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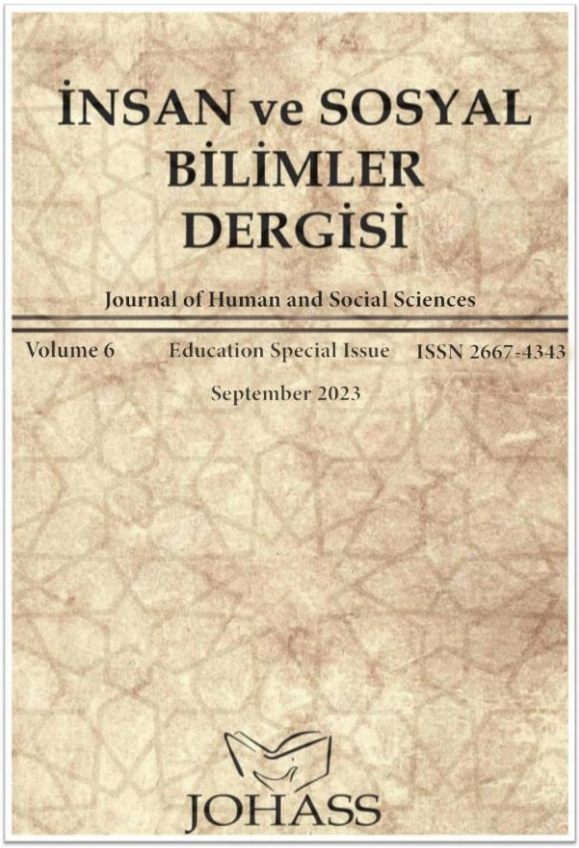

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Determination of Critical Thinking Dispositions and Communication Skills of Gifted Middle School Students

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Abstract

The purpose of the study is to determine the critical thinking dispositions and communication skills of gifted students, and to investigate whether these students' critical thinking dispositions and communication skills vary significantly by some demographic variables. This study used the descriptive survey model. The sample, which was determined by using maximum variation sampling, consists of 326 gifted students attending BİLSEMs. To collect data, the "California Critical Thinking Disposition Inventory", the "Communication Skills Evaluation Scale" with "Information Form" were used. In the analysis, descriptive statistics, t-test, ANOVA and correlation analysis techniques were employed. It was seen that the critical thinking level of the students is medium and communication skills level is high. Their critical thinking does not vary significantly by the variables of gender, birth order, grade level and family type. However, their level of critical thinking was determined to vary significantly by the variables of the number of siblings and mother's/father's education level. Their communication skills vary significantly by the variables of gender, grade level, mother's/father's education level and the number of siblings but does not vary significantly by the variables of birth order and family type.

Keywords: Critical thinking disposition, communication skill, middle school, BİLSEM

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Introduction

The desire for acceptance in their peer groups is an important issue for children's self-esteem. Communication is one of the ways that allow individuals to know and express themselves and understand others, enabling them to share their thoughts and ideas with others (Tutar, Erdönmez & Yılmaz, 2003). Communication is the transfer of all kinds of feelings, thoughts, information and meaning between people through signs such as symbols, gestures and mimics (Özkök, 1982). The social goal of communication is the sharing of certain common experiences by the people who make up the society, the transfer of cultural characteristics from one generation to the next and the teaching of social duties. The individual goal is to be able to express oneself and acquire new knowledge and abilities (Çağdaş, 2004).

According to Cüceloğlu (1993), for human beings, who consist of emotions, the exchange of emotions between each other occurs through communication. Individuals with strong language skills are considered to have an advantage in establishing effective communication. However, it is known that exceptionally gifted individuals, who can learn more accurately and faster in a shorter time than their typically developing peers in terms of speaking and language acquisition, may experience difficulties in using their communication skills (Koç, 2015; Helt et al., 2008). Gifted children may experience communication conflicts with their surroundings due to their inherent curiosity, which leads them to persistently pursue subjects that interest them. This leads them to ask questions that require detailed and profound answers (Davis & Rimm, 1998). Gifted children's attitudes towards different situations they encounter and factors such as their social environment also influence their social and emotional experiences as they interact with the outer world (Schmitz & Galbraith, 1991).

Therefore, in order to establish a qualified and contemporary education system that meets the needs of the era, there is a need for a common understanding, advanced consciousness and high-level working performance, all of which require effective communication (Yaman, 2019). One of the most challenging issues for gifted students is their inability to establish healthy communication with their peers. The self-concept and development in their talent area of gifted children are more advanced than their peers, which makes it challenging for them to fit in with their own age group and makes communication more difficult (Enç, 1973). Contrary to the common impression that gifted students are socially different and strange, less healthy and have limited interests, these individuals are

more harmonious, physically healthy and can easily use higher-level thinking skills (Steiner & Carr, 2003). Ataman (2009) states that gifted students demonstrate characteristics such as engaging in detailed discussions, being highly curious, asking numerous questions, conducting research, making accurate observations, proposing innovative ideas, generating and developing unconventional projects, enjoying learning new information, being enthusiastic and excited when accessing data, being comfortable with complexity, and being able to critically think, in short, they exhibit the ability to think critically and use knowledge in different contexts.

There are some skills that are given great importance in education and shown among the 21st century skills. The most important of these skills are described as thinking skills and gathered under four headings as problem solving, decision making, critical and creative thinking skills by Costa (2001). Communication skills, which are among the skills of the 21st century, are learned behaviours that enable the individual to be in a satisfactory relationship with other people by using respect and empathy effectively, claiming their rights without belittling others and listening in an effective way and in this way, help the individual to easily be a part of the society (Yüksel-Şahin, 1998). Critical thinking is an affective progression that involves enabling multi-faceted criticism, applying objective and systematic approaches, making analyses in different situations (Akınoğlu, 2001). Through critical thinking, which includes inquiry, comprehensive thinking, independent thinking and restructuring, individuals can identify problems, find solutions, evaluate alternative solutions, examine the objectivity of decisions while considering all the details and act independently with free thinking (Ming-Lee Wen, 1999). Critical thinking is the process of evaluating and examining information using different criteria each time and arriving at an explanation and decision, instead of simply accepting the knowledge at face value as it is read or seen (Semerci, 2000). Gifted children are said to be individuals who internalize their thoughts by questioning them, systematically investigate the true information by seeking the causes of the problems they encounter, possess self-confidence, openness to change and have intellectual maturity (Ertaş, Kılıç & Şen, 2014). Critical thinking is considered as another dimension of thinking, where the individual engages in a comparable and reflective thinking process (Ennis, 1987). In today's society, it is aimed to train individuals who have the ability to think critically, who can make decisions, who have strong communication skills, who can solve problems, who are sensitive to current problems and who can produce solutions, who can work collaboratively, and who can transfer the knowledge they have learned to others (Fer & Cırık, 2007). Baloğlu

(2004); In his study, which aimed to determine the situation of high and low achieving students in terms of critical thinking, he concluded that there was a difference in the critical thinking scale scores of high achieving students compared to low achieving students in favor of high achieving students.

One of the education institutions established in Turkey for gifted students to develop 21st century skills and enhance their talents and advanced thinking abilities outside formal education, while also providing opportunities for them to interact with peers who share similar interests, is Science and Art Centers (BİLSEMs). BİLSEMs are educational institutions that aim to help gifted students become aware of their inherent talents, support the development of these talents and foster their scientific creativity (Ministry of National Education [MNE], 2017). The biggest advantage of BİLSEMs for gifted children is that they do not isolate themselves from their friends. Students who come to BİLSEM, being aware of their own abilities, develop themselves in line with their abilities and have the opportunity to produce products, and grow up as individuals with high awareness and integrated with the society (Dönmez, 2004). Contrary to the common belief that gifted students are socially different and strange, less healthy and have limited interests, these individuals are more adaptable, physically healthy and able to use their higher-order thinking skills easily (Steiner & Carr, 2003). The development of communication skills as well as critical thinking skills will enable the student to become aware of wrong and biased behaviours (Kökdemir, 2000).

In the literature, there are limited studies on gifted students' communication skills and critical thinking dispositions. Linn and Shore (2008) showed that gifted students are more successful than their normally developing peers in behaviours that require critical thinking skills. Boran (2016) determined that critical thinking dispositions of graduate students are at a high level. A different study concluded that the use of critical thinking skills by gifted students increased significantly with the implementation of a differentiated curriculum (Atalay, 2014). Karakuş (2010) found that gifted students have advanced cognitive awareness and critical thinking skills. Kirmit et al. (2018) found that gifted middle school female students' critical thinking abilities are lower than those of gifted middle school male students. Iman (2017) revealed that discussion and debate significantly contribute to gifted children's success in critical thinking and speaking skills. Alfarah (2016) found statistically significant differences according to gender and student level in his study investigating the effect of gender and student level on the acquisition of communication skills of gifted students in Jordan. Milligan (2004), in her study in which she applied a program to develop the

leadership qualities of specially talented individuals, concluded that verbal communication skills, which are one of the basic principles of leadership, increased significantly. In their study, McCollister and Sayler (2010) concluded that teachers offering critical thinking to gifted students according to their interests and learning styles increased the intellectual and academic development of gifted students. Dixon, Prater, Vine, Wark, Williams, Hanchon, and Shobe (2004) found in their study that when the Dixon and Hegel method, which encourages gifted students to think critically, is used continuously in classroom activities, gifted students who have the ability to make connections in all activities and work at high levels of thinking are able to achieve higher levels of thinking. They concluded that it improved the critical thinking skills that they were naturally good at.

Purpose of the Study

Critical thinking and communication skills are recognized by educators as vital skills required for being an expert of many school subjects (Yusuf & Adeoye, 2012). As a result of the review of the literature, it has been understood that the studies on the determination of the communication and critical thinking skills of gifted students and the variables that affect these skills are limited. In addition, it is thought that determining whether critical thinking dispositions are significantly correlated with communication skills in gifted students is important in terms of helping to update the curricula used in BİLSEMs. In this study, unlike other studies, we tried to include independent variables that are likely to have an impact and a few that are rarely encountered in the literature. One of these variables, the birth cycle, affects the originality of this product due to its impact on both critical thinking and the dissemination of communication. Sulloway (2001) states that birth order affects the strategies used in the competitive relationship between siblings and that the inequality created by the age difference has an impact on the entire personality. In this context, it can be said that this study aiming to determine the communication skills and critical thinking dispositions of gifted middle school students, is important because of its contributions to the literature. It is aimed to investigate the critical thinking dispositions and communication skills of BİLSEM students (middle school) in relation to the variables of gender, birth order, grade level, number of siblings, mother's/father's education level and family type. In this connection, the main problem statement of this study is "Is there a significant correlation between gifted students' critical thinking dispositions and communication skills?". Below are given the sub-problems;

1. What are gifted middle school students' level of critical thinking dispositions and communication skills?
2. Do critical thinking dispositions and communication skills of gifted students vary significantly by gender?
3. Do critical thinking dispositions and communication skills of gifted students vary significantly by birth order?
4. Do critical thinking dispositions and communication skills of gifted students vary significantly by grade level?
5. Do critical thinking dispositions and communication skills of gifted students vary significantly by mother's education level?
6. Do critical thinking dispositions and communication skills of gifted students vary significantly by the number of siblings?
7. Do critical thinking dispositions and communication skills of gifted students vary significantly by father's education level?
8. Do critical thinking dispositions and communication skills of gifted students vary significantly by family type?
9. Is there a significant correlation between the critical thinking dispositions and communication skills of gifted middle school students?

Method

The study was designed in line with the relational survey model, one of the descriptive survey models within quantitative research types. Relational survey is a survey approach used to reveal the existence of co-variance between more than one variable (Büyüköztürk et al., 2020). In essence, it is an attempt to investigate whether different variables change together (Creswell, 2012).

Sample and Population

The population of the study is comprised of gifted middle school students who are enrolled in BILSEMs (Science and Art Centers) located in six different provinces categorized into three different levels of socio-economic development according to the socio-economic development report by the Ministry of Industry and Trade in the 2022-2023 school year (Ministry of Industry and Trade, 2023). The participants were selected by using the maximum

variation method. In this way a total of 326 students (162 females and 164 males) were selected from the population. The communication skills that gifted students living at different socioeconomic levels learn through experience and develop in response to the different situations they are exposed to will be different, and the intellectual experiential experiences they will encounter due to the differences in socioeconomic levels will also be different, affecting the development of individuals' thinking skills. BİLSEMs located there were selected. The primary purpose of using the maximum variation sampling method is to reveal similarities or differences, patterns among various situations relevant to the research purpose and to express the problem in a broader context (Büyüköztürk et al., 2020).

Table 1

Demographic Characteristics of The Participants

Variables	**Characteristic**	**N**	**%**
Gender	Female	162	49.7
	Male	164	50.3
Birth order	First child	33	10.1
	Second child	184	56.4
	Third child	190	33.4
Grade level	Fifth grade	127	39.0
	Sixth grade	105	32.2
	Seventh grade	94	28.8
Mother's education level	Primary school	7	2.1
	Middle school	8	2.5
	High school	79	24.2
	Bachelor's	163	50.0
	Master's	57	17.5
	Doctoral	12	3.7
Number of siblings	Single child	38	11.7
	One sibling	132	40.5
	Two siblings	97	29.8
	Three siblings	59	18.1
Father's education level	Primary school	2	0.6
	Middle school	2	0.6
	High school	36	11.0
	Bachelor's	207	63.5
	Master's	66	20.2
	Doctoral	13	4.0
Family type	Single-parent family	26	8.0
	Two-parent family	300	92.0

Table 1 shows that 49.7% of the participants are female and 50.3% are male and 10.1% of them are first child, 56.4% are second child and 33.4% are third child.

Data Collection Tools

A "Student Information Form", the "California Critical Thinking Disposition Inventory" and the "Communication Skills Evaluation Scale" were used to collect data.

To determine the demographic characteristics of the gifted students, the researchers prepared a student information form. By using the student information form, it was aimed to collect information about their demographic characteristics.

The second measurement tool used in the current study is the California Critical Thinking Disposition Inventory (CCTDI). It was developed by Facione, Facione and Giancarlo (1998) and was adapted to Turkish by Kökdemir (2003) and in the study of adapting the test to Turkish, for the original inventory, the Cronbach Alpha reliability coefficient was determined to be 0.88. The inventory is a 6-point Likert scale having 51 items. In the study of adapting the inventory to Turkish, the internal consistency (alpha) coefficient of the analyticity subscale of the inventory was .75, the internal consistency (alpha) coefficient of the open-mindedness subscale was .75, the internal consistency (alpha) coefficient of the curiosity subscale was .76, self-confidence subscale internal consistency (alpha) coefficient was .77, the internal consistency (alpha) coefficient of the truth-seeking subscale was .61 and the internal consistency (alpha) coefficient of the systematicity subscale was found to be .63. The sub-dimensions of CCTDI, the explanations of the sub-dimensions and the item numbers are shown in Table 2.

Table 2

Sub-Dimensions of CCTDI and The Item Numbers in The Sub-Dimensions

Truth-seeking: It is the ability of an individual to review alternatives or different ideas, search for truth, ask questions, and demonstrate objective behaviours even in situations contrary to their personal beliefs. This dimension consists of a total of 7 items (Items 6, 11, 20, 25, 27, 28, 49).
Open-mindedness: It refers to the individual's ability to show tolerance towards different situations and be sensitive to his/her own mistakes. In this context, the person takes into account the opinions of other people while reaching a judgment. This dimension consists of 12 items (Items 5, 7, 15, 18, 22, 33, 36, 41, 43, 45, 47, 50).
Inquisitiveness: It shows the enthusiasm of the individual to learn new thoughts and to acquire different perspectives without any personal interest. This dimension consists of a total of 9 items (Items 1, 8, 30, 31, 32, 34, 38, 42, 46).
Confidence in reasoning: It shows the confidence that the individual feels in the situations of presenting individual ideas. This dimension consists of a total of seven items (Items 14, 29, 35, 39, 44, 48, 51)

Analyticity: It refers to the state of being cautious in the event of a problem and using the objective traces and reasoning even in the face of difficult situations. This dimension consists of a total of ten items (Items 2, 3, 12, 13, 16, 17, 24, 26, 37, 40)
Systematicity: It is the state of systematically, programmatically and cautiously solving problems. This dimension consists of a total of six items (Items 4, 9, 10, 19, 11, 23)

The third data collection tool employed in the current study is the Communication Skills Evaluation Scale (CSES). It was developed by Korkut (1996) and adapted to Turkish by Köksal and Çöğmen. CSES is a five-point Likert scale consisted of a single dimension and 23 items. There is no reverse coded item in the scale. In the original scale, the Cronbach Alpha coefficient was determined to be .88, indicating that the scale has enough reliability. In this study, the Cronbach Alpha reliability coefficient is .86.

Collection of Data and Analysis

The data were first transferred to digital environment and analyzed in the SPSS.20 Statistics program package. The critical thinking dispositions and communication skills of the gifted middle school students were determined by using descriptive statistical methods. A normality test was carried out in order to reveal whether the data distributed normally. Skewness and Kurtosis values were used for the normality analysis of the groups. The skewness values of CCTDI were found to be between 0.21 and 0.14 and the kurtosis values of the inventory were found to be between 1.26 and -0.27 while the skewness values of the Communication Skills Evaluation Scale were found to be between 0.38 and 0.14 and the kurtosis values of the scale were found to be between 0.08 and 1.27. When the skewness and kurtosis values fall within the range of -1.5 - +1.5, the data are considered to exhibit a normal distribution (Tabachnick & Fidel, 2013).

In CCTDI, the positive items are scored as follows: “1=Strongly Disagree”, “2=Disagree”, “3=Partially Disagree”, “4=Partially Agree”, “5=Agree” and “&=Strongly Agree”. On the other hand, for negative items, the scoring is reversed during calculations. The scale was considered as a whole, and it can be stated that students with scores smaller than 240 demonstrate a low level of critical thinking disposition, while students with scores exceeding 300 demonstrate a high level of critical thinking disposition. Whether the students’ critical thinking dispositions varied significantly by gender and family type were examined using an independent groups t-test analysis, while significant differences based on grade level,

parental education level, number of siblings and birth order were determined using ANOVA test.

In CSES used to measure the communication skills of the gifted middle school students, the items are scored as follows: "1=Never", "2=Rarely", "3=Sometimes", "4=Often" and "5=Always". The total score to be taken from the scale ranges from 25 to 125 and students scoring between 25 and 58 can be considered to have low-level communication skills, those scoring between 59 and 91 can be categorized as having medium-level communication skills, while students scoring between 92 and 125 can be considered to have high-level communication skills. The homogeneity of the groups was determined using the Levene test, and the significance of the differences in students' communication skills based on gender and family type was analyzed using an independent samples t-test while the potential significant differences based on grade level, parental education level, number of siblings and birth order were examined using the One-Way ANOVA test.

Pearson Correlation analysis was run to uncover the correlation between the critical thinking dispositions and communication skills of the gifted students.

Compliance with Ethical Standard

Ethical permissions were taken with the final decision of Tokat Gaziosmanpaşa University Social and Human Sciences Research Ethics Committee's meeting dated 16/05/2023, the session number is 08, the decision number is 01-54 and the decision is 08.32.

Findings

The findings obtained as a result of the analyses run for the sub-problems are given in tables according to the order of the sub-problems.

The first sub-problem of the study is about the determination the level of the critical thinking dispositions and communication skills of the gifted students. The results of the descriptive analysis carried out to this end are shown in Table 3.

Table 3

The Means and Standard Deviations of The Gifted Students' Critical Thinking Dispositions and Communication Skills

	LOW		**MEDIUM**		**HIGH**		**X̄**	**S**
	N	%	N	%	N	%		
Critical Thinking Dispositions	0	0	312	95.7	14	4.3	2.04	.20
Communication Skills	2	.6	141	43.3	183	56.1	86.53	13.09

When examined in terms of critical thinking, the arithmetic mean of the gifted middle school students is 2.04, with a standard deviation of 0.20. Furthermore, the gifted students were found to have a critical thinking disposition at a rate of 0% in the low level, 95.7% in the medium level, and 4.3% in the high level. In other words, the gifted middle school students were found to have a medium level of critical thinking disposition across the scale. When examined in terms of communication skills, the gifted middle school students have an arithmetic mean of 86.53 with a standard deviation of 13.09. Furthermore, the gifted students were found to have communication skills at a rate of 0.6% in the low level, 43.3% in the medium level and 56.1% in the high level. In other words, the gifted middle school students generally possess communication skills at a high level.

The results of the t-test analysis run to find an answer to the sub-problem "Do critical thinking dispositions and communication skills of gifted students vary significantly by gender?" are presented in Table 4.

Table 4

Results of The T-Test Analysis Run to Analyse Whether The Gifted Students' Critical Thinking Dispositions and Communication Skills Vary Significantly by Gender

	Gender	**N**	**X̄**	**S**	**t**	**p**
Critical Thinking Dispositions	Female	162	191.71	19.31	1.05	.29
	Male	164	189.33	21.40		
Communication Skills	Female	162	88.36	13.32	2.53	**.01**
	Male	164	84.71	12.62		

As shown in Table 4, the gifted students' critical thinking dispositions do not vary significantly by gender [t(324) = 1.05, p>0.05]. The mean critical thinking disposition score of the female students ($\bar{X}$: 191.71) is higher than that of the male students ($\bar{X}$: 189.33). As seen in Table 4, the communication skills of the gifted middle school students vary significantly by on gender [t(324) = 2.53 p< .05]. The mean communication skill score of the female students ($\bar{X}$:88.36) is higher than that of the male students ($\bar{X}$: 84.71).

The third sub-problem is "Do gifted students' critical thinking dispositions and communication skills vary significantly by birth order?". Before proceeding to the analysis stage, the homogeneity of variances was tested using the Levene test (sig > .05). As a homogenous distribution was found, ANOVA was conducted. The results of the ANOVA run to investigate whether the differences are statistically significant or not are shown in Table 5.

Table 5

Results of The ANOVA Test Run to Determine Whether The Critical Thinking Dispositions and Communication Skills of The Gifted Students Vary Significantly by Birth Order

Scales	Whole Scale	Sum of squares	Sd	Mean square	F	p
Critical Thinking Dispositions	Between-Groups	219.363	2	109.682	.26	.76
	Within-Groups	135030.026	323	418.050		
	Total	135246.390	325			
Communication Skills	Between-Groups	638.22	2	319.11	1.87	.15
	Within-Groups	550013.02	323	170.31		
	Total	55651.25	325			

Table 5 shows that the critical thinking dispositions of the gifted students do not vary significantly by birth order [$F_{(2\ -323)=}$ 0.26 p>.05]. In other words, birth order does not significantly affect critical thinking dispositions. As seen in Table 5, the communication skills of the gifted students do not vary significantly by birth order [$F_{(2\text{-}323)=}$ 1.87, p>.05]. In other words, birth order does not significantly affect communication skills.

The fourth sub-problem is "Do gifted students' critical thinking dispositions and communication skills vary significantly depending on grade level?". Before proceeding to the analysis stage, the homogeneity of variances was tested using the Levene test (sig > .05), and it was determined that there was a homogenous distribution and ANOVA was conducted. The results of the ANOVA are presented in Table 6.

Table 6

Results of The ANOVA Test Run to Investigate Whether The Critical Thinking Dispositions and Communication Skills of The Gifted Students Vary Significantly by Grade Level

	Whole Scale	Sum of squares	Sd	Mean square	F	p
Critical Thinking Dispositions	Between-Groups	1096.339	2	548.16	1.32	.26
	Within-Groups	134153.05	323	415.33		
	Total	135249.39	325			
Communication Skills	Between-Groups	3620.54	2	1810.271	11.24	.00
	Within-Groups	52030.77	323	161.08		
	Total	55651.25	325			

Table 6 shows that the critical thinking dispositions of the gifted students do not vary significantly by grade level [$F_{(2–323)=}$ 1.32, p>.05]. Grade level does not affect significantly critical thinking dispositions. Similarly, grade level does not significantly affect the communication skills of the gifted students [$F(_{2\text{-}323)=}$ 11.24 p<.05].

The fifth sub-problem is "Do gifted students' critical thinking dispositions and communication skills vary significantly by mother's education level?". Before proceeding to the analysis stage, the homogeneity of variances was tested using the Levene test (sig > .05), and it was determined that there was a homogenous distribution and ANOVA was conducted. The results of ANOVA run to investigate whether the differences in arithmetic means are statistically significant or not are shown in Table 7.

Table 7

Results of The ANOVA Test Run to Investigate Whether The Critical Thinking Dispositions and Communication Skills of The Gifted Students Vary Significantly by Mother's Education Level

		Whole Scale	Sum of squares	Sd	Mean square	F	p
Critical Thinking Dispositions		Between-Groups	7691.48	5	1538.29	3.85	.002
		Within-Groups	127557.90	320	398.61		
		Total	135249.39	325			

Communication Skills	Between-Groups	2882.07	5	576.41	3.49	.00
	Within-Groups	52769.175	320	164.904		
	Total	55651.252	325			

Based on the data presented in Table 7, it is evident that the critical thinking dispositions of gifted students show notable variations depending on the educational level of their mothers [$F_{(5\text{-}320)=}$ 3.85, p<.05]. To investigate the origin of this difference, researchers conducted the Scheffe test, revealing a statistically significant distinction in favour of the students whose mothers hold a master's degree over those whose mothers possess a bachelor's degree. Similarly, the communication skills of the gifted students were also found to vary significantly by mother's education level [$F_{(5\text{-}320)=}$ 3.49, p<.05]. To identify the cause of this distinction, researchers employed the Scheffe test, which demonstrated a statistically significant difference in favour of the students whose mothers have a doctoral degree compared to those whose mothers have completed middle school.

The sixth sub-problem is "Do critical thinking dispositions and communication skills of gifted students vary significantly by the number of siblings?". The homogeneity of group variances was tested using the Levene test, and according to the test results, it was determined that the group variances exhibited homogenous distribution. Then ANOVA was conducted and the results are presented in Table 8.

Table 8

Results of the ANOVA Test Run to Investigate Whether The Critical Thinking Dispositions and Communication Skills of The Gifted Students Vary Significantly by The Number of Siblings

	Whole Scale	**Sum of squares**	**Sd**	**Mean square**	**F**	**p**
Critical Thinking Dispositions	Between-Groups	7501.65	3	2500.55	6.30	.00
	Within-Groups	127747.73	322	396.73		
	Total	135249.39	325			
Communication Skills	Between-Groups	2087.91	3	695.96	4.18	.00
	Within-Groups	53563.34	323	166.34		
	Total	55651.252	325			

Table 8 shows that the critical thinking dispositions [$F_{(3-322)=}$ 6.30, p<.05] and communication skills [$F_{(3-323)=}$ 4.18, p<.05] of the gifted students vary significantly depending on the number of siblings. In other words, the number of siblings significantly affects the critical thinking dispositions and communication skills of the gifted students. The Scheffe test was conducted to find the source of this difference, and a significant difference was found between the gifted students who are the single child in the family and the gifted students who have 2 or more siblings in favour of the students having 2 or more siblings. In the communication skills, a significant difference was found between the gifted children having 2 siblings and the gifted children having 3 siblings in favour the gifted children having 2 siblings.

The seventh sub-problem is "Do gifted students' critical thinking dispositions and communication skills vary significantly by father's education level?". The homogeneity of group variances was tested using the Levene test, and according to the test results, it was determined that the group variances exhibited homogenous distribution. Then ANOVA was conducted, and the results are presented in Table 9.

Table 9

Results of The ANOVA Test Run to Investigate Whether The Critical Thinking Dispositions And Communication Skills of The Gifted Students Vary Significantly by Father's Education Level

	Whole Scale	**Sum of squares**	**Sd**	**Mean square**	**F**	**p**
Critical Thinking Dispositions	Between-Groups	7138.45	5	1427.69	3.56	.00
	Within-Groups	128110.935	320	400.34		
	Total	135249.39	325			
Communication Skills	Between-Groups	5935.07	5	1187.01	7.64	.00
	Within-Groups	49716.14	320	155.36		
	Total	55651.25	325			

The data from Table 9 indicate that there are significant differences in the critical thinking dispositions and communication skills of the gifted students on the basis of the education level of their fathers [$F_{(5-320)}$ 3.56, p<.05]; [$F_{(5-320)=}$ 7.64, p<.05]. The Scheffe test was conducted to find the source of this difference, and the critical thinking dispositions of the students whose fathers have undergraduate education level were found to be significantly

higher than those whose fathers' education level is graduate. In the communications skills, a significant difference was found between the gifted students whose fathers hold a doctoral degree or a bachelor's degree and the gifted students whose fathers are high school graduates in favour of the students whose fathers hold a doctoral or bachelor's degree.

The eighth sub-problem is "Do critical thinking dispositions and communication skills of gifted students vary significantly depending on family type?". The results of the t-test conducted are shown in Table 10.

Table 10

The Arithmetic Means and Standard Deviations of The Gifted Students' Critical Thinking Dispositions and Communication Skills in Relation to Family Type

	Family Type	**N**	**X̄**	**S**	**t**	**p**
Critical Thinking Dispositions	Two-parent family	300	190.23	19.297	-.59	.56
	Single-parent family	26	193.85	30.724		
Communication Skills	Two-parent family	300	86.60	13.21	.41	.68
	Single-parent family	26	85.61	11.65		

As seen in Table 10, the critical thinking dispositions of the gifted students do not vary significantly by family type [t(324) = -.59 p>.05]. The mean critical thinking score of the gifted students having a single-parent family (X̄: 193.85) is higher than that of the students having a two-parent family (X̄:190.23). As seen in Table 10, the communication skills of the gifted students do not vary significantly by family type [t(324) =0.41, p> .05]. Moreover, the mean communication skill score of the gifted students having a two-parent family (X̄: 86.60) is higher than that of the students having a single-parent family (X̄: 85.61). This may indicate that family type does not a significant effect on the communication skills of the gifted students.

The ninth sub-problem is "Is there a significant correlation between the critical thinking dispositions and communication skills of gifted middle school students?". To find an answer to this question, a Pearson Correlation analysis was performed on the data set, which showed a normal distribution. The results of the analysis are given in Table 11.

Table 11

Results of The Pearson Correlation Analysis Conducted to Determine Whether There is A Significant Correlation Between The Critical Thinking Dispositions and Communication Skills of The Gifted Students

Scales	N	$\bar{X}$	S	r	p
Critical Thinking Disposition Scale	326	190.52	20.40	.40	.00
Communication Skills Evaluation Scale	326	86.53	13.09		

Table 11 shows that there is a positive, weak and significant correlation between critical thinking dispositions and communication skills of the gifted students (r= .40; p< .01).

Discussion and Results

The critical thinking dispositions and communication skills of the gifted middle school fifth, sixth and seventh grade students were investigated in relation to some demographic characteristics.

It was found that the students' critical thinking dispositions are at a medium level. Socioeconomic level and environmental factors are among the factors that affect the critical thinking skills of gifted students at a medium level. In the relevant literature, results similar to that of the current study have been reported. Görücü (2014) found that the critical thinking level of gifted middle school students is medium. However, Demir (2006), Karabacak (2011), Yıldız (2011) and Usta (2019) found that gifted middle school students have a high level of critical thinking. Akar and Kara (2020) concluded that primary school fourth grade students have good critical thinking attitudes.

In the current study, it was observed that the variable of gender had no statistically significant effect on the critical thinking dispositions of the gifted students. In the relevant literature, some studies indicate that there is no gender-based difference in the critical thinking skills of gifted middle school students (Narin and Ayberk 2010; Açıkgöz and Ayrancı, 2011; Vierra 2014). In some studies, however it has been reported that female gifted middle school students have better critical thinking dispositions than their male counterparts (Akıllı, 2012; Çağlayan Öztürk, 2013; Altan, 2020). Demirkaya and Çakar (2012) stated that when evaluated in terms of critical thinking abilities, female students were found to be more

skilled than male students, indicating a significant difference based on gender. Similarly, Rudd, Baker, et al. (2000) reported a significant difference in favour of girls.

In the current study, the variable of birth order was found to have no significant effect on the critical thinking dispositions of the gifted students. Aşkar (2015) also stated that birth order is not a variable influential on critical thinking. Karanfil (2014) conducted a study examining sports high school and physical education students and concluded that birth order did not lead to a significant difference in the level of critical thinking.

In the current study, it was discovered that the variable of grade level had no statistically significant effect on the critical thinking dispositions of the gifted students. Some studies in the literature have also reported that grade level does not create a significant difference (Ay and Akgöl, 2008; Kahraman, 2008). There are some other studies reporting different results. Bayındır (2015) found that among gifted middle school students, students at the 6th-grade level have a higher level of critical thinking disposition compared to students at the 7th-grade level. In another study, İncirkuş (2021) found that there is an increase in critical thinking with increasing grade level. Dayı (2011) revealed a significant correlation between critical thinking and grade level.

In the current study, the variable of mother's education level was found to have a significant effect on the critical thinking dispositions of the gifted students. The reason for the significant effect of mother's education level on the critical thinking dispositions is believed to be that as mothers' education level increases, they approach their children with a more critical perspective in their relationship and communication. Görücü (2014), Özgün (2019), and Usta (2019) stated in their studies that mother's education level causes a significant differentiation in critical thinking. According to Ural and Sağlam (2011), mother's education level also creates a significant difference. In other studies, in the literature, it has been determined mother's education level is not a significant variable influential on the critical thinking dispositions of gifted middle school students (Akıllı, 2012; Ocak and Kutlu-Kalender, 2016; Ekinci, 2009; Kuzu, 2015; Yıldırım and Şensoy, 2017; Yüksekbilgili, 2019).

Furthermore, the current study uncovered a significant variation in the critical thinking dispositions of gifted middle school students based on the number of siblings they have. Similarly, Döner (2020) reached the conclusion that student groups who are the only child and the groups who have one sibling have a higher critical thinking disposition compared to the student groups having more than one sibling. There are some other studies in the literature in which it has been reported that the number of siblings is not a significant factor in terms of

critical thinking dispositions (Öztürk, 2006; Usta 2019; Özgün, 2019; Yüksekbilgili, 2019). In another study, Mete (2021) reached the conclusion that critical thinking skills are not significantly correlated with the number of siblings. Aşkar (2015) determined that the number of siblings is not a significant factor influential on critical thinking skills in these student groups. Kahraman (2008); on the other hand, stated that as the number of siblings increases, the critical thinking skills level of gifted middle school students decreases.

In the current study, it was established that the educational level of the fathers had a statistically significant effect on the critical thinking dispositions of the gifted students. The reason for finding a significant correlation between father's educational level and critical thinking disposition is believed to be that fathers with higher levels of education tend to approach and communicate with their children with a more critical perspective. Similarly, Oflas (2009) stated that father's educational level creates significant differences in critical thinking skills. In another study, Bal (2011) identified a significant correlation between father's educational level and critical thinking skills. In another study, Özgün (2019) found a significant effect father's educational level on critical thinking skills of gifted middle school students. Contrary to this study's findings, it has been determined that father's education level is not a significant factor influential on the critical thinking skills of gifted students (Yüksekbilgili, 2019; Görücü, 2014; Ekinci, 2009; Kuzu, 2015; Yıldırım and Şensoy, 2017).

The current study revealed that the variable of family type had no statistically significant effect on the critical thinking dispositions of the gifted middle school students. In the relevant literature, there is no research specifically investigating the effect of family type on the critical thinking skills of gifted middle school students. However, there are some studies that have explored the influence of extended family and nuclear family structures on the critical thinking skills of these students. According to Mete (2021), living in a nuclear family or an extended family has no significant impact on the level of critical thinking skills of gifted students.

In the current study, it was revealed that the gifted middle school students have communication skills at a high level. It is believed that individuals having a high level of communication skills will positively affect their achievement and enable them to adopt a more constructive approach to encountered problems. In their study examining primary school students in relation to different variables, Karatekin et al. (2012) found that the students had a high level of communication skills. Similarly, Köksal and Çöğmen (2018),

Özdemir (2006), Schutte (2001) and Tepeköylü et al. (2009) also found that communication skills of gifted students were at a high level.

In the current study, it was observed that the communication skills of the gifted middle school students varied significantly depending on gender. The female students' communications skills were found to be better that those of the male students. This result is believed to be due to differences in the developmental processes between female and male students. Karatekin et al. (2012) and Dalkılıç (2011) found in their studies, where they examined communication skills based on different variables, that gender had an impact on students' communication skills. Kashefian-Naeeini and Sheikhnezami-Naeeini (2020) found in their study on middle school students in Iran that gender created a significant difference in communication skills. Hariyanto, Yamtinah, Sukarmin, Saputro, and Mahardiani (2019) found in their study on students studying in South Tangerang that communication skills varied significantly depending on gender. Büyük (2020) stated that gender created a significant difference in communication skills and found that males had a higher level of communication skills.

In the present study, it was found out that the variable of birth order had no statistically significant effect on the communication skills of the gifted middle school students. Yetişkin (2016) found that being the first child, middle child or last child did not create a significant difference in communication skills among adolescents. However, Baran and Uzak (2021) found in their study, where they examined communication skills of primary school students based on different variables, that birth order had an impact on students' communication skills.

In the present study, the communication skills of the gifted middle school students were found to vary significantly depending on grade level. It is thought that the age factor has an effect on this difference. Köksal and Çöğmen (2018) found in their study on the level of communication skills that the difference between students in the 5th grade and students in the 6th and 7th grades was significant. Akçam (2019) and Yıldırım (2015) found that communication skills varied significantly depending on grade level and that 7th-grade students had significantly higher communication skills compared to students in the 5th and 6th grades. However, Kara et al. (2020) and Kartal (2013) revealed that grade level is not a significant factor affecting communication skills.

In the current study, it was found that the communication skills of the gifted students exhibited significant variations depending on the educational level of their mothers. In

addition, it was revealed in this study that the communication skills of the gifted students whose mothers are middle school graduates and those of the gifted students whose mothers have a doctoral degree are better than those of the other students. Karatekin et al. (2012) revealed a significant difference in favour of the students having mothers who had a bachelor's degree in terms of communication skills. Karakuş (2010) observed that among gifted students, there was a significant difference in favour of the students with mothers who had a bachelor's degree in terms of communication skills. Contrary to these findings, various studies in the literature have concluded that mother's educational level does not influence communication skills (Korkut 1996; Dalkılıç 2006; Gölünü and Karcı 2010). Yetişkin (2016), Bingöl, and Demir (2011) also stated that mother's educational level did not create a significant difference in communication skills. Savaş (2018) reached the conclusion that mother's educational level did not create a statistically significant difference in the communication skills.

In this study, it was observed that the communication skills of gifted middle school students varied significantly depending on the number of siblings they have. In the study conducted by Baran and Uzak (2021) on communication skills, a significant difference was reported in favour of the individuals who have two or more siblings. In another study, Kerr (1991) stated that having two siblings supported communication skills, while having more than two siblings increased the level of conflict. On the other hand, Yetişkin (2016), Kartal (2013), Bingöl, and Demir (2011) reached the conclusion that the number of siblings did not have an impact on communication skills.

In this study, it was discovered that the communication skills of gifted middle school students exhibited significant variations depending on the educational level of their fathers. Karatekin et al. (2012) found that academically gifted students whose fathers had educational levels of high school and university had stronger communication skills. However, in some studies, it has been found that students whose fathers' education levels are lower have better communication skills (Aktuğ, 2010; Bingöl and Demir, 2011; Yıldırım, 2015). Furthermore, there are studies in the literature that show no impact of father's educational level on communication skills (Savaş, 2018; Toy, 2007; Talibzade, 2015).

In the current study, the communication skills of the gifted middle school students were found to not vary significantly depending on family type. Similarly, Yetişkin (2016) found that the marital status of parents did not create a statistically significant difference in communication skills among adolescents. Akçam and Türkyılmaz (2019) found in their study

on communication skills of middle school students that the family variable defined as extended family and nuclear family did not have an impact on students' communication skills. Kartal (2013) examined communication skills in terms of the togetherness of parents and found that whether the parents were together or not did not create a significant difference in communication skills.

In the current study, the correlation between the critical thinking dispositions and communication skills of the gifted middle school students was examined and a positive, weak and significant correlation was found. It could be found that there are some studies parallel to this study in the literature. Köksal and Çöğmen (2018) stated that there is a significant and positive relationship between the communication skills and all sub-dimensions of critical thinking skills of 6th, 7th and 8th grade students studying at the secondary school level.

Recommendations

On the basis of the results, the following can be suggested;

- There is a need for the study to be conducted in other regions of Turkey and tested on different sample groups to obtain more comprehensive results.
- The study was conducted on gifted students in grades 5, 6, and 7. The communication skills and critical thinking dispositions of gifted students from different levels of education can also be evaluated.
- In this study, the communication skills and critical thinking dispositions of gifted students were examined. In addition, the outcomes of different variables (science literacy, scientific process competency, creative thinking skills) can also be investigated.
- To comprehensively evaluate which variables and in what direction influence the critical thinking dispositions of gifted middle school students, other measurement tools can be used and different applications can be conducted.
- For the positive development of critical thinking dispositions and communication skills of gifted middle school students, school lessons should incorporate activities and techniques that focus on critical thinking dispositions and communication skills. By doing so, students can foster their mastery of critical thinking and communication skills for their future experiences.

- Further research can be conducted on the relationship between the number of siblings and critical thinking. Depending on the study group, the number of siblings may be related to the level of critical thinking. It is important to conduct more research to better understand the reasons behind this relationship.

Compliance with Ethical Standard

Ethical permissions were taken with the final decision of Tokat Gaziosmanpaşa University Social and Human Sciences Research Ethics Committee's meeting dated 16/05/2023, the session number is 08, the decision number is 01-54 and the decision is 08.32

References

Açıkgöz-Ayrancı, S. (2011). *İlköğretim öğrencilerinin eleştirel düşünme becerileriyle matematik başarıları arasındaki ilişki* [Yayımlanmamış yüksek lisans tezi]. Ankara Üniversitesi. http://hdl.handle.net/20.500.12575/81989

Akar, C., & Kara, M. (2020). Critical thinking attitude and some other variables in predicting students' democratic attitudes. *International Journal of Contemporary Educational Research, 7*(2), 226-245. https://doi.org/10.33200/ijcer.686662

Akçam, A. (2019). *Ortaokul öğrencilerinin iletişim becerileri ve Türkçe dersine yönelik tutumlarının çeşitli değişkenler açısından incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Kırşehir Ahi Evran Üniversitesi.

Akçam, A. ve Türkyılmaz, M. (2019). Ortaokul Öğrencilerinin İletişim Becerileri Üzerine Bir İnceleme. *International Journal of Language Academy, 7*(4), 64-79. http://dx.doi.org/10.18033/ijla.37417

Akıllı, N. (2012). *İlköğretim sekizinci sınıf öğrencilerinin eleştirel düşünme eğilimleri ve yaratıcılık düzeylerinin değerlendirilmesi* [Yayımlanmamış yüksek lisans tezi]. Kahramanmaraş Sütçü İmam Üniversitesi.

Akınoğlu, O. (2001). *Eleştirel düşünme becerilerini temel alan fen bilgisi öğretiminin öğrenme ürünlerine etkisi* [Yayımlanmamış doktora tezi]. Hacettepe Üniversitesi.

Aktuğ, G. (2010). *Çocuk Eğitim evlerinde Barındırılan Ergenlerin İletişim ve Sosyal Beceri Düzeylerinin İncelenmesi* [Yayımlanmamış yüksek lisans tezi]. Dokuz Eylül Üniversitesi.

Alfarah, Y. F. (2013). Communication skills among gifted students in Jordan, *Gifted and Talented International*, *28*(1), 255-262. https://doi.org/10.1080/15332276.2013.11678420

Altan, G. (2020). *Ortaokul öğrencilerinin eleştirel düşünme becerilerinin bazı demografik özelliklere göre incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Akdeniz Üniversitesi.

Aşkar, A. (2015). *İlkokul ve ortaokul öğretmenlerinin eleştirel düşünme eğilimleri ve bu eğilimleri etkileyen faktörler* [Yayımlanmamış yüksek lisans tezi]. Recep Tayyip Erdoğan Üniversitesi.

Atalay, Z. Ö. (2014). *Farklılaştırılmış sosyal bilgiler öğretiminin üstün zekâlı öğrencilerin akademik başarı, tutum, eleştirel düşünme ve yaratıcılıklarına etkisi* [Yayımlanmamış doktora tezi]. İstanbul Üniversitesi.

Ataman, A. (Ed.). (2009). *Özel Gereksinimli Çocuklar ve Özel Eğitime Giriş* (2. Baskı). Gündüz Eğitim ve Yayıncılık.

Ay Ş. ve Akgöl, H. (2008). Eleştirel düşünme gücü ile cinsiyet, yaş ve sınıf düzeyi. *Kuramsal Eğitimbilim (Journal of Theoretical Educational Science), 1*(2), 65-75. https://dergipark.org.tr/tr/pub/akukeg/issue/29373/314325

Bal, M. (2011). *Okul Öncesi Öğretmenlerinin Problem Çözme Becerileri İle Eleştirel Düşünme Eğilimleri Arasındaki İlişkinin İncelenmesi* [Yayımlanmamış yüksek lisans tezi]. Abant İzzet Baysal Üniversitesi.

Baloğlu, M. (2004). Yüksek ve düşük başarılı öğrencilerin eleştirisel düşünce becerisi puanları açısından farklılıkları. *Sakarya Üniversitesi Eğitim Fakültesi Dergisi, 0*(7), 79-85. https://dergipark.org

Baran, G. ve Uzak, N. (2021). Ergenlerde iletişim becerileri ve problem çözme becerilerinin incelenmesi. *IBAD Sosyal Bilimler Dergisi*, (11), 315-342. https://doi.org/10.21733/ibad.910937

Bayındır, G. (2015*). Critical Thinking Dispositions of Primary School Secondary Stage Students* [Yayımlanmamış yüksek lisans tezi]. Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü.

Baykoç Dönmez, N. (2004). Bilim Sanat Merkezleri'nin kuruluşu ve işleyişinde yapılması gereken düzenlemeler. A. Kulaksızoğlu, A. E. Bilgili ve M. R. Şirin (Ed), *1. Türkiye üstün yetenekli çocuklar kongresi, üstün yetenekli çocuklar bildiriler kitabı* (s. 69–84) içinde. Çocuk Vakfı.

Bingöl, G. ve Demir, A. (2011). Amasya sağlık yüksekokulu öğrencilerinin iletişim becerileri. *Göztepe Tıp Dergisi*, *26*(4), 152-159. doi:10.5222/J.GOZTEPETRH.2011.152

Boran, M. (2016). *Üstün zekâlı ve yetenekli öğrencilerin algılanan problem çözme becerilerinin üstbilişsel farkındalıkları ve eleştirel düşünme eğilimleri açısından incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Mersin Üniversitesi.

Büyük, M. (2020). *Bir grup üniversite öğrencisinin iletişim becerileri ile yaşam doyumları arasındaki ilişkinin değerlendirilmesi* [Yayımlanmamış yüksek lisans tezi]. İstanbul Gelişim Üniversitesi.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş. ve Demirel, F. (2020). *Bilimsel araştırma yöntemleri* (29. Baskı). Pegem Akademi

Çağdaş, A. (2004). İletişimin tanımı, önemi ve iletişim modeli. A. Solak (Ed.), *İnsan Yolunda* (s. 29-50) içinde. Sahara.

Çağlayan Öztürk, Ç. (2013). *Sekizinci sınıf öğrencilerinin bilimsel süreç, eleştirel düşünme ve yaratıcı düşünme becerileri arasındaki ilişkinin incelenmesi* [Yayımlanmamış Doktora Tezi]. Gazi Üniversitesi.

Can Bilgin, H. (2015). *Ortaokul öğrencilerinin bilgisayar oyun bağımlılık düzeyleri ile iletişim becerileri arasındaki ilişki.* [Yayınlanmamış yüksek lisans tezi], Pamukkale Üniversitesi.

Costa, L. A. (Eds). (2001). *Developing Minds: A resource book for teaching thinking*. ASCD.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson Education.

Cüceloğlu, D. (1993). *Yeniden insan insane* (49. Baskı). Remzi.

Dalkılıç, M. (2006). *Lise öğrencilerinin ana-baba ve ergen ilişkilerinde algıladıkları problem çözme ve iletişim becerilerinin bazı değişkenlere göre incelenmesi*. [Yayınlanmamış yüksek lisans tezi]. Ege Üniversitesi.

Dalkılıç, M. (2011). *İlköğretim öğrencilerinin sportif faaliyetlere katılım düzeyi ve iletişim becerileri arasındaki ilişkilerin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Karamanoğlu Mehmet Bey Üniversitesi.

Davis, G. A., & Rimm, S. B. (1998). *Education of the gifted and talented. (4. Eds)*. Allyn and Bacon.

Dayı, B. A. (2011). *Görsel sanatlar dersinde eleştirel düşünme becerilerinin geliştirilmesine yönelik öğrenci tutumları ve öğretmen görüşleri* [Yayımlanmamış yüksek lisans tezi]. Karadeniz Teknik Üniversitesi.

Demir, K. M. (2006). İlköğretim dördüncü ve beşinci sınıf öğrencilerinin sosyal bilgiler derslerinde eleştirel düşünme düzeylerinin çeşitli değişkenler açısından incelenmesi. *Gazi Eğitim Fakültesi Dergisi, 26*(3), 155-169. https://dergipark.org.tr/tr/pub/gefad/issue/6752/90797

Demirkaya, H. ve Çakar, E. (2012). İlköğretim yedinci sınıf öğrencilerinin eleştirel düşünme becerilerinin değişkenlere göre incelenmesi. *Ege Eğitim Dergisi, 13*(2), 33–49. https://dergipark.org.tr/tr/pub/egeefd/issue/4903/67208

Dixon, F. A., Prater, K. A., Vine, H. M., Wark, M. J., Willams, T., Hanchon, T., & Shobe, C. (2004). Teaching to their thinking: a strategy to meet the critical-thinking needs of gifted students. *Journal for the Education of the Gifted, 28*(1), 56–76. https://files.eric.ed.gov/fulltext/EJ682888.pdf

Ekinci, Ö. (2009). *Öğretmen adaylarının empatik ve eleştirel düşünme eğilimlerinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Çukurova Üniversitesi.

Enç, M. (1973). *Üstün beyin gücü* (2. Baskı). Gündüz.

Ennis, R. H. (1987). A taxonomy of critical thinking dispositions and attitudes. In J. B. Baron & R. J. Sternberg (Eds.), *Teaching thinking skills: Theory and practice* (pp. 9–26). Freeman.

Ertaş Kılıç, H. ve Şen, A. İ. (2014). Eleştirel düşünme eğilimi ölçeğini Türkçeye uyarlama çalışması. *Eğitim ve Bilim, 39*(176), 1-12. http://dx.doi.org/10.15390/EB.2014.3632

Eskicumali, A., Kara, N., Arslan, S. ve Uzun, K. (2020). Investigation of communication skills of gifted students in terms of various variables. *The Online Journal of Quality in Higher Education, 7*(1), 43-48. https://www.tojqih.net/journals/tojqih/articles/v07i01/v07i01-02.pdf

Facione, P. A., Facione, N. C., & Giancarlo, C. A. F. (1998). *The California critical thinking disposition inventory*. California Academic.

Fer, S. ve Cırık, İ. (2007). *Yapılandırmacı öğrenme: Kuramdan uygulamaya*. Morpa.

Gölönü, S. ve Karcı, Y. (2010). İletişim meslek lisesi öğrencilerinin iletişim beceri düzeylerinin incelenmesi (Ankara il örneği). *Gazi Üniversitesi İletişim Fakültesi, 0*(31), 123-140. https://dergipark.org.tr/tr/pub/josc/issue/19022/200612

Görücü, E. (2014). *Altıncı, yedinci ve sekizinci sınıf öğrencilerinin okuma alışkanlıkları ile eleştirel düşünme becerileri arasındaki ilişkinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Yeditepe Üniversitesi.

Hariyanto, H., Yamtinah, S., Sukarmin, S., Saputro, S., & Mahardiani, L. (2019). The analysis of student's verbal communication skills by gender in the middle school in South Tangerang. *In AIP Conference Proceedings, 2202*(1), 020064. AIP. https://doi.org/10.1063/1.5141677

Helt, M., Kelly, E., Boorstein, H., Pandey, J., Herbert, M., Kinsbourne, M., & Fein, D.A. (2008). Can children with autism recover? If so, how?, *Neuropsychology Reviews, 18*(4), 339-366. doi: 10.1007/s11065-008-9075-9

Iman, J. N. (2017). Debate ınstruction in EFL Classroom: Impacts on the critical thinking and speaking skill. *International Journal of Instruction, 10*(4), 87-108. https://doi.org/10.12973/iji.2017.1046a

İncirkuş, A. F. (2021). Ortaokul öğrencilerinin Türkçe dersinde eleştirel düşünme becerilerinin çeşitli değişkenlere göre incelenmesi. *Cumhuriyet Uluslararası Eğitim Dergisi*, *10*(3), e-ISSN: 2147-1606.

Kadakal Dölek, A. (2015). *Üniversite öğrencilerinin iletişim becerilerinin farklı değişkenler açısından incelenmesi [*Yayımlanmamış Yüksek Lisans Tezi]. Atatürk Üniversitesi.

Kahraman, T. (2008). *İlköğretim 4. ve 5. sınıf öğrencilerinin eleştirel düşünme becerileri ile öğrenci algılarına göre öğretmenlerin sınıf içi demokratik davranış düzeyleri arasındaki ilişkilerin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Marmara Üniversitesi.

Karabacak, H. (2011). *İlköğretim öğrencilerinin eleştirel düşünme becerileri ve beşinci sınıf öğrencilerinin eleştirel düşünme düzey* [Yayımlanmamış yüksek lisans tezi]. Atatürk Üniversitesi.

Karakuş, F. (2010). Üstün yetenekli çocukların anne babalarının karşılaştıkları güçlükler. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, *6*(1), 127-144. https://dergipark.org.tr/tr/pub/mersinefd/issue/17373/181423

Karanfil, A. Y. (2014). *Beden eğitimi ve spor yüksekokulu öğrencilerinin eleştirel düşünme düzeylerinin çeşitli demografik faktörler açısından incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Muğla Sıtkı Koçman Üniversitesi.

Karatekin, K., Sönmez, F. Ö. ve Kuş, Z. (2012). İlköğretim öğrencilerinin iletişim becerilerinin çeşitli değişkenler açısından incelenmesi. *International Periodical for The Languages, Literature and History of Turkish or Turkic*, *7*(3), 1695-1708. http://openaccess.ahievran.edu.tr/xmlui/bitstream/handle/20.500.12513/390/karatekin%2C%20kadir.pdf?sequence=1&isAllowed=y

Karcı, Y. (2011). İletişim meslek lisesi öğrencilerinin empatik iletişim beceri düzeylerinin incelenmesi: Ankara il örneği. *Selçuk Üniversitesi İletişim Fakültesi Akademik Dergisi*, *6*(4), 155-167. https://dergipark.org.tr/tr/pub/josc/issue/19022/200612

Kartal, M. A. (2013). *Ortaöğretim öğrencilerinin bazı değişkenlere göre öznel iyi oluş ve iletişim beceri düzeyleri* [Yayımlanmamış yüksek lisans tezi]. Ondokuz Mayıs Üniversitesi.

Kashefian-Naeeini, S., & Sheikhnezami-Naeini, Z. (2020). Communication skills among school masters of different gender in Shiraz, Iran. *International Journal of Advanced Science and Technology*, *29*(2), 1607-1611. http://sersc.org/journals/index.php/IJAST/article/view/3405

Kerr, M. (1991). Background factors predicting teacher ratings of children performance. *Social Study of Behavioral Development*, *5*(2), 17-25. https://eric.ed.gov/?id=ED360053

Kılıç, H. E. ve Şen, A. İ. (2014). UF/EMI eleştirel düşünme eğilimi ölçeğini Türkçeye uyarlama çalışması. *Eğitim ve Bilim*, *39*(176), 1-12. http://dx.doi.org/10.15390/EB.2014.3632

Kirmit, Ş., Dönmez, İ. ve Çataltaş, H. E. (2018). Üstün yetenekli öğrencilerin bilgisayarca düşünme becerilerinin incelenmesi. *Bilim, Teknoloji, Mühendislik, Matematik ve Sanat Eğitimi Dergisi*, *2*(1), 17-26. https://dergipark.org.tr/tr/pub/steam/issue/42077/476833

Koç, İ. (2015). Bilim ve sanat merkezi'ne devam eden özel yetenekli öğrencilerin iletişim becerileriyle ilgili görüşleri. *Üstün Yetenekliler Eğitimi Araştırmaları Dergisi*, *1*(3), 39-53. https://dergipark.org.tr/tr/pub/jgedc/issue/38699/449380

Kökdemir, D. (2000). *Denizyıldızlarını kurtarmaya çalışanların öyküsü: Eleştirel ve yaratıcı düşünme* (Bildiri Sunumu). XI. Ulusal Psikoloji Kongresi, 19-22 Eylül, Ege Üniversitesi.

Kökdemir, D. (2003). *Belirsizlik durumlarında karar verme ve problem çözme* [Yayımlanmamış doktora tezi]. Ankara Üniversitesi.

Köksal, N. ve Çöğmen, S. (2018). Ortaokulların eleştirel düşünme ve iletişim becerileri. *Pamukkale Üniversitesi Eğitim Fakültesi Dergisi (PAU Journal of Education), 44*(44), 278-296. doi:10.9779/PUJE.2018.2018.

Korkut, F. (1996). İletişim becerileri eğitiminin lise öğrencilerinin iletişim becerilerini değerlendirmelerine etkisi. *3P Dergisi, 4*(3) 191-198. https://search.trdizin.gov.tr/tr/yayin/detay/41529/iletisim-becerileri-egitiminin-lise-ogrencilerinin-iletisim-becerilerini-degerlendirilmelerine-etkisi

Kuzu, Y. (2015). *Öğretmen adaylarının problem çözme becerileri ile eleştirel düşünme eğilimleri arasındaki ilişkinin incelenmesi (Ahi Evran Üniversitesi örneği)* [Yayımlanmamış yüksek lisans tezi]. Ahi Evran Üniversitesi.

McCollister, K. & Sayler, M., F. (2010). Increase rigor with critical thinking skills. *Gifted Child Today, 33*(1), 41-47. https://doi.org/10.1177/107621751003300110

Mete, G. (2021). Ortaokul öğrencilerinin eleştirel düşünme becerilerinin incelenmesi. *Ana Dili Eğitimi Dergisi, 9*(2), 492-509. https://doi.org/10.16916/aded.887592

Milligan, J. (2004). Leadership skills of gifted students in a rural setting: promising programs for leadership development. *The Rural Special Education Quarterly,* 23(1), 3-7. https://doi.org/10.1177/875687050402300104

Ming-Lee Wen, S. (1999). Critical thinking and professionalism at the university level. *Paper Presented at the British Educational Research Association Conference,* University of Sussex, at Brighton, 2–5 September.

Ministry of Industry and Trade, (2023). *Sosyo-ekonomik gelişmişlik sıralaması araştırmaları (SEGE).* https://www.sanayi.gov.tr/merkez-birimi/b94224510b7b/sege

Ministry of National Education [MNE], (2017). *2017-2018 Science and art centers student diagnostic guide.* https://orgm.meb.gov.tr/meb_iys_dosyalar/2017_10/28150742_2017-2018_bilsem_tanilama_kilavuzu.pdf

Moloko Mphale, L., & Mhlauli, M. B. (2014). An investigation on students' academic performance for junior secondary schools in Botswana. *European Journal of Educatıonal Research*, *3*(3), 111- 127. https://doi.org/10.12973/eu-jer.3.3.111

Narin, N. ve Ayberk, B. (2010). İlköğretim ikinci kademe sosyal bilgiler öğretmenlerinin eleştirel düşünme becerilerinin incelenmesi. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 19*(1), 336-350. https://dergipark.org.tr/tr/pub/cusosbil/issue/4383/60175

Ocak, İ. ve Kutlu Kalender, M. (2016). 6. sınıf öğrencilerinin eleştirel düşünme becerilerinin çeşitli değişkenler açısından incelenmesi (Kütahya ili örneği). *Kastamonu Eğitim Dergisi*, *25*(4), 1587-1600. https://dergipark.org.tr/tr/pub/kefdergi/issue/30766/332515

Oflas, E. (2009). *İlköğretim öğrencilerinde eleştirel düşünme becerisi düzeyinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Yüzüncü Yıl Üniversitesi.

Ökte, M. (2001). *Ergenlerde içe dönüklük-dışa dönüklük kişilik özelliği ile aile işlevleri arasındaki ilişkiler* [Yayımlanmamış yüksek lisans tezi]. Dokuz Eylül Üniversitesi.

Özdemir, A. (2006). *Üstün yetenekli öğrencilerin duygusal zekâ düzeylerinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Yeditepe Üniversitesi.

Özgün, A. (2019). *Sosyal bilgiler öğretmen adaylarının eleştirel düşünme eğilimlerinin demokratik tutumlarına etkisinin çeşitli değişkenler açısından değerlendirilmesi* [Yayımlanmamış yüksek lisans tezi]. Hacı Bektaş Veli Üniversitesi.

Özkök, E. (1982). *Sanat, İletişim ve İktidar* (1. Baskı) Tan Kitap.

Öztürk, Ç. (2013). *İlköğretim sekizinci sınıf öğrencilerinin bilimsel süreç, eleştirel düşünme ve yaratıcı düşünme becerileri arasındaki ilişkinin incelenmesi* [Yayımlanmamış doktora tezi]. Gazi Üniversitesi.

Öztürk, N. (2006). *Hemşirelik öğrencilerinin eleştirel düşünme düzeyleri ve eleştirel düşünmeyi etkileyen faktörler* [Yayımlanmamış yüksek lisans tezi]. Cumhuriyet Üniversitesi.

Plucker, J. & Callahan, C. (Eds.). (2008). *Critical issues and practices in gifted education.* Prufrock.

Rudd, R., Baker, M., & Hoover, T. (2000). Undergraduate agricultural student learning styles and critical thinking abilities: Is there a relationship?, *Journal of Agricultural Education*, *41*(3), 2-12. https://doi.org/10.5032/jae.2000.03002

Savaş, İ. (2018). *Eğitim fakültesi öğrencilerinin iletişim becerilerinin çeşitli değişkenler açısından incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Uludağ Üniversitesi.

Saysal Araz, Z. (2013). *İlköğretim 4. ve 5. sınıf öğrencilerinin fen ve teknoloji okuryazarlık düzeyleri ile eleştirel düşünme düzeyleri arasındaki ilişki* [Yayımlanmamış yüksek lisans tezi]. Kocatepe Üniversitesi.

Schmitz, C. C., & Galbraith, J. (1991). *Managing the social and emotional needs of the gifted*. Hawker Brownlow Education.

Schutte, N. S., Malouff, J. M., Bobik, C., Coston, T. D., Greeson, C., Jedlicka, C., Rhodes, E., & Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *Journal of Social Psychology*, *141*(4), 523-536. https://doi.org/10.1080/00224540109600569

Semerci, N. (2000). *Kritik düşünmenin mikro öğretim dersinde eleştiri becerisini geliştirmeye etkisi* [Yayımlanmamış doktora tezi]. Fırat Üniversitesi.

Steiner, H., & Carr, M. (2003). Cognitive development in gifted children: Toward a more precise understanding of emerging differences in intelligence. *Educational Psychology Review*, *15*(3), 215–246.

Sulloway, F. J. (2001). Birth Order, sibling competition, and human behavior. In: conceptual challenges in evolutionary psychology. Springer.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics*. Pearson.

Talıbzade, N. (2015). *Boşanmış ve evli ebeveyne sahip olan ergenlerin iletişim becerilerinin karşılaştırılması* [Yayımlanmamış yüksek lisans tezi]. Fatih Üniversitesi.

Tepeköylü, Ö., Soytürk, M. ve Çamlıyer, H. (2009). Beden eğitimi ve spor yüksekokulu (besyo) öğrencilerinin iletişim becerisi algılarının bazı değişkenler açısından incelenmesi. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi*, *7*(3), 115-124. https://doi.org/10.1501/Sporm_0000000160

Toy, S. (2007). *Mühendislik ve hukuk fakülteleri öğrencilerinin iletişim becerileri açısından karşılaştırılması ve iletişim becerileriyle bazı değişkenler arasındaki ilişkiler* [Yayımlanmamış yüksek lisans tezi]. Ankara Üniversitesi.

Tutar, H., Erdönmez, C. ve Yılmaz, K. (2003). *Genel ve Teknik İletişim* (2. Baskı). Nobel.

Ural, S. N. ve Sağlam, H. İ. (2011). İlköğretim öğrencilerinin demokratik tutum düzeylerinin bazı değişkenler açısından incelenmesi. *Değerler Eğitimi Dergisi*, *9*(22), 161-180. https://dergipark.org.tr/tr/pub/ded/issue/29178/312450

Usta, M. (2019). *Sınıf öğretmenleri ve ilkokul 4. sınıf öğrencilerinin okuma-anlama düzeyleri ve eleştirel düşünme becerilerinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Necmettin Erbakan Üniversitesi.

Vierra, R. W. (2014). *Critical thinking: Assessing the relationship with academic achievement and demographic factors* [Unpublished Doctoral Dissertation]. University of Minnesota.

Yaman, Y. ve Emir, S. (2019). Beyin temelli öğretimin özel yetenekli öğrencilerin yaratıcılıklarına ve eleştirel düşünmelerine etkisi. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi*, *19*(1), 414-427. https://doi.org/10.17240/aibuefd.2019.19.43815-443881

Yetişkin, G. (2016). *Ergenlerde iletişim becerileri ve utangaçlık arasındaki ilişkinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Beykent Üniversitesi.

Yıldırım Döner, S. (2020). *Ortaokul öğrencilerinin eleştirel düşünme eğilimleri ile okuma becerileri arasındaki ilişki* [Yayımlanmamış yüksek lisans tezi]. Fırat Üniversitesi.

Yıldırım, F. (2015). *Fen lisesi ve spor lisesi öğrencilerinin iletişim becerilerinin incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Fırat Üniversitesi.

Yıldırım, H. İ. ve Şensoy, Ö. (2017). Fen bilgisi öğretmen adaylarının eleştirel düşünme eğilimlerinin bazı değişkenlere göre incelenmesi. *Gazi Üniversitesi Gazi Eğitim Fakültesi Dergisi, 37*(2), 611-648. https://dergipark.org.tr/tr/pub/gefad/issue/30949/335356

Yıldız, N. (2011). *İlköğretim altıncı sınıf öğrencilerinin fen ve teknoloji dersinde eleştirel düşünme düzeylerinin çeşitli değişkenler açısından incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Selçuk Üniversitesi.

Yüksekbilgili, B. (2019). *İlköğretim 4. sınıf öğrencilerinin eleştirel düşünme becerileri ile matematik başarılarının incelenmesi* [Yayımlanmamış yüksek lisans tezi]. Gaziantep Üniversitesi.

Yüksel Şahin, F. (1998). Grupla iletişim becerileri eğitiminin üniversite öğrencilerinin iletişim beceri düzeylerine etkisi. *Eğitim ve Bilim*, *22*(110), 12-19. http://egitimvebilim.ted.org.tr/index.php/EB/article/view/5351/1507

Yusuf, F. A., & Adeoye, E. A. (2012). Developing critical thinking and communication skills in students: Implications for practice in education. *Journal /African Research Review, 6*(1), 311-324. https://doi.org/10.4314/afrrev.v6i1.26