

An Investigation of Primary School Students' Critical Thinking Dispositions and Decision-Making Skills

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The aim of this study is to determine the relationship between 3rd and 4th-grade primary school students' critical thinking dispositions and decision-making skills. The participants in this study consist of 3rd and 4th-grade students studying in a primary school in Istanbul, Turkey, and a total of 749 students participated. The correlational design, one of the quantitative research designs, was used in the study. The Critical Thinking Disposition Scale for Primary School Students and the Decision-Making Skills Scale for Primary School Students were used as data collection tools. An independent sample t-test was conducted to examine the scales according to variables such as gender and grade level. One-Way Analysis of Variance (ANOVA) was applied to examine the scale scores according to the educational status of the parents. Finally, Simple Linear Regression Analysis was performed to examine the relationship between the scales. The results showed that primary school students' critical thinking disposition level was higher than the mean score, and their decision-making skills were average. Also, it was found that primary school students' critical thinking dispositions predicted their decision-making skills.

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Keywords: Primary school; critical thinking; decision-making

INTRODUCTION

The need for critical thinking and decision-making is fundamental for the future of individuals or society (Geyer, 2006). Therefore, in the past, societies needed individuals who could make rational decisions, display behaviors aiming at improving social conditions, and think independently and critically (Rothstein and Jacobsen, 2009; Wagner, 2008). With the entry of the 21st century, the importance of developing children's critical thinking and decision-making skills has increased because of the need to acquire new knowledge, comprehension, reasoning, and evaluation skills necessary for individuals to take part in the workforce in the modern world can only be met under these conditions.

Studies conducted in education aim to reveal teaching practices that enable students to acquire basic skills such as critical thinking and decision-making necessary to succeed in their society (Giroux, 2003). Although the students try to gain critical thinking and decision-making skills through research, education systems do not allow this much. The fact that education systems rely on standardized evaluation processes to determine academic achievement (Snyder & Snyder, 2008) is an essential obstacle for education systems not to gain basic thinking skills (Wagner, 2008). Because of all these adverse effects, many educators argue that teaching practices that focus on critical thinking and decision-making skills, which are necessary for lifelong success in the modern world, should be brought back into classroom teaching (Abrami et al., 2008).

Different variables, such as the mother's education level, socioeconomic status, gender, and so on, are effective in developing thinking skills in addition to formal education. Mothers with a high level of education provide better environments for their children and thus play an essential role in their cognitive and physical development (Cui, Liu, & Zhao, 2019). The effects of gender on thinking skills, on the other hand, are also discussed. Some studies, for example, have found that gender has an impact (Kürüm, 2002; Şen, 2009), while others have not (Yıldırım, 2005; Beşoluk, & Önder, 2010). At the same time, these variables are interconnected. For example, it has been stated that the family's socioeconomic status may influence mothers' interest in their children's educational lives (Shin, Jahng, & Kim, 2019).

Critical thinking

Although critical thinking is directly associated with 21st-century skills, its roots date back to Ancient Greek civilization. For example, Socrates used an approach called the "Socratic method" or "Socratic questioning," which is still used as a critical thinking teaching strategy today (Paul, Elder, & Bartell, 1997). In its most basic form, critical thinking has been defined as "reasonable reflective thinking focused on deciding what to believe or do" (Ennis, 1987, p. 10). In another definition, it is expressed as a skill that includes taking control of one's thoughts and actions using different methods to achieve the same results (NCSS, 2010). Critical thinking skills include iterative and cyclical activities such as problem-solving, developing hypotheses, calculating probabilities, and making decisions. In addition to its actions, critical thinking involves both

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thinking skills and metacognitive criticism; therefore, adaptive problem solvers are likely to be the best critical thinkers (Stanton, Wong, Gore, Sevdalis & Strub, 2011).

The American Philosophical Association (APA), considering that the variety and complexity of definitions of critical thinking creates a lack of clarity and accuracy that makes it challenging to develop a valid critical thinking assessment tool or effective critical thinking curricula, commissioned Facione to conduct a Delphi study to express a consensus, clear and correct conceptualization of critical thinking (Facione, 1990). After two years of study, 46 critical thinkers from various disciplines agreed on the following interdisciplinary conceptual definition of critical thinking (Facione, 1990, p. 2): "Critical thinking is a purposeful, self-organizing judgment that results in interpretation, analysis, evaluation, and inference; it is also a description of the evidential, conceptual, methodological, criterion-based or contextual assessment upon which that judgment is built."

Critical thinking has recently received considerable attention, especially in education (Halpern and Williams 2008). Although research shows that critical thinking can be learned and developed (Tiwari et al., 2006), it can also be suppressed if educational environments are not conducive to developing critical thinking skills. It is also argued that critical thinking skills, a teachable and learnable ability gained as a result of effective teaching, can be transferred to new situations and conditions (Sternberg, 2008).

Interest in developing critical thinking has increased rapidly since the 21st century to become the most important criterion for evaluating school curriculum outcomes (Klein, 2011). In addition, Stedman and Adams (2012) stated that critical thinking is the primary core life skill and central to mental and practical skills, and they determined that teachers and school curriculum should work together to encourage students' thinking. In addition, Costa (2008) and Howie (2011) emphasized the importance of embedding student critical thinking skills within the school curriculum to enable students to solve personal and societal problems and thus become more productive and influential citizens. Primary school years are a critical period when the development of students for 21st-century competencies required to become responsible citizens appropriate for the age is largely shaped (Stallones, 2004). Through critical thinking, primary school students can reason at a higher level and develop their analytical abilities, but for this, they need to be able to relate to their daily lives (Elder & Paul, 2002).

Decision-making

One of the most important thinking skills that individuals should have is the ability to make decisions. We make decisions that will guide our lives at every stage of our daily life. These decisions affect both ourselves and our environment. Although there are different definitions for decision-making skill, in the most general sense, it can be described as choosing between alternatives (Greenbank, 2010). Decision-making involves a series of decisions, such as observing data, verifying observed data, making inferences, and taking action to achieve desired results (Lauri & Salanterä, 2002).

People make various decisions on a daily basis, starting from a very young age (Mettas, 2011). Decision-making skills, which have an important place in all areas of life, should be gained, especially from an early age (Cenkseven, 2012). It is emphasized that individuals with high decision-making skills and who are satisfied with their decisions have high life satisfaction (Cenkseven, 2012). However, not having the ability to make decisions at an early age will cause different behavioral problems, such as risky and erroneous decision-making in the later stages of life. Therefore, children with weak decision-making skills should be identified, and these skills should be developed, so they do not experience decision-making problems later in their later years (Weller et al., 2014).

Decision-making skills are related to other thinking processes. The decision-making process includes various thinking skills, such as critical, creative, analytical, and dialectical thinking (Nardi & Galler, 1985). These form the basis for students to make better decisions by using their critical thinking skills in the decision-making processes (Engle, 2003). Developing cognitive skills such as critical thinking and decision-making in primary school will help students succeed in various important areas, such as meeting their expectations in their future lives and solving social problems (Klein, 2011).

Decision-making and critical thinking

Societies need independent thinkers who are educated, able to make decisions, and think critically (Rothstein & Jacobsen, 2009; Wagner, 2008). Schools worldwide are reforming their primary school curricula to improve students' critical thinking and decision-making abilities by using different teaching strategies and learning techniques (Burke, Williams, & Skinner, 2007). In addition to the classroom environment and the role of teachers, society, family's educational status, and socioeconomic level significantly impact the development of students' thinking skills (Bataineh & Alazzi, 2009). Students' critical thinking and decision-making skills can be enriched if classroom teachers associate course content with real-life experiences (Stallones, 2004).

Students can make logical judgments to the extent that they can think critically in a complex real-life context (Reynolds, 2011). On the other hand, their critical thinking skills can develop when they make decisions by understanding and reasoning the information they have obtained (Kompf & Bond, 2001). From this point of view, it is possible to discuss a bidirectional relationship between critical thinking and decision-making skills. It can be seen that sub-dimensions such as problem-solving, decision-making, reflection, and making smart predictions, which are presented within the framework of the definition of critical thinking, also indicate this relationship (Moore, 2009).

Several educators argue that the fact that education systems that focus on high-risk tests restrict the objectives of education to only testable competencies negatively affects the efficiency and quality of education (Rothstein & Jacobsen, 2009; Snyder & Snyder, 2008). Therefore, it is believed that the need to teach critical thinking and decision-making skills necessary for lifelong achievement should be returned to primary schools (Abrami et al., 2008). When we examine the studies in which decision-making and critical thinking skills are discussed, we see that the studies are generally carried out at higher education and higher levels (E.g., Smith, 2003; Plummer, Kebritchi, Leary, & Halverson, 2022). In addition, it has been determined that studies that employ critical thinking and decision-making skills are usually conducted in the field of health (e.g., Hoffman & Elwin, 2003; Hicks, Merritt & Elstein, 2003; Reji & Sushma, 2022). Therefore, it is considered necessary that this research is carried out at the primary school level and in the field of education. This study aims to investigate primary school students' critical thinking dispositions and decision-making skills with different variables (gender, grade level, having their own room, and parents' education level). In addition, the other purpose of this study is to determine how much critical thinking dispositions predict decision-making skills. The following research questions are answered:

1. What are the primary school student's critical thinking disposition scores?
2. What are the primary school student's decision-making scores?
3. Do primary school students' scores on critical thinking disposition significantly predict their decision-making skills?

METHOD

This study examined the relationship between 3rd and 4th-grade primary school students' critical thinking dispositions and decision-making skills. Therefore, the correlational design, one of the quantitative research designs, was used in the study. Correlational design is a type of research used to explain whether there is a relationship between two or more measurable variables and, if so, to what extent (Gay, Mills, & Airasian, 2012). In this study, it was examined whether the critical thinking dispositions of primary school 3rd and 4th-grade students affect their decision-making skills, and if so, to what extent. In addition, students' critical thinking dispositions and decision-making skills were also examined according to variables including gender, student having his/her bedroom, family education level, and grade level.

Participants

The participants in this study consist of 3rd and 4th-grade students studying in a primary school in Istanbul, Turkey. A total of 749 students participated in this study, and 14.4% of the students participating in the research are 3rd-grade students and 85.6% are 4th-grade students. As regards the genders of the students, 51.5% were female and 48.5% were male students. Statistical information regarding the distribution of the participants by gender, grade level, and the number of siblings is shown in Table 1

Table 1. Participants by some variables

Variable type		n	%
Gender	Male	363	48.5
	Female	386	51.5
Grade level	3 rd grade	108	14.4
	4 th grade	641	85.6
Number of siblings	None	64	8.5
	1	239	31.9
	2	196	26.2
	3 or more	247	33.0

Data collection

The Critical Thinking Disposition Scale for Primary School Students and the Decision-Making Skills Scale for Primary School Students were used as data collection tools in the research.

Critical thinking disposition scale for primary school students

The "Critical Thinking Disposition Scale" developed by Uluçınar and Akar (2021) was used in this study. The scale is a four-point Likert design (Never, Sometimes, Usually, Always) measurement tool consisting of 18 items. The scale score range varies between 18 and 72. According to the data collected within the scope of this research, the Cronbach α coefficient of the scale was determined as .85.

Decision-making skills scale for primary school students

Another scale used in the research was the "Decision Making Skills Scale for Primary School Students". The scale developed by Sever and Ersoy (2019) consists of 15 items and has a single factor. The scale is a four-point Likert type (Never, Sometimes, Usually, Always), and the score range is between 15 and 60. According to the data collected within the scope of this research, the Cronbach α coefficient of the scale was determined as .79.

Data Analysis

Before deciding on the procedures to be used in data analysis, the normality distributions of the data were examined. The normality distributions of the data are shown in Table 2.

Table 2. Normality Distributions

	Kurtosis	Skewness
Critical Thinking Tendencies	.052	-.170
Decision Making Skills	.160	.121

When Table 2 is examined, the kurtosis and skewness value of the Critical Thinking Dispositions Scale for Primary School Students is (.052, -.170), and the kurtosis and skewness value of the Decision-Making Scale for Primary School Students is (.160, .121). According to these results, since the values obtained for both scales were in the range of -1.5+1.5 (Tabachnick & Fidell, 2013), it was determined that they showed a normal distribution. In this direction, an independent sample t-test was conducted to examine the scales according to variables such as gender and grade level. One-Way Analysis of Variance (ANOVA) was applied to investigate the scale scores according to the educational status of the parents. Finally, Simple Linear Regression Analysis was performed to examine the relationship between the scales.

Ethical Considerations

All procedures used in the study involving human subjects followed ethical guidelines. The research met the respective institution's ethics/human subject criteria when the data was obtained. To ensure each participant's voluntary participation in the research procedure, informed consent was obtained. The data sets are kept in open university repositories. The data created and analyzed during the current investigation are anonymized and may be obtained from the corresponding author upon request.

FINDINGS

The findings regarding the critical thinking dispositions and decision-making skills of primary school students are given in Table 3.

Table 3. n, X and SD Values of Critical Thinking Dispositions and Decision-Making Skills Scales

Scales	<i>n</i>	<i>X</i>	<i>SS</i>
Critical Thinking Dispositions	749	50.52	9.72
Decision Making Skills	749	37.82	8.23

When Table 3 is examined, the arithmetic mean of primary school students' Critical Thinking Disposition scale total scores is 50.52, and the arithmetic mean of the Decision-Making Skill Scale total scores is 37.82. This shows that primary school students' critical thinking dispositions and decision-making skills are higher than the mean scores.

Table 4. T-Test Results of Critical Thinking Dispositions and Decision-Making Skills Scale Scores by Gender

Scales	Gender	<i>n</i>	<i>X</i>	<i>SS</i>	<i>t</i>	<i>P</i>
Critical Thinking Dispositions	Male	363	56.69	10.15	-2.66	.024
	Female	386	51.23	9.25		
Decision-Making Skills	Male	363	37.80	8.58	-.48	.962
	Female	386	37.84	7.90		

In Table 4, the participants' critical thinking disposition scores and decision-making skill scores according to the gender variable were compared with the t-test. When the analysis results are examined, there is a statistically significant difference between gender and critical thinking dispositions ($t=-2.66, p<.05$), and this difference are in favor of male students. In addition, there is no statistically significant difference between the gender variable and decision-making skills ($t=-.962, p>.05$).

Table 5. T-Test Results of Critical Thinking Dispositions and Decision-Making Skills Scale Scores by Grade Level Variable

Scales	Grade	<i>n</i>	<i>X</i>	<i>SS</i>	<i>t</i>	<i>p</i>
Critical Thinking Dispositions	3rd	108	46.37	9.54	-4.87	.00
	4th	641	51.22	9.59		
Decision-Making Skills	3rd	108	35.02	7.96	-3.86	.00
	4th	641	38.30	8.19		

In Table 5, the participants' critical thinking disposition scores and decision-making skills according to the grade level were compared with the t-test. The result shows a statistically significant difference between the grade level and critical thinking skills ($t=-4.55, p<.05$) in favor of the 4th-grade students. In addition, there is a statistically significant difference between grade level and decision-making skills ($t=-3.80, p<.05$) in favor of 4th-grade students.

Table 6. T-Test Results of Critical Thinking Dispositions and Decision-Making Skills Scale Scores According to the Variable of Own Room

Scales	Own Room	<i>n</i>	<i>X</i>	<i>SS</i>	<i>t</i>	<i>P</i>
Critical Thinking Dispositions	Yes	346	50.47	9.78	-.12	.902
	No	402	50.56	9.69		
Decision-Making Skills	Yes	346	37.39	8.42	-.67	.166
	No	402	38.23	8.04		

In Table 6, the critical thinking disposition scores and decision-making skills scores of participants were compared with the t-test according to the variable of students having their own room. The result shows that there is no statistically significant difference between the participants having their room and their critical thinking disposition ($t=-.12, p>.00$) and decision-making skills ($t=-.67, p>.00$).

Table 7. One-Way Analysis of Variance (ANOVA) Results of Critical Thinking Dispositions and Decision-Making Skills Scale Scores by Mother Educational Status Variable

<i>n, X, and SS Values</i>			<i>ANOVA Results</i>							
Subscale	Education Status	<i>n</i>	<i>X</i>	<i>SS</i>	Var. K.	K.T.	SD	K.O.	F	<i>p</i>
Critical Thinking Dispositions	Illiterate	131	49.29	10.23	Between groups	1782.53	4	445.63	4.83	.001
	Primary School	261	49.00	9.50	In group	68153.45	739	92.22		
	Secondary School	216	52.16	9.44	Total	69935.98	743			
	High School	88	51.72	9.02						
	Undergraduate and Higher	48	52.95	10.12						
	Total	744	50.54	9.70						
Decision-Making Skills	Illiterate	131	36.66	9.70	Between groups	508.64	4	127.16	1.89	.110
	Primary School	261	37.38	8.48	In group	49618.57	739	67.14		
	Secondary School	216	38.25	8.24	Total	50127.21	743			
	High School	88	38.57	8.01						
	Undergraduate and higher	48	39.80	7.64						
	Total	744	37.80	8.90						

Table 7 presents a one-way analysis of variance results to determine whether primary school students' critical thinking dispositions and decision-making skill scale scores show a significant difference according to the mother's educational status variable. According to the results, a significant difference was found in the participants' critical thinking dispositions compared to the mothers' educational status [$F=4.83$; $p<.05$].

Scheffe multiple comparison technique was used to determine between which groups there was a difference following ANOVA. According to the Scheffe test results, a significant difference was found between the critical thinking dispositions of the children whose mothers graduated from primary school and those whose mothers graduated from secondary school ($p=0.013$). In addition, there was no significant difference between the participants' decision-making skills according to the mothers' educational status [$F=1.89$; $p>.05$].

Table 8. One-Way Analysis of Variance (ANOVA) Results of Critical Thinking Dispositions and Decision-Making Skills Scale Scores According to the Father's Educational Status Variable

<i>n, X, and SS Values</i>		<i>ANOVA Results</i>								
Subscale	Education Status	<i>n</i>	<i>X</i>	<i>SS</i>	Var. K.	K.T.	SD	K.O.	F	<i>p</i>
Critical Thinking Dispositions	Illiterate	131	48.13	10.49	Between groups	1234.83	4	308.70	3.31	.011
	Primary School	261	49.33	9.67	In group	68733.87	739	93.26		
	Secondary School	216	51.78	8.98	Total	69968.69	743			
	High School	88	50.60	10.09						
	Undergraduate and Higher	48	51.74	10.06						
	Total	744	50.51	9.71						
Decision-Making Skills	Illiterate	131	35.36	8.43	Between groups	738.85	4	184.71	2.75	.028
	Primary School	261	37.66	8.51	In group	49598.77	739	67.29		
	Secondary School	216	38.01	7.86	Total	50337.62	743			
	High School	88	37.98	7.62						
	Undergraduate and higher	48	39.60	9.07						
	Total	744	37.81	8.24						

In Table 8, ANOVA results are presented to determine whether the scale scores of primary school students' critical thinking dispositions and decision-making skills show a significant difference according to the father's educational status variable. The results showed a significant difference between the participants' critical thinking dispositions according to the father's educational status [$F=3.21$; $p<.05$]. Scheffe multiple

comparison technique was used to determine between which groups there was a difference following ANOVA. According to the Scheffe test results, no significant difference was found between groups.

In addition, a significant difference was found between the participants' decision-making skills according to the fathers' educational status [$F=2.75$; $p<.05$]. Scheffe multiple comparison technique was used to determine between which groups there was a difference following ANOVA. According to the Scheffe test results, a significant difference was found between the decision-making skills of the children of illiterate fathers and those of university graduate fathers ($p=0.033$).

Table 9. Simple Linear Between Critical Thinking Dispositions Scale and Decision-Making Skills Scale

Regression Analysis Results

	<i>B</i>	<i>SHB</i>	β	<i>t</i>	<i>p</i>
Fixed	11,39	1,25		9,09	,000
Critical Thinking Dispositions	,52	,024	,62	21,49	,000

$n=749, R=.618, R^2=38, F=561,59, p=.000$

Table 9 shows the linear regression analysis data between critical thinking dispositions and decision-making skills. When the table is examined, the model is valid and significant since the significant value in the critical thinking disposition scores is $p<0.05$, and the significance value of the model is $p<0.05$. However, it is seen that primary school students' critical thinking dispositions ($t=21,49$) predict their decision-making skills in a positive and statistically significant way. Accordingly, it can be interpreted that as the critical thinking dispositions of the participants increase, so do their decision-making skills. In addition, it is seen that critical thinking explains 38% of decision-making.

CONCLUSION and DISCUSSION

This study examines the predictive effect of primary school students' critical thinking dispositions on their decision-making skills. In line with the findings obtained from the research, it was determined that primary school students' critical thinking disposition level was higher than the mean, and their decision-making skills were average. The fact that critical thinking skill, which is one of the high-level thinking skills, is higher than the mean in primary school students is promising for the future. Critical thinking is an essential tool for individuals to fulfill their professional, social, or ethical duties in society; therefore, it is one of the basic skills individuals should develop (Griffin, McGaw, & Care, 2012). On the other hand, Kennedy, Fisher, and Ennis (1991) stated that although critical thinking skills are seen as a skill that can be acquired as individuals get older, they can be taught to children at an early age. Therefore, developing critical thinking skills at the primary school level is essential.

Another essential thinking skill that affects the lives of individuals is the ability to make decisions. Today's technological developments or situations offer more alternatives for individuals. Therefore, individuals need higher decision-making skills (Herdemtaze, 2000). In the process of making the right decision, critical thinking skills come to the fore. This study found that primary school students' critical thinking dispositions predicted their decision-making skills. Swartz and Parks (1994) describe the stages of an individual's decision-making about a situation as identifying and questioning which options are better. While the individuals choose the best option in the face of the problem, they employ critical thinking skills in the questioning process (Swartz & Parks, 1994). On the other hand, people use their decision-making skills to choose the best for themselves depending on the conditions and experiences they encounter in every period

of their life (Adair, 2016) and critically evaluate the options in front of them while making a decision. Therefore, it can be said that decision-making and critical thinking skills are used together. Turan (2019) also emphasized that there is a relationship between critical thinking and decision-making.

When the relationship between gender and critical thinking dispositions was examined, a significant difference was found in favor of males, but no difference was found in decision-making skills. The results of the studies investigating decision-making and critical thinking skills according to the gender variable differ. Contrary to the finding in favor of boys in this study, there are studies stating that girls are better in critical thinking skills compared to boys (Ocak & Kutlu Kalender, 2017; Özyurt, Baştopçu, Barcın Deviren, & Atiler, 2018). It has been determined that the gender variable does not affect critical thinking (Bağcı & Şahbaz, 2012; Demirkaya & Çakar, 2012; Basmaz & Kutlu, 2021; Mete, 2021). It has been indicated in the literature that decision-making skills do not differ according to the gender variable (Memiş, Bozkurt, Cevizci, Avunç, & Teacher, 2016; Uçar, 2019). The study with gifted students at the secondary school level determined that female students had higher decision-making skills than male students (Ersoy & Deniz, 2016). As a result, it can be said that critical thinking and decision-making skills do not differ according to gender, according to the results obtained in this research and the literature.

When primary school students' critical thinking dispositions and decision-making skills were analyzed by grade level, a significant difference was found in favor of the 4th grade. In other words, both critical thinking dispositions and decision-making skills increase with the student's age. Similarly, in the study by Demir (2006), it was stated that 5th-grade students have higher levels of critical thinking skills than 4th-grade students. The study by Memiş, Bozkurt, Cevizci, Avunç, and Öğretmen (2016), in which the decision-making skills of university students were examined in terms of some variables, stated that the decision-making skills of the students studying at other grade levels are higher than the 1st-grade students. While higher-order thinking skills (for example, critical thinking and decision-making) have the opportunity to develop gradually from childhood, they tend to decline from the age of 30 (Friend & Zubek, 1958). As the grade level reached in this study increases, the development of decision-making and critical thinking skills is related to the age variable. As a result, it can be said that critical thinking and decision-making skills tend to develop from childhood to a certain age when appropriate conditions are provided.

When the education level of the family is examined, as the education level of the family increases, the critical thinking tendencies and decision-making skills of the primary school students improve. In the study conducted by Mete (2021) with secondary school students, it was stated that the critical thinking skills of the children whose mother's education level is secondary school and above are in better condition than those whose mother's education level is primary school or below. On the other hand, Ekinci and Aybek (2010) stated in their study that parents' education level does not affect critical thinking skills. In terms of decision-making skills, it was determined that the educational status of the parents did not affect their decision-making skills (Ersoy & Deniz, 2016). The results from this research and other studies show no clear conclusion about the effect of family education level on critical thinking and decision skills.

The importance of critical thinking and decision-making abilities for lifelong success should be reintroduced into primary schools (Abrami et al., 2008). Still, factors such as the classroom environment, teachers' roles, society, family educational status, and socioeconomic level significantly impact students' thinking skills development (Bataneh & Alazzi, 2009). This study yielded similar results. As a result, a more comprehensive approach to developing critical thinking and decision-making skills in primary school settings is required. This is critical for students to cope with potential inequity to survive in today's society. On the other hand, the effect of some variables (e.g., family education level and gender) on critical thinking and decision-making skills has not been demonstrated. Therefore, meta-analysis studies can be carried out to reveal these situations.

Declarations

Conflict of Interest

No potential conflicts of interest were disclosed by the author(s) concerning this article's research, authorship, or publication.

Ethics Approval

The Social and Human Sciences Research and Publication Ethics Committee of Istanbul Aydın University Education Faculty granted the formal ethics approval.

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Research and Publication Ethics Statement

The study was approved by the research team's university ethics committee of the Istanbul Aydın University Education Faculty (Approval Number/ID: 01/2022). Hereby, we, as the authors, consciously assure that for the manuscript is fulfilled:

- This material is the authors' original work, which has not been previously published elsewhere.
- The paper reflects the authors' research and analysis in a truthful and complete manner.
- The results are appropriately placed in the context of prior and existing research.
- All sources used are properly disclosed.

Contribution Rates of Authors to the Article

The authors provide equal contributions to this work.

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