter is to wait until all necessary studies on the vaccine have been completed and then to start vaccination after it has been ensured that the long-term negative effects are minimized."(T4)

Quotations for the "Stop or continue distance education" scenario

The first type of argument was not presented for the scenario named "Stop or continue distance education?", three teachers presented second type of arguments, two teachers presented third type of arguments and 1 teacher presented a fourth type of argument.

The following quotation was considered to be a second type of argument.

"I would support distance education because especially young children of primary school age are not fully aware of the pandemic. They don't pay enough attention to the rules and they are in the carrier group. Coming to school means that many parents also go out and increase the risk of contact. Currently, the number of cases is very high and the most important thing is

health. It is seen that the pandemic in countries around the world somehow affects education. Millions of students' education process have changed here. Planning for the future can be made by learning lessons from the experiences of other countries. "(T3)

The following quotation taken from the response of Ö1 was considered to be a third type of argument.

"Of course, distance education should be continued ... Although there are some disadvantages of distance education (e.g., connection problem, computer, lack of internet, or lack of necessary infrastructure), students can communicate with their teachers and learn the subjects verbally ... Distance education can be enough for learning as it allows individual learning, provides independence of time and place for learning, and make it possible to receive support from teachers at points where the student has learning difficulties distance education should definitely continue."(T1)

The following quotation was considered to be a fourth type of argument.

"I also agree with the view that distance education does not completely replace face-to-face education. ... Yes, distance education may not replace face-to-face education, as there is quite a big difference in terms of the quality of communication. Apart from that, I don't think there is a big difference concerning the solutions of questions and lectures. The most challenging point for students in distance education is that they have to organize their study environment at home and monitor their own study processes. In addition, for younger age groups, spending too much time on the computer can be a problem. Another problem is students who do not have access to the internet. Thus, should education stop completely because of these problems? I think no. I think some of these problems should be tried to be solved instead of completely interrupting education. For children living in villages, points can be created where they can access the internet and their transportation can be provided in compliance with COVID 19 measures. ..In summary, I support the continuation of distance education by trying to solve the problems in distance education. ..When face-to-face education starts, losses having occurred during distance education can be compensated for. " (T4)

Quotations for the "Are you for or against the curfew?" scenario

The first type of argument was not presented for the scenario named "Are you for or against the curfew?", three teachers presented second type of arguments, two teachers presented third type of arguments and two teachers presented fourth type of arguments.

The following quotation was considered to be a second type of argument.

"I would vote for the bans to continue. The individual's thinking that he/she will not catch the disease or that he/she will survive even if he/she catches the disease does not give the right to risk the life of the rest of society. Therefore, it is necessary to comply with the curfew, like other social rules." (T2)

The following quotation was considered to be a third type of argument.

"There must be a ban ... Yes, our freedoms are slightly restricted, but this needs to be done now to be more free and comfortable in the future. Not going to work for a while, not going to the movies, or not visiting the mall will not kill you. But when it's not banned, everyone will flock out. And when carelessness is added. We have already experienced this. We didn't go out in April. Then, the ban was abolished. Now, we are back to the beginning again because not everyone shows the same sensitivity. Of course it will be banned."(T5)

The following quotation was considered to be a fourth type of argument.

"I would vote for the ban. When we look at the summer period when the bans were lifted, we tried this process before, and unfortunately, there was a very high increase in the number of people who got the virus. Employees in hospitals have been negatively affected by this increase and are now quite tired. ... The rules could not be fully followed, especially because of the insufficient precautions in public transportation and the inability of our primary school

children to understand the pandemic process. Even if our children are not affected by the virus, they are carriers. At least, we can wait for the decrease in the number of cases and then continue our social life in a protected way by setting strict rules on masks and gloves. In this way, we are not only protected from the problem of not being able to find enough beds at hospitals but can also immunize our body against the virus during this period. We need to take the virus seriously, which concerns all countries and is so contagious.”(T3)

3.2. Findings regarding the Supporting Reasons Presented for the Arguments

In this section, findings related to the supporting reasons of the science teachers about the three scenarios were presented together with sample quotations. Teachers’ supporting reasons and subject areas of these reasons for their accepting or rejecting the vaccine are presented in Table 4 with sample quotations.

Table 4. *Supporting Reasons for the Vaccine Scenario*

Subject area	Supporting reasons	Sample quotations
Health	Uncertainty about the side effects to be caused by the vaccine	I think that not knowing what the long-term effects of vaccines produced in a very short time will be is extremely risky for humans. (T1) I think that the consequences of the vaccine developed in such a short time against Corona have not been adequately examined. (T3)
	Not being sufficiently effective	I have heard through social media that there are concerns about conventional vaccines not providing sufficient immunity. (T4) I don't think of getting the vaccine unless there is a 100 percent effective vaccine and this vaccine has been tried for a long time. (Ö1)
	Getting over the disease without a vaccine	I may acquire immunity in natural ways. (T7)
	Future mutations	I am afraid that vaccination could cause mutations in people's DNA in the future. (T3)
Technology	Long time trial	I don't think of getting the vaccine unless there is a 100 percent effective vaccine and this vaccine is tried for a long time. (T1). I don't know yet how many people it has been tried and what the effects are on them. (T7)
	Vaccine production period	Certain steps have been taken for vaccination. .. Because technology has developed too much, I think the time is normal. (T5) While the development period of the vaccines produced in history took between four and 70 years (the influenza vaccine was developed in 14 years), I think that the results of the vaccine developed against Corona in such a short time have not been adequately examined. (T3)
Social	Life's turning to normal	I would prefer to be vaccinated. I think life should return to normal through vaccination. (T2)
Value	Short-term solution Only solution	That's why I see the vaccine as a short-term solution in the next ages. (T3) In this case, vaccination seems to be the only solution and there is no way to escape. (T4)
Personal experience	Catching the disease again	As someone who has had COVID 19 myself, it is possible for someone who got sick to get sick again after 3-6 months. (T4)

As can be seen in Table 4, the supporting reasons of science teachers for their acceptance or rejection of the vaccine are subsumed under subject areas of health, technology, social, value and personal experience. For the supporting reasons under the health dimension, the following categories were obtained: "Uncertainty about the side effects to be caused by the vaccine", "Not being sufficiently effective", "Getting over the disease without a vaccine," "Future mutations". For the supporting reasons under the technology dimension, the following categories were obtained: "Long time trial", "Vaccine production period". For the supporting

reasons under the social dimension, the following category was obtained: "Life's turning to normal". For the supporting reasons under the value dimension, the following categories were obtained: "Short-term solution" and "Only solution." For the supporting reasons under the personal experience dimension, the following category was obtained: "Catching the disease again".

Teachers' supporting reasons and subject area of these reasons for their being for or against the curfew are presented in Table 5 with sample quotations.

Table 5. *Supporting Reasons for the Curfew Scenario*

Subject area	Supporting reasons	Sample quotations
Health	Putting society at risk	Because many people affect the health of society negatively by walking around outside. (T1)
		The individual's thinking that he/she will not get the disease or that he/she will survive even if he/she catches the disease does not give the right to risk the life of the rest of society. (T3)
	Family dynamics	Because the dynamics of each family are different. The members of the family may be of different ages or differ in terms of having a chronic disease. (T4)
	Deterioration of mental health	In other words, the inability of an individual in the risk group to protect himself/herself and his/her having to be in external environments all the time may lead to anxiety disorders. (T4)
		So many bans make people's lives difficult. But why am I having trouble because of those who behave carelessly? Who will glue the mental fractures of being home all the time? Our life is passing. Constantly being in the same environment exhausts the human brain. Every day, I know what I will do the next day. (T5)
Treatment opportunities	Because it has been observed that the number of cases and the hospital occupancy rate increased in a certain period when we released the people, and the mortality rate increased as a result of the failure to receive the necessary treatment. (T1)	
Social	Reducing its spread	Its spread will be prevented. It will slow it down, if not completely. (T6)
	Sparing time for yourself and your loved ones	On the contrary, when people stay at home, they can do many things they wouldn't otherwise. They get along with their loved ones, cook and play games together. (T6)
	Characteristics of society	the shortage of conscious and educated individuals in society (T1)
Value	Perception of the pandemic	In other words, if an individual himself/herself is not in the risk group and if he/she does not have an elderly member or a member in the risk group in his/her family, he/she does not perceive the pandemic process as a dangerous process in which he/she can have severe losses. (T4)
Personal experience	Carelessness and social congestion	But when it's not banned, everyone will flock out. And when carelessness is added. We have already experienced this. We didn't go out in April. Then, the ban was abolished. Now we are back to the beginning again. (T7)
	Increasing number of cases	When we looked at the summer period when the bans were lifted, we tried this process before, and unfortunately, there was a very high increase in the number of people who got the virus. (T3)

As can be seen in Table 5, the supporting reasons that the science teachers presented for their being for or against the curfew were subsumed under subject areas of health, social, value and personal experience. For the supporting reasons under the health dimension, the following categories were obtained: "Putting society at risk", "Family dynamics", "Deterioration of mental health", "Treatment opportunities", "Reducing its spread". For the supporting reasons under the personal experience dimension, the following categories were obtained: "Carelessness and social congestion", "Increasing number of cases". For the supporting reasons under the value dimension, the following category was obtained: "Perception of the pandemic". For the supporting reasons under the social dimension, the following categories were obtained: "Sparing time for yourself and your loved ones", "Characteristics of society".

Teachers' supporting reasons and subject area of these reasons for stopping or continuing distance education are presented in Table 6 with sample quotations.

Table 6. Supporting Reasons for the Distance Education Scenario

Subject area	Supporting reasons	Sample quotations
Health	Importance of health	The most important thing is health. (T3)
Social	Right to education	There is no excuse for taking away the individual's right to education. (T1)
	Increasing rates of crime	Many frustrated people abandon their goals and social problems will arise; I think the number of thieves, murderers, perverts will increase exponentially. Idle people always turn to harmful things. (T5)
Value	Stealing from life	Stopping the educational/instructional process means stealing from one's life, and distance education should definitely continue. (T1).
Personal experience	Difficulty of enacting learning by doing and experiencing	Based on my own teaching experiences and the experiences shared by my fellow teachers from different schools, I can say that the application of educational processes for learning by doing cannot be very common and easy as long as the assessment method is a multiple-choice exam. (T4)
Technology	Advantage and disadvantage	Although there are some disadvantages of distance education (e.g., connection problem, computer, lack of internet, or lack of necessary infrastructure), students can communicate with their teachers and learn the subjects verbally. (T1)
	Using camera effectively	Moreover, in practical training, the camera can be opened and students can be given the opportunity to practice as much as possible. (T1)
	Quality of communication	There is quite a big difference between distance education and face-to-face education in terms of the quality of communication. (T4)
	Duration of concentration	For younger age groups, spending too much time on the computer can be a problem. (T4)
	Access to the internet	Another problem is students who do not have access to the internet. (T4)
Education	Alternative learning methods and techniques	I do not think that learning should certainly be by doing and living. (T1)

As can be seen in Table 6, the supporting reasons that the science teachers presented for their arguments about the scenario "Stop or continue distance education?" were subsumed under the subject areas of health, social, value, personal experience, technology, and education. For the supporting reasons under the health dimension, the following category was obtained: "Importance of health". For the supporting reasons under the social dimension, the following categories were obtained: "Right to education", "Increasing rates of crime". For the supporting reasons under the value dimension, the following category was obtained: "Stealing from life". For the supporting reasons under the personal experience dimension, the following category was obtained: "Difficulty of enacting of learning by doing and experiencing". For the supporting reasons under the technology dimension, the following categories were obtained: "Advantage and disadvantage", "Using camera effectively", "Quality of communication", "Duration of concentration", "Access to the internet". For the supporting reasons under the education dimension, the following category was obtained: "Alternative learning methods and techniques".

4. Discussion, Results, and Recommendations

This study aimed to reveal the types of the arguments and supporting reasons of the science teachers on SSIs. For this purpose, the answers given by the science teachers to the scenarios related to vaccination, curfew and distance education in the context of COVID-19 were analyzed concerning argument types and reasons. Results showed that science teachers created 10 arguments at the level of the second type, seven arguments at the level of the third type, and four arguments at the level of the fourth type for three scenarios about the COVID 19

pandemic. Given that second type of arguments include a claim and reasons supporting this claim, that pros and cons analyses are conducted and the facts about the different aspects of an issue, including its positive and negative aspects, are presented in detail in the fourth type of arguments, it can be said that there are many studies in the literature that support this finding of the current study. The results of the study conducted by Türköz and Öztürk (2019) which revealed that the arguments presented by the pre-service science teachers on SSIs before the application largely consisted of a simple claim, and the refutation element, which included reasons to refute different and opposite dimensions, was rarely presented, support the results of the current study. The findings of the study conducted by Yalçın (2018), which revealed that the arguments presented by the pre-service science teachers on SSIs before they had received any training generally included claims constructed with simple sentences, that these claims were supported by weakly correlated evidence and that multiple justifications were not presented sufficiently, support the findings of the current study. Moreover, the results of the study conducted by Sampson and Blanchard (2012), which revealed that most science teachers could not expand their explanations enough and presented arguments that did not contain sufficient support, also concurred with the results of the current study.

In fact, given the scenario contents presented in the current study, the teachers have been expected to present the third and fourth types of arguments more because COVID-19 is a content that is discussed and mentioned a lot in television, newspapers and social media environments, as well as it is a subject that teachers and all people experience the consequences of it in many aspects of the daily lives, such as education, social life and health. Thus, it was expected that the teachers would be able to address the positive and negative consequences of this subject in different areas and to be able to conduct analyses of the pros and cons on the issue because it has been determined that the use of SSIs experienced in real life and frequently appearing in the media contributes to the argument presentation process and supports addressing the positive and negative aspects of the issue (Gutiérrez, 2015). The finding obtained in the current study can be attributed to the teachers' inability to use them in the process of forming their arguments rather than their lack of knowledge and experience about the positive and negative aspects of the scenario contents because it is stated that it is difficult for individuals to present arguments based on a holistic perspective, which includes considering different dimensions of the subject (Christenson et al., 2012). Therefore, more emphasis should be placed on teachers' developing arguments, including different perspectives of an issue and considering the positive and negative consequences of the issue, rather than developing arguments presenting a simple claim and reason. One way to help teachers learn more about argumentation and the nature of arguments is to engage them with contexts like the ones used in the current study (Sampson & Blanchard, 2012).

Another finding of the current study is that the majority of the arguments presented for the scenario "Yes or no to the vaccine?" are the second type of arguments and that they presented a more third and fourth type of arguments for the scenarios "Stop or continue distance education?", "Are you for or against the curfew?". This finding of the current study is supported by studies in the literature (Yalçın, 2018) reporting that arguments presented vary according to the subject content or that the content of the socioscientific scenario affects the arguments presented. Yalçın (2018) also determined that the pre-service science teachers differed in terms of explaining the reasons they presented, using more than one reason, and considering opposing ideas depending on the SSI content. The presentation of more third type and fourth type of arguments in the scenarios related to the curfew and distance education can be attributed to the teachers' personal experience of prohibitions, limitations or practices regarding the topics in the scenario content. The following quotation shows that teachers made use of their personal experiences in their arguments; "*When we looked at the summer period when the bans were lifted, we tried this process before and unfortunately, there was a very high increase in the number of people who got the virus....*" (T3). Therefore, it can be stated that the subject content of any SSI related to daily life and the experience of its positive or negative dimensions in real life support the argument-formation process. For this reason, it is recommended that the socioscientific scenarios presented to support science teachers to create the desired type of argument should be chosen among life-related, up-to-date and potentially experienced topics whenever possible.

Another finding obtained in the current study is that the supporting reasons presented by the science teachers for their arguments are centered on the subjects of health, social, value and personal experience. This finding shows that the science teachers used their personal experiences, values, social conditions and health factors as reasons to support their decisions on SSIs within the context of COVID-19. Therefore, it can be interpreted that

the science teachers generally made their decisions by considering different subject areas, although there were differences in their supporting reasons according to the content of the scenario. This finding is supported by the finding of Türköz and Öztürk (2019) stating that pre-service science teachers take different dimensions into account when making decisions on different SSIs and try to make a decision by considering the subject in a multidimensional holistic manner. Topçu et al. (2011) also found that the pre-service science teachers were affected by their personal experiences, educational dimensions, ethical and technological concerns and social dimensions in their solutions to SSIs and in their reasoning processes on these issues, which also concurs with the finding of the current study. In the current study, the teachers' ability to consider at least four subject areas for each scenario can be attributed to that COVID-19 is very current and still felt in many areas in real life. Restrictions in the field of education and curfews are practices directly experienced by teachers, and thus it seems to be normal for the teachers to include the effects of these practices in different subject areas in their arguments. For the scenario related to vaccination, it is seen that the teachers who have personally suffered from the disease included their personal experiences, and especially the suspicions regarding the duration in which the vaccine has been produced and uncertainties about the effects of the vaccine have been presented as supporting reasons for the teachers' decisions. It can also be argued that the news in the media about the possible risks, production time and effects of the vaccine affected the decisions and concerns of the teachers. The statement of T4, "I have heard through social media that there are concerns about the conventional vaccines not providing sufficient immunity," shows that media is influential on the decisions of teachers. İşbilir et al. (2014) emphasized that the high-quality arguments of the pre-service science teachers may be the result of the discussion of their daily experiences and the subject contents of SSIs in the media. As a result, the findings of the present study show that the requirement of individuals taking part in the solutions to SSIs discussed in media and making individual decisions on these issues (Osborne et al., 2004) was fulfilled by the participating teachers at least within the context of considering different subject areas. For this reason, it is recommended to use contents that are discussed in media and are likely to be experienced in real life in studies on SSIs.

When the findings obtained in the current study are considered, it is seen that the science teachers presented the second type of arguments the most, but their supporting reasons included different subject areas as desired. These two results can be seen to be contradictory to each other. However, on the contrary, these results complement each other because when the arguments of the science teachers were examined, it was seen that although they presented reasons, including different subject areas, such as social and health in their arguments, they focused only on defending their own ideas and continued to defend them in one direction without mentioning the positive and negative consequences of their decisions. In other words, it was determined that they shared their knowledge and experiences about different subject areas regarding either the positive or negative aspects of the issue in their decisions. The presentation of the second type of argument the most, which is the type of argument that includes a claim and the reasons supporting this claim, also confirms the one-sided defense. Hence, it is recommended that training should be given to science teachers in such a way that they can present arguments that address different subject areas regarding the advantages and disadvantages of the issue and conduct research in this direction. For this purpose, further studies that focus on developing different perspectives in teachers on a SSI and support their expressing their thoughts from both angles rather than focusing only on positive or negative aspects of the issue can be conducted. In addition, similar studies can be conducted with large samples and supported by a quantitative dimension to obtain generalizable and more comprehensive findings.

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Appendix A

Yes or no to vaccination?

COVID-19 is a pandemic that suddenly entered our lives and continues to affect our lives in many ways. The effects of this pandemic on human health are tried to be presented in graphics and numbers all over the world. The numbers show that the pandemic is causing thousands of deaths around the world every day. The good news of vaccines has recently been voiced in television programs. Thus, the hope that the pandemic will end and normal life can be started excites people. While it is debated whether vaccination should be mandatory or voluntary, people who are the advocates of vaccine want this not to be left to the preference because they argue that as long as this disease continues, many people will lose their lives, be unemployed, many businesses will be closed, and neither society nor countries will be able to afford it economically. On the other hand, there are people complaining that visits to parents and celebrations that are important to people, such as marriage, have not been allowed for a long time. They even state that people who have lost their relatives are sad because they cannot attend the funerals as their last duty and that humans as social beings have now started to experience psychological traumas. On the other hand, it is argued that vaccine rejection will endanger people having chronic conditions and the elderly because there is still no antivirus treatment to treat COVID-19. However, some people are skeptical about the vaccine. One of the reasons for these concerns is that the vaccine produced in Germany is produced by using a method different from the methods used in vaccine production until now. While in traditional vaccines, viruses that cause infection are weakened and injected into the human body, a critical part of the RNA chain is injected in RNA-based vaccines. People who are against vaccines argue that there is the possibility that fragments of RNA entering the cell can interact with the human genome and alter human genetics, causing dire consequences. They argue that a period of 7-8 months is a very short time for vaccine development, including vaccines, such as the Chinese vaccine produced with traditional methods and ask the question of who will be held responsible for possible health problems that may arise after 5-10 years, The existence of a laboratory that will inspect the content and quality of the vaccines to be imported and whether these inspections will be carried out are among the issues concerning people who are against vaccines.

What would you decide if your doctor called you now and told you that you have to come to be vaccinated within a week, but you have the right to refuse the vaccination? Why? Explain your reasons by using your daily experiences, scientific knowledge and taking counter-arguments into account.

Appendix B

Are we against or for the curfew?

Different strategies are followed in different countries in the process of combating the COVID-19 pandemic. Some countries, such as the UK and Sweden, tried herd immunity. They argued that as a result of the infection of a certain proportion of the population, a sufficient number of people would be immunized so that the number of cases would naturally decrease and the disease would be taken under control. Some countries, including Turkey, have imposed bans, such as the curfew. It is stated that if the curfew is implemented, the rate of spread of the virus will decrease and people will be saved from unnecessary infections, suffering and deaths. Thus, it is emphasized that the health system can provide adequate services to patients and that the tired healthcare personnel will find the opportunity to rest. The construction of an additional building in a state hospital in Samsun has begun as the intensive care service is full. The number of such hospitals is increasing. It is stated that with the curfew, time will be gained for the vaccine to be available and to reduce the number of patients until treatment for COVID-19 has been found.

On the other hand, in some countries, such as America and France, people argue that curfew means restriction of freedoms and shout slogans as "my body, my choice". They want the restrictions to be lifted as soon as possible and economic activities to be resumed. They argue that if they had to make a choice between freedom and COVID-19, they would prefer their freedom and that people could not be prevented from doing sports or meeting with friends or even relatives. Those who cannot see even their parents who are elderly or sick argue that it is not known when this process will end, so it cannot be continued in this way. It is also discussed in television programs that illnesses, such as muscle loss may occur in the elderly who stay indoors for a long time, and negative experiences, such as separation from friends, boredom and changes in living conditions can cause consequences, such as anxiety, depression, impaired social interaction and decreased appetite in children. It is stated that the feelings of the patience of the adults who constantly stay at home with the children decrease and they have problems in establishing healthy communication with the children. Violence against women and divorce rates have increased significantly during the periods of stay at home.

Now, if there was a vote on the imposition of a curfew every weekend until the COVID-19 disease was no longer a threat, would you vote for the ban or against the ban? Why? Explain your reasons by using your daily experiences, scientific knowledge and taking counter-arguments into account.



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How Students Feel at School: Experiences and Reasons

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ABSTRACT

The present study aims to investigate the emotions students experience in the school environment and the reasons for experiencing these emotions. This research was conducted using the case study method, one of the qualitative research designs. The study group of this study consisted of 24 eighth-grade students studying at a public school in the province of Kahramanmaraş in 2019-2020 academic year and 11 teachers from different branches. The findings obtained in this study showed that the students experienced positive emotions, such as happiness, excitement, curiosity and wonderful. However, it was observed that students also experience negative emotions, such as stress, sadness, unhappiness, boredom, anger and fatigue. It was determined that students experienced more positive emotions than negative emotions in Turkish, Mathematics and Science classes. It was determined that he experiences negative emotions close to positive emotions in classes, such as Visual Arts, Physical Education, Technology and Design. Students experienced positive emotions when they were active in lessons, solved questions, communicated with their friends, and used different methods and techniques in classes. Students experienced negative emotions when teachers got angry with them, fail, insomnia, had family problems and uncertainty.

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Keywords:

Positive emotion, negative emotion, school, happiness, student emotions

1. Introduction

Trying to understand human nature by isolating it from the power of emotions does not seem realistic because while people do not only act with the mind, they also use their feelings and senses in their lives. Emotions are one of the most basic concepts of psychology that determine the reactions of individuals in daily life (Alsancak Akbulut, 2018). Emotions contain a dynamic process, are experienced individually, and their effects and indicators are different, which makes it difficult to define emotions (Ataman, 2011; Er, 2006; Er, Hoşrik, Ergün and Şerif, 2008). Therefore, the definitions of emotion and concepts related to emotion are still discussed in the literature (Ataman, 2011). In this vein, Izard (2010) postulates that there is no consensus on a definition of the word "emotion," and that it cannot be defined as a unitary concept. Identifying emotion as "an integral feature of achievement motivation." Elliot and Pekrun (2007) argue that "It is involved in orienting the individual's competence-relevant concerns, sustaining the individual's competence-relevant interest and effort, and influencing the response of the individual to success and failure (p. 57). Accordingly, Park, Knörzer, Plass and

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Brünken, (2015) conclude that "learners with positive emotional state show better learning outcomes and longer fixation durations on text information" (p. 34). The concept of emotion is defined by the Turkish Language Association (TDK) as "the impression created by a certain object, event or individuals in a person's inner world", Akçay and Çoruk (2012, p. 5) define it as "situations and structured feelings that first appear internally in the face of stimuli from both the inner and outer environment of the individual, and then affect the individual's body expression, posture and behavior."

On the other hand, while Goleman (2003) expressing it with the concept of feeling, he states that emotions are formed by thoughts and impulses that activate this feeling. Emotional state refers to the emotional identity of the person and the emotional climate of the environment where the interaction occurs (Yıldırım & Tabak, 2019). While emotions describe the short-term mood of the individual, they turn into an emotional state over time and create a positive and negative mood in the individual (Barsade & Gibson 2007). Emotions affect the quality of life of the individual and those around them in a wide range of areas. Emotions have a significant place in academic success, job performance, professional achievements, living a healthy long life (Chernyshenko, Kankaraš, & Drasgow, 2018), reactions, decisions, recall of important events (Atman Ece, 2011), communication and interaction (Oğuz & Özkul, 2016), problem-solving, directing vital events and attitudes (Barett, Gross, Christensen, & Benvenuto, 2001), creative and flexible thinking, raising the attention level of individuals and socializing (Grawitch, Munz & Kramer 2003; Hirt, Devers & Mc Crea 2008). At the same time, emotions dominate cognitive processes (Er, 2006). When feelings occur at the wrong time and the wrong intensity, they become a phenomenon that makes human life difficult (Ataman, 2011). When most people feel sad, tense, and depressed, the likelihood of making mistakes increases, their interest in their environment decreases, they process information with less efficiency (Er, 2006), they become distracted (Grawitch, Munz, & Kramer 2003; Hirt, Devers & Mc Crea 2008) and they get tired easily and feel powerless (Ayçiçek, 2012). In fact, emotional state affects people's eating habits and makes them decide which food to consume and how much (Özenoğlu, 2018).

Although emotions are classified in different ways in the literature, they are basically divided into two categories as positive and negative emotions (Bakioğlu, 2014). When the needs, expectations and demands of the individual are met, positive emotions, such as happiness and pleasure are experienced, but when not met, sadness and painful negative emotions are experienced (Baloğlu, 2016). At the same time, factors, such as lack of alternative, indecision, aimlessness, stagnation and uncertainty cause people to experience negative emotions. (Yıldırım & Tabak, 2019). Human emotions change depending on the conditions where they are experienced (Yıldırım & Tabak, 2019). It is seen that much more factors, such as family support for the individual (Kandır & Alpan 2008), peer relationship (Gülay, 2009), environment, school, teacher, media (Taşar, 2019) and nutrition (Özenoğlu, 2018) are effective on emotions. In fact, Akdakin, Şimşek, and Kaplan (2011) concluded in their study on the effect of colors on emotions that the color red is associated with the feeling of anger and excitement, and the dark blue color with the sense of introversion and seriousness. Studies show that the areas where emotion is influenced and emotion influences are quite wide. One of the significant areas that can be counted in these domains of influence is education. In this context, research on emotions in education is crucial.

Turkey has not achieved the desired success in education. One of the most significant indicators of this situation is the PISA reports. According to a preliminary report of PISA 2018, Turkey is seen to remain below the OECD average in all areas "reading, mathematics and science " (Ministry of Education [MoNE], 2019). At the same time in the centralized exams held in Turkey, thousands of students have low scores. Besides the low academic achievement, violence in schools is among the critical issues and individuals experience permanent destruction both physically and emotionally due to violence (Tatlilioğlu, 2016). In the survey conducted by PISA in 2015 on the well-being of students, the findings showed that 19% of the students in Turkey was exposed to bullying at least a few times each month; Taşar (2019) concluded in her research that one out of every two students was involved in the violence as a bully victim or bullying tyrant. Given that individuals have emotions that shape their behaviors, studies on emotions in education can be effective in solving various problems in education and improving the system.

Although emotions have a crucial place in the science of psychology, it has been neglected as a research subject for reasons, such as very challenging to define (Ataman, 2011; Er, 2006; Er et al., 2008) and the importance given to objectivity and observability in science (Er, 2006). This is especially striking in education (King &

Chen, 2019). Therefore, studies and information in this field have been limited. The review of the existing literature shows that most of the research was conducted with a focus on the effects of students' emotions on math performance and metacognitive skills (Efklides & Petkaki, 2005), emotions in students' scholastic development (Pekrun, 2007), students' emotional experiences in the classroom (Ahmed, Werf, Minnaert, & Kuyper, 2010), students' experience in online and classroom participation and exams (Stowell, Allen, & Teoro, 2012; Doğan & Ağçam, 2020; Öztüre, Fidan, Bakır, Uslu, & Usluel, 2021), emotions in the students' learning (Noyes, Darby & Leupold, 2015; Pekrun, 2014; Meşe & Dursun, 2018), students of the relationship between consumption habits and emotional experiences in college (Arboleda & Alonso, 2017). However, it seems that these topics are not adequately addressed in Turkey. This situation was evaluated as a deficiency by the researchers and it was decided to investigate the subject. This study focused on the emotions of 8th-grade students. The fact that 8th-grade students will take the entrance exam to high schools and experience the adolescence period makes the research even more significant concerning experienced emotions.

For emotional regulation and healthy emotional development, it is necessary to investigate which emotions the individual has and which emotions emerge when and how. Lack of emotion regulation causes many psychopathologies to emerge and continue. This causes people to encounter problems in cognitive, physical and behavioral areas in daily life (Alsancak Akbulut, 2018). At the same time, the individual can develop a positive or negative attitude towards facts and people by transforming into effect as a result of experiencing a similar emotion for a long time (Yıldırım & Tabak, 2019). This situation can be explanatory concerning the attitudes students develop towards lessons and teachers. The emotions experienced by the students have critical importance in their academic success, learning, motivation, performance, identity development, and health (Schutz & Pekrun, 2007). Therefore, the feelings students experience in the school environment and the reasons for experiencing these feelings should be described. In this context, this study aims to investigate the feelings and reasons students experience in the school environment. The following questions were sought in this research.

S1. What are the emotions that students experience in lessons in different branches?

S2. What are the emotions that students experience in extracurricular environments in the school area?

S3. What are the reasons for students to experience their emotions?

S4. What are the teachers' suggestions for students to experience positive emotions more often?

2. Methodology

2.1. Research Model

This research, which aims to investigate students' feelings and reasons for living in the school environment, was a case study. Case studies are studies that are conducted to understand a complex social phenomenon (Yin, 2004), preferred in applied fields, such as education (Merriam, 2013), in-depth information about current events or facts related to real life is collected, and the situation is described (Creswell, 2014). This research focused on the emotional states of students in the school environment. In other words, the emotions students experience inside and outside the classroom in the school constituted the case of this particular study. More specifically, this study investigated in which classes they experienced positive and negative emotions as well as the reasons why they experienced particular emotions in these classes.

2.2. Participants of this Study

The study group of the study consisted of 24 eighth-grade students studying in one of the official secondary schools in Kahramanmaraş province in the 2019-2020 academic year and 11 teachers from different branches who attended their classes in the same year. While forming the study group, the criterion sampling method, which is one of the purposeful sampling methods, was used. While determining the participant students, all of the students in a grade at the eighth-grade selected in accordance with the purpose of this study were offered to work together in the research and 24 students who accepted and were willing were determined as participants.

The participant teachers were chosen among the teachers attending the classes of these students on a voluntary basis. Eight of the teachers were female and three were male. The branches of teachers were Mathematics,

Science, Turkish, Social Studies, English, Religious Culture and Moral Knowledge, Technology Design, Music and Visual Arts. Purposeful sampling is a sampling method that is suitable for the purpose of the research, rich in information and enables in-depth research (Patton, 2014; Teddlie & Tashakkori, 2015). In this research, the researchers have the role of first-order data collection and reporting.

2.3. Data Collection Tools and Data Collection

Case studies require detailed information about the situation using multiple sources of information, such as questionnaires, observations, face-to-face interviews, audio and visual materials, documents and reports (Merriam, 2013). Multiple data collection tools were used in this study to eliminate the limitations of the data obtained by a single method and reach a rich data set and data diversity that can confirm each other by eliminating biases (Creswell, 2014).

In this study, data were collected using a student diary and semi-structured interview form. Data collection tools and data sources were diversified in this study. "Student Diary Form (SDF)" has been prepared according to the weekly course schedule. In the SDF, the field where the lessons and extracurricular environments of the day in the program to be kept by the student is filled, and there is an empty space titled "my feelings" for them to write down their feelings and "reasons" for them to explain their reasons. SDF distributed all students in a class of 32 students at the eighth-grade level. Students kept a diary for one month (22 working days) in December 2019. In this study, 27 students voluntarily filled in and submitted these forms and five students did not give feedback. Three students were excluded from the data set because they did not keep the diaries properly. Data of 24 students were used in this research. Data from the teachers were collected using a semi-structured interview form developed by the researchers. The literature was used in the preparation of the semi-structured interview form, and the final form was given to the interview form in line with expert opinions (two faculty members from Kahramanmaraş Sütçü İmam University and Çukurova University). Interviews with teachers were held in December 2019 and January 2020. Interviews with the teachers lasted about an hour.

2.4. Data Analysis

Content analysis was used to analyze the data in this research. Patton (2014) states in case studies that researchers may encounter very intense data and in this case, content analysis technique is appropriate. Therefore, all data should be gathered and organized before analysis (Merriam, 2013; Patton, 2014).

In this research, first of all, the raw data were arranged in a computer environment and made ready for analysis. Then, coding of the data, creation of themes from the codes, tabulation of codes and themes, presentation and interpretation of the findings were carried out (Creswell, 2016; Strauss & Corbin, 1990; Yıldırım & Şimşek, 2011). The main purpose of content analysis is to bring together similar data under certain concepts and themes to provide comfort to the reader (Yıldırım & Şimşek, 2013).

2.5. Validity and Reliability Studies

To ensure validity and reliability in qualitative research, the research must first be conducted in an ethical manner (Merriam, 2013, p. 199). In this study, firstly, to conduct the present study, the ethics committee report and ethical approval were obtained from the university where the researchers worked. Before starting this research, the participants were informed about this research and the volunteers were included in this study. The identities of the participants were kept secret, but codes, such as S1, were given instead of their real names.

To ensure validity and reliability in this study, four strategies, namely persuasiveness, transferability, consistency and confirmation were utilized stated by Lincoln and Guba (1985). *Persuasiveness*: To ensure credibility in qualitative research, triangulation, detailed and deep data collection, participant confirmation, expert review and the role of researchers should be explained (Creswell, 2014; Merriam, 2013; Patton, 2014; Yıldırım & Şimşek, 2013). In this research, data and source diversification was made using the student diary and teacher opinions. The accuracy of the research was confirmed by presenting the data to the participants. Participating students in the study kept a diary for as long as a month. This research was conducted in line with expert opinions, which were presented to expert opinion at every stage of the research. *Transferability*: It is not possible to generalize the results in qualitative research (Merriam, 2013; Patton, 2014; Yıldırım & Şimşek, 2013). Transferability is the task of leaving the readers to interpret the results of a study to what degree or

scope it will be applied to similar studies (Merriam 2013, p.218; Yıldırım & Şimşek, 2013). To ensure transferability in this study, as Lincoln and Guba (1985) suggested, all stages of the research were described in detail, the reports included direct quotations from the participants' views and diaries, the findings were tabulated and an understandable language was used for the readers. *Consistency*: Since social sciences include a dynamic process and human behavior is constantly changing, research results are not expected to be repeated in the same way. However, the results of the research are expected to be consistent (Merriam, 2013). To increase the consistency in this research, the processes followed in the research were explained in detail, supported with relevant documents, and the research was conducted systematically and reported. To ensure consistency in the data analysis of the research, the coders coded separately at the same time, blindly. The items with consensus and disagreement were revealed, and it was determined that the agreement rate between the coders was 0.87 in the calculations made using the formula [Reliability = Consensus/Consensus + Disagreement X 100] of Miles and Huberman (1994, p. 64). If the harmony ratio between coders is higher than .70, it is assumed that the reliability of their coding is sufficient (Akay & Ültanır, 2010, p. 80). *Confirmation*: The research is open to external audit (Creswell, 2014). In this research, documents related to all stages of the research are stored in computer environment to ensure confirmation.

2.6. Ethical

This article is an original study. It has been reported by paying attention to publication ethics. This research was found ethically appropriate in accordance with the decision of the Kahramanmaraş Sütçü İmam University Ethics Commission dated 08.06.2020 and numbered 2020-15.

3. Findings

3.1. Findings related to the Emotions Students Experienced in Different Lessons

The first sub-aim of this research was to investigate the feelings students experience in different lessons. For this purpose, the findings obtained from the student diaries regarding the emotional state of the students in the lessons are given in Table 1.

Table 1. Emotions Experienced by Students in Lessons

Lessons	Positive Emotions							Negative Emotions																		
	Happiness	Peace	Feeling good	Excited	Curious	Fun	Wonderful	Total	Stressful	Nervous	Sad	Unhappy	Bored	Angry	Confusion	Fear	Anxiety	Disgust	Nötr	Fatigue	Shame	Hatred	Bad	Offended	Total	
	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
TURKISH	170	5	8	6	2	3	2	196	2	2	17	18	6	5	7	2	2	0	16	12	1	0	0	0	90	
MATH	131	0	4	9	2	1	2	149	5	1	15	27	15	13	0	5	5	1	18	9	1	1	1	2	119	
SCIENCE	79	1	3	9	1	0	0	93	6	0	5	8	12	6	3	3	1	0	5	18	0	0	0	0	69	
HISTORY	96	2	2	4	1	5	0	110	3	0	6	7	19	2	1	0	4	0	4	2	0	0	1	1	50	
ENG	77	0	3	3	2	2	2	89	1	1	8	9	14	11	0	3	3	4	5	1	0	0	2	0	62	
PHYSICAL	37	0	0	2	0	0	1	40	1	0	3	12	2	6	0	0	0	1	6	4	0	2	2	0	39	
T.D.	26	0	0	1	0	9	1	37	1	0	0	4	15	9	0	1	1	1	0	5	0	3	1	3	43	
MUSIC	31	0	2	3	0	0	5	41	2	1	2	5	9	3	0	2	2	0	4	1	0	0	1	0	35	
ART	24	0	4	2	0	0	0	30	1	1	3	10	10	11	1	3	1	0	0	2	0	0	2	0	45	
Total								785																	552	

Abbreviations in Table 1; TURKISH: Turkish Lesson, MATH: Math Lesson, SCIENCE: Science Course, HISTORY: T.R. History of Revolution and Kemalism, ENG: English, PHYSICAL: Physical Education Lesson, MUSIC: Music Lesson. ART: Visual Arts Lesson, T.D: Technology Design Class f: frequency (frequency of repetition)

According to Table 1, the positive emotions experienced by the students in the lesson were happiness, peace, well-being, excited, curious, fun, wonderful while negative emotions are stress, tense, sad, unhappiness, boredom, irritability, confusion, fear, anxiety, disgust, fatigue, embarrassment, hate, reproach, feeling bad and resentment. Students experienced more positive emotions (f: 785) than negative emotions (f: 552). Students

experienced both positive and negative emotions in the same lesson. While they experienced positive emotions more in some lessons (Turkish, Social B...), they experienced more negative emotions in some lessons (Design, Visual Arts...). Since the students wrote their feelings directly on the form, the frequency table was created and direct quotations were not included. For example, the student wrote "happiness" under the title of my emotions.

3.2. Findings regarding the Emotions Experienced by Students in Extracurricular Environments in The School Area

The second sub-aim of this research was to investigate the feelings students experienced in the school area outside of the classroom. For this purpose, the findings obtained from the student diaries regarding the emotional state of the students in extracurricular environments are given in Table 2 and the findings obtained from the teachers' opinions are presented below.

Table 2. Emotions experienced by students in extracurricular environments

Environment	Positive emotions							Negative emotions														
	Happiness	Fun	Peaceful	Good	Excited	Curious	Total	Stressful	Unhappy	Tired	Repulsive	Pessimistic	Bored	Angry	Sad	Nötr	Hatred	Anxiety	Fear	Confusion	Total	
	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f	f
Unspecified field	70	2	3	2	2	1	80	10	25	5	5	5	13	22	12	18	3	5	2	3	128	
In the garden	9	0	0	0	0	0	9	0	1	0	0	0	5	0	0	0	0	0	0	0	6	
In the corridor	5	1	0	1	0	0	7	0	1	0	3	0	8	1	1	0	0	2	0	16		
In the canteen	7	0	0	0	0	0	7	1	1	3	0	0	8	1	0	0	0	0	0	14		
During the breaks	89	1	0	0	1	0	91	0	14	2	0	0	6	7	9	17	0	2	2	1	58	
At the ceremony	4	0	0	0	0	0	4	0	1	0	0	0	1	0	0	0	0	0	0	2		
Total							198														224	

As shown in Table 2, it was seen that students experienced less positive emotions (f: 198) than negative emotions at school in extracurricular environments. When the table was analyzed, it was seen that students experience positive emotions, especially during breaks. However, they experienced more negative feelings than positive emotions anywhere in the school, in the corridors and the canteen. Students experienced more positive emotions than negative emotions during breaks, in the garden and at the ceremony. Since the emotions experienced by the students were written directly on the form, the frequency table was created and direct quotations were not included. For example, the student wrote "stressful" under the title of my emotions.

3.3. Findings regarding the Reasons for the Emotions Students Experienced in the School Environment

The third sub-aim of this study was to investigate the reasons why students experienced emotions in the school environment. Findings related to the reasons why students experienced positive emotions from student diaries and teachers' opinions are given in Table 3, and the reasons for experiencing negative emotions are given in Table 4.

As shown in Table 3, it was seen that the factors that caused students to experience positive emotions were student, teacher, school, environment and lesson. As seen in Table 3, students mostly solved problems (f: 100), passed exams (f: 60), read (f: 55), communicated with friends (f: 54), used different methods and techniques in lessons. (f: 45).... they experienced positive emotions. S14 said, "We solved many questions in the Turkish lesson today. Since I'm going to take the exam, I need to solve a lot of questions. I feel happy as I solve questions."; S18 said, "Today, our teacher would explain the exam results in the lesson. I was so excited. I worked hard and was expecting the reward of my hard work. The exam result made me feel great. Do I need to mention the result of the exam? Of course, it is 100." S7 explained how s/he feels about reading, "Reading makes me feel good. The feeling I feel during reading time is definitely peace. I wish we had more reading hours"; S20 said, "We, a few girls, get along very well. We always

share our secrets with each other. We do jokes. We come together and have fun every break. These girls are the most important reason for my happiness at school." S4 expressed the feeling he experienced when different methods and techniques were used in the lesson as "Today we experimented in the first hour of the science lesson and I was very happy because experimenting is very fun," and S9 stated, "Today, in the History of the Revolution lesson, we organized a panel in the hall of the school where other classes in the school were also watching. Seeing my friends on the stage and asking questions made me feel very different. I think I felt both excited and happy."

Table 3. Reasons Students Experiencing Positive Emotions in the School Environment

Theme	Codes	Student G. Frequency	Teacher G. Frequency
Student	Success in exams/lessons	60	1
	Willingness to learn/curiosity, learning	46	
	Love the teacher	35	1
	Understanding the lesson	17	
	Product creation	8	
	Love the subject	7	
	Communicate with the teacher	5	1
	Do nothing	3	
	To feel free	0	1
Teacher	Good lecture	11	
	Making the lesson fun	10	
	Chatting with students	9	
	Having a smiling face	5	1
	Giving humor	4	
	Be energetic	4	
	Guiding	4	
	Motivating students	3	
	Problem-solving	2	
	Having an argument	2	
Giving feedback	1		
Learning Environment	Problem-solving	100	
	Reading	55	
	Using different methods and techniques	45	
	Fun environment	44	
	Active participation in the lesson	16	1
	Revision	6	
	Silence	6	
	Receiving an award	2	
Suitable environment (heating)	1		
Lesson	Efficient course of the lesson	20	
	Interesting lesson	6	1
	Loving the lesson	0	1
School	Communicating with friends	54	
	Having free lessons	34	
	Playing	19	
	Peaceful environment	16	
	Being in the garden	11	3
	Having the last class	8	
	Playing sports (Football-Volleyball)	7	1
	Getting guidance	5	
	Food	3	
	Resting	2	
	The last day of the week	2	
	Being in the library	1	
No queue in the canteen	1	1	

According to teachers' opinions, students experienced positive emotions when they were in the garden (f: 3), when they loved the teacher, when they communicated with the teacher, when they loved the lesson, when they found the lesson interesting, and when they actively participated in the lesson. T8 mentioned that he attributed the positive emotions of students to loving the lesson and the teacher "If he likes the lesson and the teacher, the student becomes happy in that lesson. This happiness reflects on me as well, then I am also happy during the lesson. Students are very happy, especially in the garden, going out makes them relax." T4 said that the students' participation in the lesson made them happy, "They are happy when interactive lessons are given, but I observe that our students get bored when the lesson becomes monotonous." T5 expressed, "Students are happy when they feel that they can achieve something in the lesson. The happiest place for children is the garden because they are free."

Table 4. Reasons for Students to Experience Negative Emotions in the School Environment

Theme	Codes	Student G. Frequency	Teacher G. Frequency
Student	Failure	32	
	Insomnia	29	1
	Not loving the teacher	28	
	Fatigue	22	1
	Not loving the lesson	21	
	Negative peer relationships	20	
	Illness	13	
	Not understanding the lesson	10	
	Not doing homework	10	
	Bad weather conditions	7	
	Not loving the school	4	
	Being hungry	3	
	Puberty	0	2
Teacher	Angry with the student	41	1
	Monotonous lesson	23	
	Being indifferent to students' requests	21	
	Dislike for his/her style / attitude	20	1
	Being angry	11	
	Threatening	9	
	Not being fair	9	
	Teasing students	5	
	Being ill	2	
	Intensive tutoring	2	
	Solving the question incorrectly	1	
Not noticing the student	1		
Learning environment	Noise	19	1
	Monotony/Not using different methods	8	2
	Change of location	6	
	Inability to actively attend the course	6	
	Homework control	5	
Lessons	Writing a lot	2	
	Test solving	30	
	Examination	29	7
	Having the same lesson three courses in a row	24	1
	Believing that the lesson is unnecessary	17	1
	Boring activities	14	
	First lesson on the day	11	
	Thinking the lesson is difficult	8	
	Having classes	4	
	Reading	2	
Learning environment	Density in corridors/classroom	27	2
	Negative communication with friends	18	5

School	Having fights	11	
	Queue in the canteen	9	
	Inability to go to the school garden	9	
	Taking outside the building	7	
	Not having classes	9	
	Rude behaviours of students	7	
	First day of the week	4	
	Short breaks	4	
	Ceremonies	3	
Family	Family pressure	0	4
	Family problems	0	4
	Family's expectation/future anxiety	0	2

As shown Table 4, it was seen that the negative emotions of students at school arose from several factors, such as themselves, teachers, learning environment, lessons, school and family. Students mostly experienced negative emotions when teachers were angry with them (f: 41), when they experienced failure (f: 32), when they took a test (f: 30), when they were sleepless (f: 29), when there was an exam (f: 29). S12 said that s/he experienced negative feelings when the teacher was angry with him, *"I'm afraid. Our teacher is already angry and I think we talked a little too much in this lesson. The teacher shouted very badly and said that if those who did not take notes bring their pictures next week, he will give everyone zero. Let's wait with fear what will happen next week."* expressed in the form of sentence. S16 said that he was sad about solving tests, *"I pray that the eighth-grade is over and I can get rid of solving tests. Sad, sad, sad..."* S12 expressed his disappointment about the failure *"I was very sad today because I could not understand the lesson."* S23 expressed exam stress *"I am very stressed today because there is a trial exam."* S11 told the negative effects of insomnia *"I just got out of bed and came to school immediately. I was always sleepy in class, and that's why I felt sad during the lesson."*

According to teachers' opinions, the reasons for students to experience negative emotions were family problems (f: 10), examinations (f: 7), negative friendship (f: 5), adolescence (f: 2), monotony in lessons (f: 2), noise, crowd, fatigue and belief that the lesson was unnecessary. T1 mentioned that *"Difficulty of exams and subjects, crowded classes can cause children to get bored. In addition, parents' pressure can make students unhappy. For example, one day I came across a child crying when he saw his parent at the door of the classroom. I talk to children who were unhappy during my duties and they usually say that they are unhappy due to family problems."* T5's opinion about thinking that the lesson was unnecessary was that *"Students care about the lessons for exams, but they do not care about our lessons. This is why they are very reluctant to attend classes. This causes them to experience negative emotions, such as boredom and unhappiness."*

3.4. Teachers' Suggestions for Students to Experience Positive Emotions in the School Environment

The fourth sub-aim of this study was to investigate the teachers' suggestions for students to experience positive emotions more intensely in the school environment. Findings obtained from teachers' opinions are given in Table 5.

According to Table 5, the frequency of repetition of the suggestions of teachers for increasing the intensity of positive emotions experienced by students were: Classroom sizes should be reduced, opportunities (e.g., tools) should be increased, the teacher should increase communication with the students, social and sports activities should be increased, and the teacher should be sincere, respectively. T2 said, *"The most important problem of our school is that the school and the classes are too crowded. This student size must be reduced below 30, when this is achieved, we can communicate with our students."*; T4 expressed his/her ideas related to the students' being idealist and the diversity of methods and techniques *"To create positive emotions in students, first of all, teachers should do their work with love. They should be idealistic and behave close to children. Schools should have better facilities and more student-oriented method techniques should be used in lessons. When these are provided, we can see happier students in schools."* T7 emphasized the discipline in increasing the positive emotions of the students *"If there is a discipline*

in schools, children will be unhappy first, but then they will be happier. Discipline is absolutely required to create a positive mood. "; T6 focused on the effects of teachers' communication with the students, "It is very important for us to communicate with the student. For this, we must get to know the student. I address my students by name, which makes them happy. I often talk one to one about their families, goals, and feelings. I can see the happiness in the students after this communication."

Table 5. Teachers' Suggestions for Students to Experience Positive Emotions more Frequently

Theme	Code	Frequency
Management	Decreasing classroom size	5
	Increasing facilities (e.g., equipment)	5
	Increasing social and sportive activities	4
	Reducing exam anxiety	3
	Increasing school discipline	1
	Playing music at school	1
	Reducing the teachers' pressure on students	1
	Collaboration of school, family, teacher and student	1
	Painting school with vibrant colors	1
Teacher	Increasing communication with students	4
	Being sincere	2
	Loving your job	2
	Guiding students to become aware of their problems	1
	Guiding students to their interests	1
	Reducing students' exam stress	1
	Ensuring that students experience success	1
	Creating a fun educational environment	1
	Making her/his students love herself/himself	1
	Being consistent	1
	Using student-centered methods and techniques	1

3.5. Data Compliance

When the harmony of the findings obtained from different data types in this study was compared, it was seen that the types of emotions expressed by students were similar to those expressed by teachers. Although student diaries and teachers' views supported each other, it was observed that teachers could understand students. It was striking that the points that teachers focused on and the points that students focused on were different in the factors that caused students' emotional state. While students focused more on their goals and needs, teachers focused more on leisure activities and family reasons.

4. Discussion and Conclusion

As a result of this research, the emotions the students experience in the school environment, the reasons for experiencing these emotions, what the teachers' suggestions for them to experience positive emotions more frequently were discussed in the light of sub-goals and findings. The findings obtained in this research showed that the students had positive emotions, such as happiness, peace, good, excitement, curiosity, fun, wonderful and negative emotions, such as stressful, sad, unhappiness, boredom, boredom, anger, confusion, fear, anxiety, repulsive, fatigue, embarrassment, hate, bad and resentful. It was seen that they experienced negative feelings. Er, (2006) identified 72 types of "Emotional Adjective Pairs" that classified the emotions that people could experience in his study. The types of positive and negative emotions obtained as a result of this study were among 72 emotional state adjective pairs.

It was concluded that students experienced positive emotions more than negative emotions, but the frequency of experiencing negative emotions was close to positive emotions. The positive emotions experienced by the students have critical importance in their academic achievements (Chernyshenko, Kankaraš, & Drasgow, 2018; Er, 2006), their learning, motivation, performance, identity development and health (Schutz & Pekrun, 2007;

Ağçam & Ünsal, 2019). In addition, emotions have a critical place in decisions, remembering important events (Atman Ece, 2011), communication and interaction (Oğuz & Özkul, 2016), problem-solving, directing vital events and attitudes (Barett, Gross, Christensen, & Benvenuto, 2001), creative and flexible in thinking, raising the attention level of individuals, socializing (Denham, 1998; Grawitch, Munz, & Kramer 2003; Hirt, Devers, & Mc Crea 2008; Rowe, Hirsh, & Anderson 2007), general interest in school (Ünsal, 2017), peer relationships (Koizumi, 1995). On the contrary, negative emotions experienced by students make their lives difficult and cause vital and behavioral problems. When people feel sad, tense and depressed, or when they are in a depressive mood, the likelihood of making mistakes increases, their interest in their environment decreases, they process information with less efficiency (Er, 2006), and they become distracted (Grawitch, Munz ve Kramer 2003; Rowe, Hirsh ve Anderson 2007; Hirt, Devers ve Mc Crea 2008), their risky behaviors increase (Telef, 2014), get tired easily and feel powerless (Ayçiçek, 2012).

Considering the research findings in the context of courses, while students experience positive emotions more intensely than negative emotions in Turkish, Mathematics, T.R. History of Revolution and Kemalism and Science lessons, positive and negative emotions are experienced very close to each other in English, Visual Arts, Physical Education and Technology Design lessons. A striking result of this research is that even more negative emotions are experienced in some classes like Technology and Design Lessons. The reason for this situation may be that the participants pay more attention to the lessons that will be asked in the exam because they are in the eighth-grade. In addition, the lack of activities in some lessons, the students being passive, the student not paying attention to the lesson or the teacher giving too much meaning to the lesson, the chaos (noise) in the lessons, uncertainty and unplannedness may have caused this result. Another reason for this result may be due to the formation knowledge of teachers. Apart from the Faculty of Education, other faculties are also appointed to teach the courses with intense negative emotions. It was determined that negative emotions experienced by students in extracurricular environments were more than positive emotions. While the students experienced most of the positive emotions during the breaks, they experienced the negative emotions anywhere in the school. The reason for this situation may be due to students' inability to easily meet their basic needs, such as nutrition and rest (Özenoğlu, 2008), not feeling safe (Cui, Morris, Criss, Houlberg, & Silk, 2014; Sabatier et al., 2017) or problems in friendship (Gülay, 2009).

It was concluded that students mostly experience positive emotions when solving questions, succeeding in exams, reading, communicating with friends, using different methods and techniques in the lessons, and when the lessons were effective. It was concluded that factors, such as when students are angry with their teachers when they fail, have exams, when they are sleepy, when there is an exam, when there is noise, when they have food problems, crowded corridors and classrooms, and family problems cause them to experience negative emotions. When the needs, expectations and demands of the individual are met, positive emotions, such as happiness and pleasure are experienced, and when not met, painful and painful negative emotions are experienced (Baloğlu, 2016). At the same time, factors, such as lack of alternatives, indecisiveness, aimlessness, stagnation and uncertainty cause people to experience negative emotions (Yıldırım & Tabak, 2019). In this study, it may mean that students' expectations and needs are met when they experience positive emotions when they solve questions, pass the exam and pass the lessons efficiently. The use of different methods and techniques in the lessons may have enabled the students to experience positive emotions by eliminating the lack of alternatives and stagnation and by providing the student's participation. In addition, Gülay (2009) stated in his study that peer relationships were effective on positive emotions, supporting the results of this research.

The findings obtained in this study show that the emotional state of the students is affected by the attitude of the teacher and the family. The teacher's anger increases the experience of negative emotions while his laughing and joking increase the experience of positive emotions. Argon (2015) stated in his study that teachers' emotional states are very significant in the educational environment and emphasized that education will be shaped according to the teachers' emotional state. When the literature was examined, it was revealed that the family was effective in helping students experience positive and negative emotions and regulate their

emotions, supporting the results of this study (Cui, Morris, Criss, Houltberg, & Silk, 2014; Kandır & Alpan, 2008; Sabatier et al., 2017).

Another remarkable result of this study was some items, such as solving questions (test) and classes without teacher are the reasons for both positive emotions and negative emotions. Although these two situations seem to contradict each other, they are actually due to the heterogeneous structure of the eighth-graders, which is the study group of this study. While some students focus on the exam, for some students, the exam is not very significant. The reason for this result of this study may be related to the meaning that the students attach to the school and the lessons and any event that the students experienced that day.

In order for students to experience positive emotions in the school environment, teachers suggested decreasing the classroom size, increasing the possibilities (e.g., equipment), establishing more and closer communication with the students, and increasing the social and sports activities in the school. Duman et al. (2019), in their study on university students, concluded that supporting the suggestions made by teachers, young people engaging in educational activities and participating in sports activities reduced negative emotions, such as anger. As a result of this research, the following suggestions were made. (i) In order for students to experience positive emotions more frequently, their basic needs and expectations should be met, they should be active in class environments and social activities and they should be given opportunities to succeed and produce products. (ii) In order for students to experience fewer negative emotions, many negative factors, such as excessive class size, noise, fatigue, uncertainty and lack of alternatives, should be reduced.

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A Case Study regarding the Comparison of Collaborative Writing in Digital and Face-to-Face Environments

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ABSTRACT

The present case study aims to compare collaborative writing activities produced on the Padlet website on the internet and in a face-to-face (F2F) environment. This study for which criterion sampling was used included two different groups, both of which were formed with four people. For the triangulation of the case study, texts produced F2F and online, video recordings of the F2F writing process and records of the group interviews conducted after the internet practice. Thus, comparative evaluation regarding various components, such as writing processes, writing achievement, group interaction, creativity, and opinions of participants was performed depending on different data types. The findings suggest that the online environment shone out with advantages, such as time, flexibility, supporting creativity through and multimedia tools, whereas F2F writing offered advantages in communication and simultaneous changes by group members. However, it was detected that online texts were more successful than F2F texts and students' achievement perceptions were higher in their Padlet texts.

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Keywords:

Collaborative writing, online collaborating, writing environments, group interactions, creativity in writing.

1. Introduction

Writing is a skill area which is defined as a unique learning mode as well as being a complex expression process, involving individuals' choices, constituents affecting these choices, cognitive activities, defining and categorizing those activities during text production (Emig, 1977; Flower & Hayes, 1981; Nystrand, 2006; Rijlaarsdam & Bergh, 2006; Tompkins, 2000). Therefore, using distinct methods and strategies is required in practice and instruction of this complex process necessitating multi-tasking. One of these methods is the collaborative writing method. Mostly based on Vygotsky's theories, collaborative learning is basically multiple students working in a group, finding solutions, understanding and creating a product (Smith & MacGregor, 1992; Wang, 2007). Indeed, Vygotsky (1986) emphasizes the effects of guidance of an adult or collaboration of more competent peers among the factors increasing learning level. In connection, it is quite likely to trace the benefit of collaborative learning in areas requiring competence, creativity and grammar knowledge (Dobao, 2012; Storch, 2005; Storch, 2011; Vanderburg, 2006).

With the increasing technology use in education, patterns for device functions, teacher roles and student behavior change because as technology advances, the ways of producing, acquiring and sharing knowledge evolve. Educational, collaborative works have also been affected by these changes. The current collaborative writing research has increasingly involved the use of technological tools. This multitude of studies indicated

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that technological tools and web environments were suitable for collaborative work (Baker, 2000; Bikowski, 2015; Fey, 1997; Hron & Friedrich, 2003; Lamb & Johnson, 2007;) and they respectfully increased writing skill in collaborative writing activities (Dobao, 2012; Li, Chu & Ki, 2014; Dobao, 2014) and that students developed positive attitudes toward collaborative writing in the digital domain (Jeong, 2016; Chao & Lo, 2011).

Padlet is one of the digital platforms where collaborative writing can be performed, representing the virtual version of physical classroom bulletin boards/wall activities (Weller, 2013). In this virtual bulletin board, students can accomplish tasks posted as links by the teacher. As the posts are open to everyone, they can see each other's answers and comment on them. Due to providing simple editing and collaborative learning, it can be easily used for classroom and extensive activities (Williams, Scott & Simone, 2015). For extensive collaborative writing activities, in particular, students need to be present as a group since they are required to complete the whole text together; that is, students need to see every update and make simultaneous contributions. However, this is not always possible; getting together proves difficult concerning time and space. While providing a shared feed view, Padlet allows for simultaneous follow-up for updates, commenting, and contribution through responding to the comments in collaborative writing activities. Therefore, Padlet harbors a potential to serve as an alternative collaborative environment to be effectively used for collaborative writing. Despite this, it is crucial to compare students' opinions for such an environment where F2F interaction is absent to an F2F collaborative writing process. Motivated by this notion, the purpose of this study is to compare F2F and Padlet collaborative processes, which generates the fundamental question, "What is the course of collaborative writing activities done F2F and in Padlet?". Additionally, sub-problems are as follows:

- How do groups compare in written expression levels regarding their collaborative writing products in Padlet and F2F activities?
- How do groups compare in writing experience in Padlet and F2F environments?

2. Method

2.1. Research Method

The research method used in this study was designed as a qualitative case study, which is defined as a detailed examination of a determined phenomenon limited to the context of a system through collecting varied types of data (Baxter & Jack, 2008; Merriam & Tisdell, 2015). In connection, students were initially asked to perform F2F collaborative writing activities and the activity was recorded on video, followed by another collaborative writing on Padlet. Finally, a group interview was administered regarding writing processes in both environments and recorded. Thusly, three distinct data types were used as follows: students' texts in both environments, video recordings of F2F process and group interview voice records.

2.2. Participants

Eight teacher candidates studying Turkish Education were equally divided into two groups. To gather anticipated data, participants were selected based on certain criteria. To serve this purpose, criterion sampling was used. (Miles & Huberman, 1994). Since the participants were selected from the two classes the researcher taught, they were structured into two different groups. The sampling criteria were as follow:

- Students were selected among those having enrolled in and passed written expression course; namely they had knowledge and experience about collaborative and process-based writing.
- In the selection, students' voluntariness, accessibility, and identifiability by the researcher were observed.
- Involvement of students who were level to each other was observed due to the purpose of examining group dynamics and the collaboration process.
- Students with internet access and technological experience were selected in this study.

Table 1. *Participants*

Group 1	Age	Gender
Participant I.	21	Male
Participant II.	21	Female
Participant III.	22	Female
Participant IV.	21	Female
Group 2	Age	Gender
Participant V.	21	Female
Participant VI.	21	Female
Participant VII.	20	Female
Participant VIII.	22	Female

2.3. Data Collection

This research aimed to thoroughly analyze different collected data types in accordance with certain situations. Given data types, observation, interview and document analysis techniques were used. Primarily, student texts written online and F2F were examined in the sense of writing achievement. Next, F2F collaborative writing video records were displayed and group writing behaviors were observed. Another data type collected in the study was the voice records of group interviews, which were transcribed to be analyzed. These records included students' experiences in Padlet and F2F collaborative writing processes, perceptions of these distinct environments and opinions of group dynamics. The interviews were based on structured interview questions (Merriam & Tisdell, 2015). Accordingly, detailed information about the process was sought through 15 structured interview questions asked in the form.

2.4. Data Analysis

In the data analysis, thematic analysis was used. Thematic analysis offers an entirely qualitative, detailed and nuanced explanation of the data (Braun & Clarke, 2006, Vaismoradi & Snelgrove, 2019). For the analyses of written texts, camera recording of F2F writing and group interview records, the thematic analysis method was used. Transcriptions of videos and voices were coded and categorized into themes to be run for thematic analysis based on the determined themes. Since the analysis process aimed to compare two writing environments, codes and themes were generated based on F2F video recordings and group interview records as a whole, and they were analyzed together within the scope of these codes and themes.

2.5. Trustworthiness

Case studies aim to merge different data types to be interpreted. Hence, ensuring the reliability and validity of researcher's interpretations is a vital step to increase the quality of qualitative research since procedures serving to the quality of the research contribute to the integrity of the research by promoting awareness to some extent about the methodological effects of decisions made during the project (Seale, 1999). The interpretive validity was highlighted as this study was constructed as interpretive research. In line with the interpretive validity definition of Maxwell (1992), details portraying participant perspective, such as intention, awareness, impact, belief, evaluation, in this research were sought. Furthermore, many procedures are required for validity and reliability of qualitative interpretations. To increase the validity and reliability of this study, firstly, the triangulation method was used for data diversity, which included collaborative texts of both environments, video record of F2F writing and voice records of group interviews. To ensure trustworthiness, on top of the aforementioned, an external researcher was consulted concerning the data and interpretation made (Miles, Huberman & Saldana, 2014).

2.6. Ethics

Only volunteering participants were selected for this research, before which they were informed both verbally and written that personal information would not be used other than scientific purposes. Anonymity was secured by assigning numbers to participants.

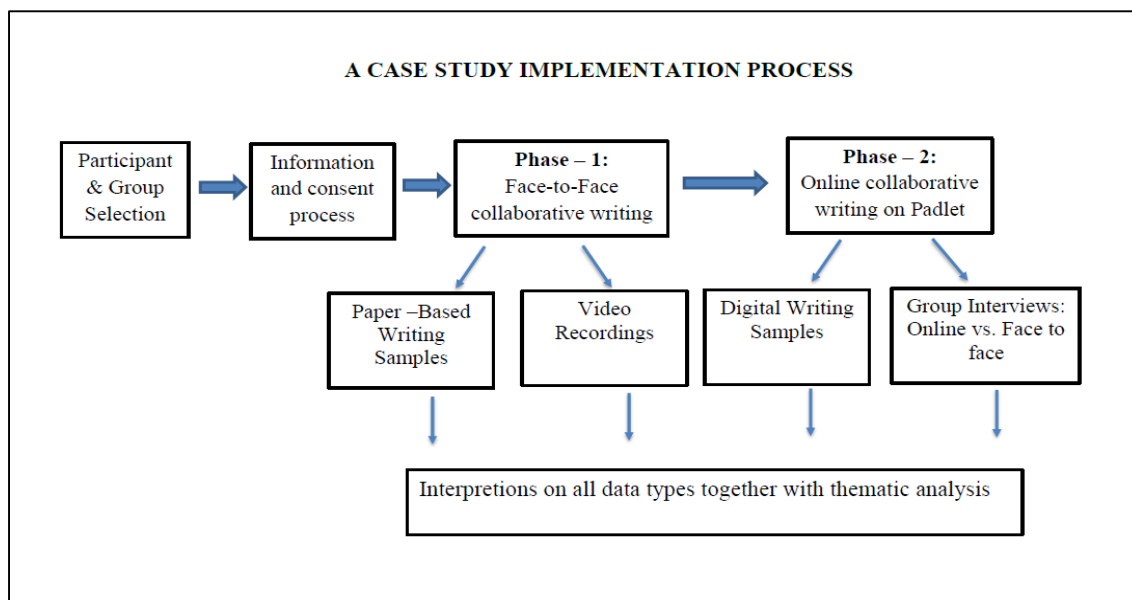


Figure 1. Implementation process

3. Results

The comparison of the F2F and online writing process of the groups were made in the light of groups' texts in different environments, F2F video recordings and post-Padlet group interview voice records. Primarily, codes were formed for texts, voice and video transcriptions. Subsequently, these codes were analyzed following their categorization under certain themes.

Table 2. Codes and themes

Codes	Themes
Preparation Planning Draft Revision	1. Writing processes
Advantages of Padlet Advantages of the face-to-face writing process Disadvantages of Padlet Disadvantages of the face-to-face writing process	2. Advantages & Disadvantages
Group communication Group roles Decision-making processes	3. Interaction
Opinions for writing process Opinions for writing product	4. Perspectives/comments
Creativity offered by Padlet and face-to-face process Opinions for the creativity of text components	5. Creativity
Opinions for participant number Effects of personal relations on collaboration	6. Group Dynamics

3.1. Writing Processes

When texts of the groups were analyzed, it was clearly seen that both groups produced more successful content on Padlet. This detail can be explained under two headings as plan and its reflection on paper. Concerning the plan, groups constructed successful text plans in both environments. However, due to the multitude of ideas taking much time, groups had difficulties finalizing the texts in F2F collaboration, which indicated that they were not as successful at processing the texts as they were at planning. This was confirmed in F2F recordings and group interviews as well. Regarding the processing of contents, Padlet texts were more successful

concerning construction of exposition, climax and resolution, cohesion and textually supporting the given expressions.

Camera recordings and interview transcripts indicated that both groups were careful with employing the stages of process-based writing. In F2F collaborative writing, the 1st group struggled with finishing the text due to failing at forming consensus although they completed preparation and planning stages successfully. Thus, planned conclusion part did not coincide with the actualized text. Participant IV explained this as follows: "Collaborative writing is more advantageous because more and broader ideas are created, but it's hard to meet on a common ground. Everyone values their own idea more. Determining a topic becomes hard." On the other hand, completing all writing stages, the 2nd group could entirely transfer the text construct they determined in the preparation and planning phase onto paper. The main issue mentioned by all the members of the 2nd group while referencing the collaborative writing process was the harmony and communication among the members. The said harmony and effective communication could be seen in video records. Participant VIII described this as the following: "Actually, different ideas were created. Some made depictions and some turned to different things, but I think we eventually made a good thing."

In online collaborative writing, 1st group's disagreements increased; thus, instead of writing altogether, they divided the labor among members, leading to each member writing their part separately and combining the work in the end. Consequently, although Padlet text was more successful than the F2F text, students wrote cooperatively, not collaboratively. Student I quoted: "I drafted the outline, then started writing the text according to the outline. One after another I knew what would happen and where. When I got stuck, I carried on expanding the sentence in the outline and resolved it." While student III continued, "IV and I both corrected spelling mistakes and changed some parts, without disrupting the flow." Therefore, it was seen that the first group achieved group interaction and consensus during text production. The second group, on the other hand, stated that they completely employed collaborative means and each member participated in every stage of the work. Additionally, they reported that they could reflect every writing stage in the online environment. Participant VII narrated the situation as follows: "Let me write whatever I can think of. After all, this story was left to me. I wrote the introduction and after that my friends liked it and continued, you know. This way, everyone wrote as they liked and they were similar. I liked all of them. It was better than face-to-face, I think. ...I did the introduction. I asked, 'This is what I think, is it fine by you?' Then, you know, we developed the side characters together..."

3.2. Advantages & Disadvantages

Both groups considered immediate feedback and developing ideas through discussion in F2F collaboration to be an advantage despite the hardship of generating a text from various perspectives. Indeed, the 1st group highlighted the hardship of reaching an agreement. Thus, some members addressed switching to cooperation while writing on Padlet as an advantage despite their weakening communication. In this case, it is thought that the tendency to avoid discussion due to deep disagreements impacted the first phase of the activity. In fact, upon examining the videos, the discussion hindered the healthy progression of the text. That Padlet text scored more than F2F text supports this deduction for the 1st group. However, acquiring better organization and harmony, 2nd group participants regarded differing opinions as an advantage. No matter the different opinions as evidenced in videos and recordings, students seemed to find ways to compromise, which positively affected the group harmony. Participant VII explained it as: "When one of us was unsatisfied, we tried to do it like this: say we wrote one section, and VI said 'Should we have added this, too?' We tried to insert his/her idea losing as little time as possible because, as we said, there is no end to this. Everyone has an opinion. We tried to connect all of them with sentences. We met in a common ground generally."

Students regarded the emergence of different opinions and constant feedback as a time constraining disadvantage in the F2F process. On the contrary, the flexibility of the online environment allowed for repetitive feedback, making Padlet advantageous and more suitable for the process-based writing approach in students' eyes. Regarding the time constraints, participant I stated: "After every third or fourth sentences we wrote, we turned back and checked it. Is it coherent with the previous paragraph, etc..." However, participant VI commented on the time advantages of the online environment as follows: "Whoever wrote on

Padlet, we logged in to read it, anyway. I constantly revised it. Checked if there were disconnections or defects between sentences.”.

To group 1, insufficient communication on Padlet was regarded as disadvantageous. However, second group members who created a WhatsApp group completed text production on Padlet through instant voice/text chat. At this point, what was declared as a drawback by one group was overcome using a different communication tool. On top of this, 2nd group’s Padlet comments and criticism were answered on WhatsApp since WhatsApp enabled instant messaging and everyone allowed could see the comments. Participant V commented on the issue as: “Padlet comments were answered on WhatsApp because it is more comfortable for privacy,” whereas participant VII stated: “When you write on WhatsApp, you get immediate notification. People can immediately reach you when they want to ask something.”

Since F2F writing took place in a discussion group, first group participants stated that they could change other members’ writing, but on Padlet, due to not seeing the addressee and their reaction, they were hesitant to make changes or criticism. The second group members did not state any problems about making changes. However, participants saw disadvantages in Padlet as it allowed anyone to create a text in the long run, causing members to come across changes every time they log back in. This makes it hard for members to understand the point of the change. Participant VIII explained this as: “I for one write a comment, then a friend logs in and I become unaware, I don’t know about the idea behind the change.” In addition, participant VI added: “Yes, we constantly open (Padlet) and see it’s suddenly changed. What should I write?”

Participants reported shortcomings in the F2F writing process because they needed to complete the text at one session when they got together. On the contrary, they had a chance to log in as many times as they wanted in an extended time to make additions and editing on Padlet. Regarding Padlet, participant I stated: “...It’s already collaborative work, so we take ideas bit by bit and synthesize. Because Turkish Education Program is based on process-based writing, we can better observe our students during group work referencing our own works.” When groups’ written texts in different environments compared in terms of language, style and textuality criteria. In the sense of textuality, no difference can be seen between the texts of both environments. Similarly, language, word choice, expressive styles, consistency, and coherency features showed no distinction in digital or F2F environments.

Comparing F2F and Padlet concerning tools used, both group participants stated that online writing was more advantageous than pen and paper. Main reasons for this are the easier nature of digital writing, which offers alternative ways for changing and editing. Both group members reported that they preferred their mobile phone touch screens while only switching to their computers when they needed bigger screens. They explained this preference with their familiarity and tendency for frequent use of these devices. Participant VI stated: “We generally did it on our phones because phones are more commonly used than computers. We got it done on the phones instead of turning on computers. Because now, our hands are more used to the phone keyboards.”. Although two students reported preference for pen and paper due to their effect on their imagination and motivation, they admitted they finalized their texts on computers. Participant II explained it as: “If I need to write a text, I firstly write it on a notebook with a pen, then I copy it to the computer. It affects my imagination. I can’t improve it.” While participant III rationalized the preference as follows: “Even if it’s social network, I prefer scribbling first. (To write a text) I don’t necessarily need pen and paper. I want to make a draft or outline to remember. I can edit and copy it (to computer) later.”

3.3. Group Interaction

Second group stated that each member played an active role writing processes and they had a fruitful writing experience. As participant VII stated: “I really liked everyone having different opinions. For example, V formed very nice sentences. Like descriptions that made the reader visualize. The depictions were great. Then, VI was good at imagining more action type things. I, for one, put together the sentences and VIII detected the lacks, correcting our mistakes as in ‘Should we do it like this or that?’. Everyone really had very useful roles like that. It wasn’t dominance, passiveness, I don’t know, but there were just different characters, different interpretations.”. As can be seen, the participant describes an ideal collaborative writing process. It can be noticed in F2F writing video recording that although no roles or instructions were given in groups, the process

naturally constructed itself due to group interaction. The main factor here was the components of communication and used language in collaborative writing process. For instance, when participant V made so many descriptions, other members objected by saying “we should diminish descriptions because we’re not writing a novel.” and moved on to creating different ideas without causing any problems. However, first group reported that they had problems in F2F writing as everyone insisted in promoting their own ideas. Based on video recordings, it can be seen that participant I objected to the idea of participant III by saying “very ridiculous idea” and the argument erupting after that influenced the concentration of the group in text writing process.

It is evidenced that language and expressions used in group interactions entirely differed between two groups in F2F writing process. Indirectly, the effects of this situation were reflected upon the online collaboration process. Indeed, 2nd group members attempted to let everyone know about the changes they made online by notifying them about the change on WhatsApp. Participant VIII reported it as follows: “Anyone writing on Padlet immediately let us know. Like saying I added something. We were notified whenever someone wrote something.” On the contrary, due to the heat of the argument in F2F writing process, 1st group members avoided interaction as much as possible. This seems to have affected writing process, writing environment, writing scores and preferences of participants in writing environment.

3.4. Perspectives

Given the perspectives of 1st group participants regarding Padlet and F2F, participant I stated: “Between the two, I choose face-to-face activity but Padlet also was comfortable for writing process”; participant II responded as: “Padlet is not suitable for collaborative writing and I wouldn’t prefer Padlet”; participant III remarked: “I preferred face-to-face collaborative writing because it offers spontaneous communication but provided it can offer communication opportunity with immediate feedback, Padlet can be used”; finally, participant IV stated: “Padlet provides mentally relaxing writing process because it doesn’t have time or space limitations, so I can prefer Padlet.”

Regarding the perspectives of the 2nd group, participant V stated “No matter how successful I find Padlet, finding it more fun, I prefer face-to-face collaborative writing”; participant VI remarked “While ideas get tangled when voiced in face-to-face communication, I prefer Padlet because I can see ideas more orderly and it enables long and good thinking concerning time”; participant VII reported: “In face-to-face communication, I get interrupted when someone voices their idea and I can forget my ideas partially, that’s why I prefer Padlet for collaborative writing”; finally, participant VIII stated “Padlet is more advantageous considering time, and it provides more accurate written product because it supports creative thinking due to offering more time and enables logging in and out to edit.”

When both groups were asked which product was more successful, the 2nd group unanimously remarked that their Padlet story was more successful. 1st group members, however, divided in half in favoring the more successful environment. It was noted that participants’ perspectives of success and writing environment preferences mostly coincided. However, there were instances of preferring F2F writing despite finding online writing process and product successful, and vice versa.

3.5. Creativity

Regarding the improvement of creativity in collaborative writing process, both groups pronounced a two-dimensional relationship between Padlet writing process and creativity. First, creating a written product in a collaborative process requires creativity. Second, creativity of all students improved in the process. However, the following findings were obtained when Padlet and F2F environments were compared in creativity:

Participant number I in the first group claimed that F2F process supported creativity more, basing it off of other members’ remarks during idea forming and writing stages. In F2F video recording, participant II warned others in drafting stage: “That’s so simple, think something different. Let’s change our point of view.”. Others in the group agreed with the suggestion. However, same group members stated they could not make suggestions due to not knowing how others would react in Padlet environment. This could mean that F2F

disagreements negatively affected their Padlet writing process. In connection, participant II underlined this shyness on Padlet despite being able to warn group members in F2F process: "Maybe we can develop the text further, change it but it was all too connected. Once I deleted something, I had to delete everything. I thought such a thing would be rude to other members." The reason for the first group's limited creativity might stem from switching from collaboration to cooperation since members had difficulties commenting on others' work due to the situation where everyone cooperated independently instead of making common decisions. Participant IV commented on this as: "It was already so hard to make changes on Padlet. We had to change what we wanted in draft, exposition, climax and resolution." Consequently, first group members favored F2F writing environment more concerning creativity. Nevertheless, they stated they would prefer Padlet for individual writing process owing to its advantages.

When the 2nd group was asked to compare Padlet and F2F processes, they claimed that Padlet supported creativity in writing more for two reasons. First, Padlet offered more time to think and this enabled them to produce more creative ideas. Second, it provided various stimulating advantages, such as image, audio and video. Indeed, the story written by the group told about a person immigrated to Italy to follow his dreams. To address the character's imaginativeness and development of a part of the plot, participant VII shared "Imagine" by John Lennon, claiming the lyrics of the song could give inspiration for the plot. In addition, as suggested by participant VI, to depict the Italian coastal town the character settled in, they posted the picture of an Italian coastal town on Padlet feed. Participant VI explained this process as follows: "I saw the pictures first while I was writing, I made the descriptions according to that. It helped me. I remember adding the song later. I added it because of its lyrics." Participant V said: "I saw the pictures first while I was writing, I made the descriptions based on that. It was helpful to me." Finally, participant VI added: "I felt it play in my ear as I thought about the story. We might have come up with the title due to the song."

3.6. Group Dynamics

To investigate both groups' progression of group relationships, communication types and group roles in F2F and online environments, F2F video recordings and group interview transcriptions were reviewed. Based on the videos, participants I and III of the 1st group had a big disagreement during F2F process. While participant I insistently tried to impose ideas to others, and while number III intensely objected, number II and IV relatively kept quiet. Following the argument, I and III receded, whereas number II tried to ease the tension and find a compromise. Number IV, on the other hand, was prone to remain passive and uninvolved, only participating when asked a question or he produced an idea. In the group interview, participants stated they shied away from making comments to others' parts to protect their friendship. When asked how groups members being their friends affected their writing, they mentioned no effect regarding their friendship. Number II remarked on the matter: "I don't think closeness affected much. Maybe we'd fail to write that much with strangers or get riled up to argue more fiercely. Or, the opposite, when one of us stated an idea the others would keep quiet, saying nothing (about the argument)" When asked about the participant numbers in groups, they found four to be ideal, stating fewer people could not interact to generate different ideas and more people would make it hard to reach an agreement.

Given the 2nd group F2F video recordings, it was noteworthy that participant VII stood out while number VI mostly advocated VII's ideas. Although number V and VIII frequently participated with their ideas in the process, it seemed that other two participants were more dominant. However, each member shared their opinion, contributing to the text. In the interview, members regarded the group as harmonious concerning group dynamics. Number VII explained this as: "Harmony in the group is more about character. Other than friendship, for example, I have many common tastes with VI. When we want to add something, we both get excited very much. What we like rarely differs. Being on the same page together made things easier." Regarding disagreements, groups members remarked that objections did not cause any problems, highlighting the appropriateness of the language used in communication. Number VIII addressed it as: "This was also nice in our group: There was no bad-mouthing when something was disliked. Nobody was reproachful, everyone spoke supportively. Everyone was mild-mannered, good things happened all the time." Regarding the participant number, the group stated that four people were enough since participants could achieve sufficient interaction and it did not cause idea complicity. However, participant VII suggested that

three of five members would be more suitable because odd numbers would prove advantageous in voting in case of disagreements. When they were asked about the inclusion of a stranger in the group, group members thought there would not be enough interaction, causing problems with uncertainty about what to expect in case of criticizing/rejecting the stranger.

4. Conclusion and Discussion

Based on the results obtained in this study, the findings suggest that online collaborative texts were more successful than F2F texts. In the meantime, students found Padlet texts more successful, underlining the many advantages offered by the online environment. Dominance of success obtained by online texts showed similarities with studies emphasizing the success that various applications (e.g., wikis, Google Docs and Padlet) added to collaborative writing (Baker, 2000; Elola & Oskoz, 2010; Jeong, 2016; Passig & Schwartz, 2007; Wang, 2015).

Participants in both groups gave their best to employ all the stages of process-based writing in both environments. Both groups reported challenges in finalizing the texts due to the hardship caused by the necessity to finish up in one session during F2F practice. Reasons for the failure in achieving sufficient success were as follow: physical and mental fatigue at the final stage due to the obligation to finish the text in one session, complexity of addressing overwhelming number of ideas simultaneously, and potential problems with finding compromise in F2F disagreements. Given that online practice offered more time, that individuals could prepare for evaluating different ideas and that distance enabled more leveled discussion, Padlet and similar digital collaborative writing applications could find solutions for aforementioned disadvantages. As opposed to this, as Tekobbe, Lazcano-Pry and Roen (2012) suggested, participants stated that they disengaged from the order and direction of discussion while offline, and they had difficulties synchronizing after the additions and changes made by other members. This way, the synchronized group interaction in F2F collaborative writing was advantageous.

In addition to providing flexibility in time and space in online collaboration in this study, it was remarked that shareability of distinctive stimulants, such as video, image and audio increased writing achievement. A variety of research in the literature confirmed that online collaborative activities proved advantageous for writing achievement (Awaluddin, Karim & Saad, 2017; Alshalan, 2016; Bikowski & Vithanage, 2016; Garnham, Betts & Hole, 2018; Ramachandiran, & Mahmud, 2018)

Regarding group interaction, although both groups were comprised of close friends, writing processes and group interactions differed in nature. 2nd group members experienced a fruitful writing process and group interaction; however, facing a disagreement during F2F collaboration, the 1st group had a problematic collaboration. This disagreement affected their online writing process, leading to cooperative writing instead of collaborative on Padlet to avoid potential disagreements. It is stated that shared labor that decreases interaction is not a genuine collaborative writing, and all members should actively participate in design and development (Hadjerrouit, 2011). The assumptions for the inability to obtain collaboration in the 1st group could be explained by imbalance in leader-team player distribution defined by Arnold, Ducate and Kost (2012) as four student types, or the gender factor as explained by Scanlon (2000). Concerning both groups' online writings, the findings showed that participants were more positive toward the process; therefore, collaboratively writing students preferred Padlet while cooperative students preferred F2F.

Several studies confirm that Padlet provides adequate social interaction, removing communication barriers (DeWitt, Alias & Siraj, 2015; Ellis, 2015; Fisher, 2017; Fuchs, 2014). However, although groups' Padlet scores were higher in this study, members stated that they needed F2F collaboration or an instant messaging application besides Padlet. On this aspect, the result of this research does not align with aforementioned studies. Moreover, it was stated that participants chose WhatsApp because they did not want some of their comments to be viewed publicly. This can be explained by what Fuchs (2014) remarked for Padlet in terms of lack of anonymity. Similar participant reservations could be observed in Jeong's (2006) collaborative writing study on Google Docs and Baker's (2000) tool-based technology research. On the contrary to other research,

some participants in the study expressed reservations over making change and criticism of Padlet due to not knowing what type of reaction they would have in return.

Given the groups' comments on writing processes, it was revealed that 2nd group students focused more on harmony and social interaction in the writing process, while the 1st group made achievement-based comments. Upon reviewing the literature, online writing activities mostly involved process-oriented actions, perspectives and comments rather than the achievement of writing product, which is proximal to the perspective of 2nd group students (DeWitt, Alias & Siraj, 2015; Ellis, 2015; Fisher, 2017; Fuchs, 2014; Hadjerrouit, 2011; Kessler & Bikowski, 2010; Lowe & Humphrey, 2018). Based on this, positive group interaction, democratic participant and contribution of each member should all be highlighted for online collaborative writing activities.

Providing longer writing duration, recursive additions and editing, and a self-paced nature in online text production contribute to text revision and mistake correction. Thus, web environment promotes flexibility through online time and spatial opportunities and student autonomy (Kessler & Bikowski, 2010). Online collaborative writing can offer a more non-linear writing process. It can be suggested that online collaborative writing is more advantageous in employing process-based writing.

Implementing basic language skills online requires a certain set of skills for the use of digital technologies. Although participants in this study had no prior experience of Padlet use, they were able to use the application both mobile and on computers. This result differed from the findings of the studies conducted by Awaludin, Karim and Saad (2017) and Brodahl, Hadjerrouit and Hansen (2011). The main reason for this outcome is that students participating in this study were familiar with internet applications. Digital literacy skills, as well as the competence required by the research, are effective for such studies to succeed (Özdemir & Açıık, 2019).

Students generally favor digital environments over pen-and-paper for writing since it is easy to write orderly in digital environments and mistakes are more easily corrected. Based on F2F videos, it was seen that students first decided who should write with pen-and-paper, generally assigning one person for the writing. On the other hand, they favored touch screens over keyboards in online writing. They rationalized it, stating they were more familiar with touch screens due to frequent texting. Mangen et al. (2015) and Frangou et al. (2019) stated that the contribution of touchpads to certain cognitive skills is correlated with experience. However, this study revealed that hand-writing was found most beneficial over keyboard and touch-screen. On another note, only two participants remarked the contribution of hand-writing to cognitive skills, while other participants did not mention such detail.

When students' perspectives of writing environments were asked, the findings showed that the 1st group experiencing problems in collaborative writing preferred F2F, while the 2nd group deemed Padlet more preferable. The reasons given by participants for preferring online writing both individually and collaboratively coincides with the research of Elola and Oskoz (2010). However, all the students favoring F2F collaborative writing here, parallel to Ellis' (2015) results, underlined Padlet's contributions to the collaborative and writing process even if they did not prefer it.

Concerning creativity, participants remarked that they could be more creative on online texts. The literature often addresses collaborative writing on Padlet as improving creativity (DeWitt, Alias & Siraj, 2015, Ramachandiran, & Mahmud, 2018; Garnham, Betts & Hole, 2018). Drawing on the data of this study, the relationship between writing on Padlet and creativity can be explained on two points. Firstly, participants stated that they could generate creative ideas and organize them in their time allocated for thinking. Secondly, Padlet made contributions to creative ideas and text development by allowing image and music sharing.

5. Recommendations and Limitations

In this research, peers who knew each other were selected and groups were assigned without any consideration for gender. However, future online collaborative writing research can investigate the effects of gender. In online activities, cooperative and collaborative terms should be differentiated. Especially for group interaction and the amount of contribution of group members, methods best suited for certain situations

should be looked into. In an online collaborative writing context, special research on the effect of multimedia constituents on creativity can be conducted. In this research, it was seen that internet collaboration was appropriate for a process-based writing activity and also its effects on the success in genre-based and process-genre-based writing activities. Given student interaction in internet-based collaborative writing, these interaction types (vocal/written/visual) could be specially investigated in terms of affecting the writing process and text level.

This study was limited in the sense of comparing groups' written products as it focused on the process and perceptions of the participants. Since the present study was conducted with a small number of participants, additional comparative studies with larger groups and quantitative design can provide complementary data for the results of this study to provide valuable insights into the relevant literature.

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