European Journal of Alternative Education Studies
ISSN: 2501-5915
ISSN-L: 2501-5915
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejae.v11i1.6676 Volume 11 | Issue 1 | 2026

AN EXAMINATION OF THE RELATIONSHIP BETWEEN HIGH SCHOOL STUDENTS' THINKING STYLES AND CERTAIN HUMAN VALUES IN TERMS OF VARIOUS VARIABLES

İsmail Gelen[1i], **Mehmet Örüker**[2]
[1]Prof. Dr.,
Faculty of Education,
Department of Curriculum and Instruction,
Ondokuz Mayıs University,
Samsun, Türkiye
[2]Teacher and Master's Student,
Faculty of Education,
Ondokuz Mayıs University,
Samsun, Türkiye

Abstract:
Thinking style is the way intelligence and ability are used. Values, on the other hand, is a guiding principle that serves as a benchmark in every aspect of people's lives. Thinking and values education are important subjects in students' development. This study, conducted with 301 high school students in two provinces in eastern Turkey, was designed using a correlational survey design, one of the quantitative research methods. Data were collected using a "Personal Information Form," a "Thinking Styles Inventory," and a "Human Values Scale." The aim of this study is to examine whether there is a significant difference between thinking styles and human values of high school students and to reveal the relationship between them. The study examined significant differences between the independent variables of gender, age, family income level, and student achievement, and the concepts of style and values. Therefore, t-tests, analysis of variance, impact analysis, and correlation were performed. The results showed significant differences between thinking styles and age, family income level, and student achievement; and also, between human values and gender and student achievement. It is also seen that there is a very little correlation between thinking styles and values.

Keywords: thinking style, values, high school, student, education

[i] Correspondence: email ddrismail@hotmail.com

1. Introduction

The most important element that distinguishes humans from other living beings is their ability to think and act of their will. The act of thinking has saved humanity from many disasters, enabling it to continue its existence and find solutions to the problems it faces. Everything produced in the world, such as humanity's discovery of fire, Archimedes' identification of buoyancy, Al-Khwarizmi's introduction of zero, Newton's explanation of gravity, Bruno's astronomical studies, and Einstein's theory of relativity, is a product of the act of thinking. In this sense, while thinking may not be humanity's starting point, it can be considered its continuation.

Values, on the other hand, is prominent in many aspects of human life, as a social being, including adaptation to society, love of life, attitude in professional life, and family life. (Gelen *et al.*, 2010). It is known that people make choices by considering their values when preferring one form of behavior over another (Sarı, 2005). And similarly, people learn values by reasoning and using their critical thinking skills (Dilmaç, 1999). Therefore, it must be said that values and thinking are intertwined.

1.1. The Statement of the Problem

Thinking is defined as considering something, taking it into account; examining, comparing, and reasoning with information in order to reach a conclusion. Thought, on the other hand, is defined as "*the true reality that exists beyond space and time, independently of the subject, existing in and of itself, and perceptible not through the senses but only spiritually; contemplation, notion, idea, ideal conception*" (TDK, 2025a).

Styles of thinking are at the interface between abilities and personality. What kind of test will best display the abilities and achievements of a given individual will depend largely upon that individual's preferred thinking styles (Sternberg, 1994; Fer, 2005). In other words, style is the direction individuals choose to take when considering or performing a task, project, or job. (Sternberg and Grigorenko, 1995; Zhang and Sternberg, 2000; Sternberg, 2009).

Need is defined as a requirement, a strong desire, or a lack (TDK, 2025b). Just as every other living being, humans also have needs. Education exists for humans. "*It can be stated that all types of educational practices within educational programs are fundamentally organized to meet a need*" (Demirkan, 2023). When determining needs, information is gathered from the subject area, the community, and the individual. At this stage, determining the thinking styles of the students at the level of each program will provide insight into the individual's expectations and needs. It is believed that the work on thinking styles to be done during the needs analysis process will also increase the achievement of the program.

Looking back at the last few centuries, values have been one of the fundamental problems of the social sciences. Values are the patterns that people adopt in evaluating and judging situations, actions, objects and other people (Bayter, 2008). Values are seen to have a formative role in shaping a person's feelings, thoughts, and behaviors in both

their relationships with themselves and their environment (MEB, 2024). Therefore, being aware of students' value levels will provide feedback on the values education currently being provided.

An important aspect related to values and styles concerns students' personal information. Age, gender, family income, and student achievement vary from person to person. Each variable listed here should be evaluated according to thinking style and value levels. For example, programs differ according to the age factor. If students of different ages also have similar differences in their thinking styles or value levels, the program can be further customized within the framework of the student-centredness principle.

Style is influenced by many different factors such as an individual's life, environmental conditions, family, and culture. The same influence can be said to apply to the values, or value levels, that an individual has or does not have. Examining these two topics, which have similar influences, will provide information on the level of connection you should establish between values and style in the training provided.

It is predicted that focusing on high school students' humanitarian values and the levels of those values, while taking their thinking styles into account, will be more beneficial than focusing on values without considering their thinking styles. This is because there is a difference between walking a path without knowing it and walking a path after having prior experience. Considering both scenarios, the one who has prior experience will progress better. The relationship between thinking styles and values also aligns with the logic of this analogy. Therefore, this study aims to reveal the relationship between high school students' thinking styles and their human values.

1.2 Research Question

- Is there a significant difference between high school students' thinking styles and their humanitarian values?

1.2.1 Sub-problems of the Research

1) Which thinking style do high school students mostly use?
2) Do high school students' thinking styles show a significant difference in terms of age, gender, family income level, and student achievement?
3) What is the distribution of high school students according to their human values scale scores?
4) Is there a significant difference between high school students' human values and their age, gender, family income level, and student achievement?
5) What is the relationship between the sub-dimensions of high school students' thinking styles and their levels of humanitarian values?

2. Literature Review and Theorical Framework

To assess the success of educational activities in a country, it is essential to examine the outcomes. An outcome can be defined as the product that emerges at the end of the education and training process. One of these products is the students. The success of students gives us an idea about the success of the educational program. What does a student's success depend on?

Primarily, we need to understand and internalize the fact that each individual is different and unique. At this point, it is believed that the success of students depends on how well a program is built to address their differences and unique characteristics. The key point here is differentiated instruction. According to Hall *et al.* (2003), "*To differentiate instruction is to recognize students' varying background knowledge, readiness, language, preferences in learning and interests; and to react responsively*."

With the development and widespread adoption of technology, the world has undergone a transformation. Therefore, "*As part of and a result of this transformation process, students are expected to possess some new skills, 21st-century skills, to succeed in the century we live in*" (Türel *et al.*, 2023). 21st-century skills include knowledge and competencies that students need to succeed in work and life (Gelen, 2017). ''*The skills include creativity and innovation, critical thinking/problem solving/decision making, learning to learn/metacognition, communication, collaboration (teamwork), information literacy, citizenship (local and global), life and career skills, and personal and social responsibility (including cultural awareness and competence)*'' (GPE, 2020). These skills also overlap with thinking styles. It is believed that in an educational environment where thinking styles are identified and activities are conducted accordingly, work on 21st-century skills can be advanced and carried out in a more systematic way.

Values, on the other hand, are a rather abstract and important concept. Any value deficiencies identified or questioned in students need to be addressed. It is believed that this will be easier by determining the student's thinking style. Another contribution of the study will be to increase the functionality of values education. Values education, planned for students with identified thinking styles, will be easier to achieve if it is differentiated according to these styles.

Existing studies have examined thinking styles (Demir and Osmanoğlu, 2013; Çınar, 2016; Öz Aydın *et al.*, 2023) or values (Dilmaç, 2007; Keskin *et al.*, 2012; Yılmaz, 2016; Dursun, 2016; İnan Kılıç, 2020), but the relationship between thinking style and values has not yet been established. Therefore, the results of this study are quite important in terms of revealing the relationship between style and values.

Although thinking is as old as humanity itself, studies on the systematic application of thinking to education are relatively recent (Gelen, 2002). One of these studies is Sternberg's "Theory of Mental Self-Government" which is based on individuals' thinking styles. According to the theory, just as a society or government governs itself, so does the individual. In other words, they create their resources, define their boundaries and priorities, react to changes, and even resist them. According to Sternberg, people feel

the need to manage themselves, their actions, and activities. Within this framework, they organize their thoughts and actions in a way that aligns with internal and external needs. The theory is based on the idea that the individual mind, which organizes its thoughts, reflects itself onto the outside world. Thinking styles, according to the theory, are the ways people choose to use their minds and knowledge, and the ways they prefer to think. Thinking styles are not intelligence nor ability; they are the way of using the intelligence or ability (Fer, 2005).

Sternberg explains his work with 5 basic and 13 sub-dimensions, which he likened to a system of government: Functions, Forms, Levels, Scopes, and Leanings constitute the 5 basic dimensions:

a. Functions

It is divided into 3 sub-dimensions: Legislative, executive, and judicial. Individuals with a legislative thinking style stand out with their creativity. Individuals with an executive style "*like to fill in the gaps within existing structures rather than create the structures themselves*." (Sternberg, 2009). And those with a judgmental style are quite successful in evaluation skills.

b. Forms

This dimension focuses on individuals' preferences in approaching and handling time and various tasks and phenomena (Palut, 2008). It is divided into 4 sub-dimensions. Individuals belonging to the monarchic dimension proceed towards their goals with great determination. They are quite successful in accomplishing what they set their minds to. Those who think in a hierarchic style prioritize multiple situations according to their suitability to themselves and their goals, and try to cope with their problems and achieve their goals by adhering to this prioritization. Oligarchic individuals are similar to hierarchic individuals in their ability to cope with multiple situations, but they are not as successful as hierarchical individuals in prioritizing. Anarchic individuals, on the other hand, tend to resist anything that is inflexible, restrictive, or enforcing.

c. Levels

Levels: Similar to how countries govern their territories at different levels such as national, state, and municipal, people also have two levels in their mental self-management: global, focusing on the big picture, and local, paying attention to specifics (Çınar, 2016).

d. Scopes

It is divided into 2 sub-dimensions. People with an internal style prefer to work alone. They tend to be introverted, task-oriented, distant, and sometimes relatively lacking in social awareness (Sternberg, 2009). External individuals, on the other hand, enjoy communicating and working with people, and are successful in groups and through collaboration.

e. Leanings

It is divided into 2 sub-dimensions, which are liberal and conservative. Liberal individuals like to go beyond existing rules and procedures, maximize change, and deal with situations involving a degree of uncertainty (Sternberg, 2009). Conservative individuals, on the other hand, adopt existing rules and methods. They tend to minimize changes.

Values are one of the factors that shape an individual. Upbringing, environment, education, and culture can lead to differences in values among individuals. "*Values tell individuals who make up society what is important, what should be preferred, and in short, how to live*" (Akbaş, 2008). "*Values serve as criteria in people's lives, in determining their goals and ideals, in shaping their attitudes, in evaluating various events, people, etc., and in exhibiting their behavior*" (İşçan Demirhan, 2019).

Schools were not conceived merely as places where curriculum was taught; they were also planned as a place where many values such as being a good person and being a respectful individual towards oneself and others are taught (Gelen *et al.*, 2010). Therefore, educational programs, both in practice and as hidden curriculum, contain the concept of values. Values education is the effort to teach about values (Ulusoy, 2010). And teaching, requires answers to the questions: "*Why will it be taught, what will be taught, how will it be taught, and how much will be taught?*'' In Turkey and many parts of the world, those who answer these questions are part of a central organization. If we are talking about a centralized structure, then decisions are expected to be made in a way that represents the center and reflects the center's desire for representation. At this stage, the authority shapes the curriculum along with the desired human profile. In other words, the program remains under the influence of an ideology. Akın and Arslan (2014) explains the relationship between education and ideology by stating that every government intervenes in education and shapes educational tools in order to create the type of individual and society it desires. Undoubtedly, the values that are components of the program are also affected by this education-ideology relationship.

Values education does not only take place in school. Informal environments play an important role in the transfer of value. Values can be transmitted in any setting, such as the environment or family. Thus, the concept of values in school education should overlap as much as possible with the concept of values in an individual's life outside of school. Otherwise, the division of Turkish society around different values may lead to various problems (Gelen *et al.*, 2010). Therefore, adopting a holistic understanding and incorporating values education into the curriculum is crucial for achieving the desired success.

3. Material and Methods

3.1 Design of The Research

This study aims to determine whether there are significant differences between the thinking styles and values of high school students and their age, gender, family income

level, and student achievement, and to reveal whether there is a relationship between thinking styles and values. Therefore, the research was designed using a correlational survey design within the framework of a quantitative research method. This research format is an attempt to explain the relationships between variables with statistical and numerical data through mathematically based methods (Patton, 2002). A survey is a process of collecting data on the characteristics, lifestyles, or thoughts of participants by asking similar questions to many people (Q'leary, 2004). In correlational survey research, a numerical value is given to how two variables are related. A high correlation means the relationship between two variables is strong. If there is a strong relationship, knowing one of the variables allows for more accurate prediction of the other (Gay *et al.*, 2006). In the study, thinking styles and human values were determined as dependent variables; age, gender, family income level, and student achievement were determined as independent variables.

3.2. Sampling

The research population consists of students attending secondary education (high school) in Turkey during the 2024-2025 academic year. The study population comprises two provinces in the Eastern Black Sea region. And the population unit is high school students. Due to the difficulty of reaching to a larger population, the study population was defined. The study population consists of high school students who could be reached in two provinces located in the east of our country.

No studies have been found in Turkey that correlate the thinking styles and values of high school students. Therefore, research was conducted with high school students. In this study, participants were selected using convenience sampling, a non-random sampling method. The most basic selection criterion in convenience sampling is ease of access (Toraman and Özdemir, 2023). This sampling method was preferred due to the researcher's time limitation. The study included a sample of 301 participants, considering at least three times the number of items in the sample. The total number of people included in the study may vary because the number of responses per participant differs depending on the scales used. The demographic information of these participants is given in Table 1:

Table 1: Descriptive Statistics for the High School Students Participating in the Study

Variable		**N**	**%**
Gender	Female	204	67,8
	Male	97	32,2
Total		**301**	**100.0**
Age	1	19	6,3
	15	77	25,7
	16	108	36,0
	17	85	28,3
	18+	11	3,7
Total		**300**	**99,7**
Family monthly income	Very low	54	17,9

	Low	79	26,2
	Lower middle	61	20,3
	Upper middle	37	12,3
	Good	25	8,3
	Very good	19	6,3
Total		**275**	**91,4**
Academic achievement	Poor (49 or low)	14	4,7
	Pass (50-69)	85	28,2
	Good (70-84)	56	18,6
	Very good (85-100)	69	22,9
Total		**224**	**74,4**

According to Table 1, 67.8% of the participants were female and 32.2% were male. 36% of the participants were 16 years old, 28.3% were 17, and 25.7% were 15 years old. It is seen that participants aged 14 and 18+ were also included in the study. When looking at the monthly income of the participating students' families, 26.2% were low (25,000-39,999 TL), 20.3% were lower-middle (40,000-59,999 TL), 17.9% were very low (24,999 TL and below), and 12.3% were upper-middle (60,000-79,999 TL). Finally, the academic performance of the participating high school students was examined, and it was observed that 28.2% were at the passing level (50-69), 22.9% at the very good level (85-100), and 18.6% at the good level (70-84).

3.3 Data Collection Tools

Quantitative data collection tools were used to find answers to the research problem and sub-problems. In the research, a personal information form was used to determine the demographic information of prospective teachers (gender, age, family's monthly income, student success), the Thinking Styles Inventory (Sternberg and Wagner, 1992) was used to determine their thinking styles, and the Human Values Scale (Dilmaç, 2007) was used to measure their value levels.

3.3.1 Personal Information Form

A Personal Information Form was created to determine the demographic characteristics of the participants. This form aimed to obtain information about the participants' age, gender, family income, and student success. This form included age groups of 14, 15, 16, 17, 18+; gender; female and male, family income status were classified as very low (below 24,999 TL), low (25-39,999 TL), lower middle (40-59,999 TL), upper mid-dle (60-79,999 TL), good (80-99,999 TL), very good (100,000+ TL); and student achievement status was classified as poor (0-49), pass (51-69), good (70-84), very good (85-100) on a 100-point scale.

3.3.2 Thinking Styles Inventory

In the study, the Thinking Styles Inventory (TSI), developed by Stenberg and Wagner (1992) and adapted into Turkish by Fer (2005) for validity and reliability studies, was used to determine the dominant thinking styles of high school students. The inventory

has 104 items, all written in a positive sentence format. The inventory was rated on a seven-point Likert scale as follows: not at all suitable for me (1), not very suitable for me (2), very slightly suitable for me (3), somewhat suitable for me (4), quite suitable for me (5), very suitable for me (6), and completely suitable for me (7). In the reliability study, the Cronbach's Alpha coefficient for the entire 104-item inventory was found to be .90 by Sternberg (1988). In addition, the validity analysis showed that TSI explained 77% of the total variance, with factor loadings ranging from .44 to .90 (Sternberg, 1988). In the reliability analysis conducted with the data collected within the scope of the study, a Cronbach's Alpha value of .95 was obtained.

3.3.3 Human Values Scale

In this research, the "Human Values Scale (HVS)" developed by Dilmaç (2007) was used to determine the human values of high school students. The scale consists of 42 items. Items are scored on a five-point Likert scale as follows: (never, rarely, occasionally, frequently, always) from 1 to 5. The Cronbach's Alpha reliability coefficient was found to be .92 by Dilmaç (2007). In the reliability analysis conducted with the data collected within the scope of the study, a Cronbach's Alpha value of .77 was obtained.

In the validity analysis, the first factor, referred to as ''Responsibility'' explains 16.09% of the total variance. "Friendship/Companionship" contributes 5.60% of the variance. "Peacefulness" is the third factor, contributing 3.87% to the variance. The fourth factor contributing 3.30% to the variance is "Respect". The fifth factor, "Honesty," contributes 2.99% to the variance. "Tolerance" constitutes the sixth factor, contributing 2.63% to the variance (Dilmaç, 2007). Dilmaç, 2007).

When determining the human values scale scores of high school students, average score ranges were used (Tavşancıl and Aslan, 2001; Özdamar, 2013). These ranges are given below.

Table 2: Human Values Scale Evaluation Intervals

$\bar{X}$	**Human Values Scale Score Interpretation**
1.00-1.80	Very low level of human values
1.81-2.60	Low level of human values
2.61-3.40	Moderate level of human values
3.41-4.20	High level of human values
4.21-.5.00	Very high level of human values

3.4 Data Collection

The measurement tools were administered to 301 high school students studying in two provinces in eastern Turkey during the 2024-2025 academic year, within the researcher's reach. After necessary explanations were given by the researcher, the scales were administered face-to-face. The average administration time for all scales simultaneously was thirty minutes.

3.5 Data Analysis

Data analysis was performed using the SPSS program. The initial normality analysis revealed that the skewness and kurtosis values were between ±2. According to George and Mallery (2010), kurtosis and skewness values between ±2 are sufficient for the data to be considered normal. In the analysis of the data, frequency and percentage tables were created to examine the demographic characteristics of the participants. To investigate whether participants' demographic characteristics had an effect on the subscales, t-tests and ANOVA were conducted. A post hoc test was used to identify the source of the difference, and an effect size analysis was conducted to determine the level of influence of the variables. Eta-squared was used in this study to calculate the effect size. The eta-squared (η^2) value is interpreted as indicating a small effect size at 0.01, a medium effect size at 0.06, and a large effect size at 0.14 (Büyüköztürk, 2012). Furthermore, a correlation analysis was conducted to measure the relationship between thinking styles and human values. When interpreting the correlation results, the absolute values of the correlation coefficient were defined as follows: 0.81-1.00 indicates a very high level; 0.61-0.80 indicates a high level; 0.41-0.60 indicates a medium level; 0.21-0.40 indicates a low level; and 0-0.20 indicates a very low level of correlation (Taşpınar, 2017). In all analyses, the statistical significance level of $p \leq 0.05$ was accepted.

4. Results and Discussion/Conclusion

4.1 Result

This section presents the findings obtained from the statistical analysis of data collected regarding high school students' thinking styles and human values. The results are addressed in a way that answers the research problem and its sub-problems.

4.1.1 Thinking Styles of High School Students

The Thinking Styles Inventory (TSI) was applied to determine the thinking styles of high school students. The TSI consists of 13 sub-dimensions. These are: legislative, executive, judicial, monarchic, hierarchic, oligarchic, anarchic, global, local, internal, external, liberal and conservative. The inventory was administered to 301 students. Table 3 presents the descriptive statistics related to this:

Table 3: Thinking Styles of High School Students

Thinking Styles Inventory Sub-Dimensions	**N**	**%**
Legislative	82	27,2
Executive	40	13,3
Judicial	23	7,6
Monarchic	11	3,7
Hierarchic	32	10,6
Oligarchic	5	1,7
Anarchic	12	4,0
Global	10	3,3
Local	10	3,3

Internal	12	4,0
External	32	10,6
Liberal	23	7,6
Conservative	9	3,0
Total	**301**	**100**

Table 3 shows that the two most common thinking styles among high school students are legislative (n=82) and executive (n=40). Accordingly, it can be said that high school students exhibit behaviors consistent with these styles more often. In conclusion, high school students can be described as creative, innovative, adaptable to rules, able to fulfill given tasks, and responsible individuals.

The two least preferred thinking styles among high school students are oligarchic (n=5) and conservative (n=9). Therefore, it can be said that high school students don't particularly like multitasking or following traditional methods.

4.1.2 Changes in High School Students' Thinking Styles According to The Independent Variable

Statistical analyses were conducted to determine whether high school students' thinking styles differed according to independent variables (gender, age, family's monthly income, student achievement). The analyses are explained below in details.

4.1.3 Changes in Thinking Styles of High School Students According to Gender Variable

An independent samples t-test was conducted to determine how high school students' thinking styles changed according to gender. According to the t-test results, there was no significant difference ($p>0.05$) between the sub-dimensions of thinking styles and gender among high school students. In this sense, it can be concluded that gender is not an effective independent variable in the use of the sub-dimensions of thinking styles. When the Eta-squared effect size data were examined, a small effect size ($\eta^2<0.06$) was detected in all 13 thinking styles. This indicates that the effect of gender on thinking styles is limited.

4.1.4 Changes in Thinking Styles of High School Students According to Age Variable

ANOVA was conducted to determine how high school students' thinking styles changed according to age. High school students are classified by age as 14, 15, 16, 17, and 18+. The analysis results are given in the table.

Table 4: High School Students' ANOVA Table Examining the Relationship Between Age and Thinking Styles

Style	Age	N	$\bar{X}$	SS	F	p	Post Hoc	η^2
Legislative	14	19	43,19	7,65				
	15	77	43,00	7,17				
	16	108	42,23	8,73	,81	,51		,01
	17	85	43,48	7,21				
	18+	11	46,27	8,18				
Executive	14	19	42,16	6,09				
	15	77	39,05	8,88				
	16	108	38,17	8,05	3,20	,01	16-17	,04
	17	85	41,93	7,13				
	18+	11	39,81	9,86				
Judicial	14	19	39,84	9,05				
	15	77	36,35	8,49				
	16	108	36,11	8,34	2,07	,08		,02
	17	85	38,63	8,91				
	18+	11	40,81	11,88				
Monarchic	14	19	38,50	7,19				
	15	77	35,07	8,00				
	16	108	36,04	7,05	3,08	,01	15-17	,04
	17	85	38,70	7,37				
	18+	11	38,94	10,89				
Hierarchic	14	19	40,52	7,74				
	15	77	37,81	8,41			15-17	
	16	108	38,18	8,47	4,92	,00	16-17	,06
	17	85	42,87	7,81				
	18+	11	40,81	13,38				
Oligarchic	14	19	35,10	9,41				
	15	77	34,54	8,20				
	16	108	33,41	7,80	1,92	,10		,02
	17	85	36,30	8,73				
	18+	11	38,36	10,92				
Anarchic	14	19	35,73	9,48				
	15	77	36,87	7,92				
	16	108	33,28	7,79	5,87	,00	16-17	,07
	17	85	38,64	8,75				
	18+	11	39,68+	8,35				
Global	14	19	36,94	8,54				
	15	77	36,61	8,06				
	16	108	34,63	7,91	2,57	,03	16-17	,03
	17	85	37,94	8,07				
	18+	11	39,90	10,79				
Local	14	19	36,15	9,54				
	15	77	36,49	8,51				
	16	108	35,38	8,48	,63	,63		,00
	17	85	37,26	9,19				
	18+	11	37,90	11,26				
Internal	14	19	39,94	9,46	2,26	,06		,03
	15	77	37,75	8,15				

	16	108	35,94	8,01				
	17	85	39,35	9,55				
	18+	11	38,90	8,89				
External	14	19	35,84	8,57				
	15	77	34,92	10,24				
	16	108	36,51	9,71	1,66	,15		,02
	17	85	36,93	9,18				
	18+	11	42,54	8,94				
Liberal	14	19	36,07	9,48				
	15	77	37,25	9,97				
	16	108	37,77	8,48	1,54	,19		,02
	17	85	39,95	8,27				
	18+	11	40,45	9,55				
Conservative	14	19	37,26	7,83				
	15	77	35,46	8,66				
	16	108	34,70	8,65	2,80	,02	16-18+	,03
	17	85	37,49	8,13				
	18+	11	41,90	9,14				

According to the analysis results, a significant difference ($p<0.05$) was found between the age of high school students and the sub-dimensions of their thinking styles: executive, monarchic, hierarchic, anarchic, global, and conservative. However, there was no significant relationship between the age variable and the sub-dimensions of legislative, judicial, oligarchic, local, internal, external and liberal.

According to the analysis, a significant difference was found in the executive thinking style ($p=0.01$). The age variable affects the thinking styles of high school students. The post-hoc test results showed that 17-year-olds ($\bar{X}=41.93$) preferred the executive thinking style more than 16-year-olds ($\bar{X}=38.17$). Therefore, it can be assumed that 17-year-old high school students prefer conformity and following instructions more than 16-year-old high school students.

A significant difference was found in the monarchic thinking style ($p=0.01$). The post-hoc test results showed that 17-year-olds ($\bar{X}=38.70$) preferred the monarchic thinking style more than 15-year-olds ($\bar{X}=35.07$). Therefore, it can be said that 17-year-old high school students are better at accomplishing what they set their minds to than 15-year-old high school students.

According to the analysis, a significant difference was found in the hierarchic thinking style ($p=0.00$). The post-hoc test results showed that 17-year-olds ($\bar{X}=42.87$) preferred the hierarchic thinking style more than 16-year-olds ($\bar{X}=38,18$) and 15-year-olds ($\bar{X}=37,81$). Therefore, it can be said that 17-year-old high school students prefer to work step-by-step by ranking tasks more than 16-year-old and 15-year-old high school students.

A significant difference was found in the anarchic thinking style ($p=0.00$). The post-hoc test results showed that 17-year-olds ($\bar{X}=38.64$) preferred the anarchic thinking style more than 16-year-olds ($\bar{X}=33.28$). This suggests that 17-year-old high school

students tend to approach tasks more randomly and avoid systematization more than 16-year-old high school students.

A significant difference was found in the global thinking style (p=0.03). The post-hoc test results showed that 17-year-olds ($\bar{X}$=37.94) preferred the global thinking style more than 16-year-olds ($\bar{X}$=34.63). This suggests that 17-year-old high school students are more inclined to consider a holistic view than 16-year-old high school students.

ANOVA revealed a significant difference (p=0.02) in conservative thinking style as well. The post hoc test results showed that 18-year-olds ($\bar{X}$=41.90) preferred the conservative thinking style more than 16-year-olds ($\bar{X}$=34.70). Accordingly, those aged 18 and above tend to minimize change and avoid uncertainty more than those aged 16.

When the Eta-squared effect size data were examined, a small effect size (η^2<0.06) was detected in hierarchic and anarchic thinking styles. A moderate effect size (0.06≥η^2≤0.13) was observed in the hierarchic style with η^2=0.06 and in the anarchic style with η^2=0.07. Therefore, it can be said that the age variable moderately influenced thinking styles in both hierarchic and anarchic styles; and has a small effect on legislative, executive, judicial, monarchic, oligarchic, global, local, internal, external, liberal and conservative thinking styles.

4.1.5 Changes in The Thinking Styles of High School Students According to The Family Income Level Variable

ANOVA was conducted to determine how high school students' thinking styles changed according to the family income level variable. Income level was classified as very low (below 24,999 TL), low (25-39,999 TL), lower middle (40-59,999 TL), upper middle (60-79,999 TL), good (80-99,999 TL), and very good (100,000+ TL). The analysis results are given in the table.

Table 5: ANOVA Table Examining the Relationship Between Family Monthly Income Level and Thinking Styles Among High School Students

Style	Monthly Income	N	$\bar{X}$	SS	F	p	Post Hoc	η^2
Legislative	Very low	54	42,40	7,01	1,92	,09		,03
	Low	79	42,32	7,40				
	Lower middle	61	42,40	7,81				
	Upper middle	37	43,22	10,11				
	Good	25	46,96	5,86				
	Very good	19	45,15	5,39				
Executive	Very low	54	39,05	7,09	2,36	,04	low–good	,04
	Low	79	38,54	8,50				
	Lower middle	61	39,22	8,11				
	Upper middle	37	39,62	8,47				
	Good	25	43,18	8,32				
	Very good	19	43,73	6,14				
Judicial	Very low	54	35,67	8,12	5,20	,00	very low-good low-good lower middle-good	,08
	Low	79	36,91	7,54				
	Lower middle	61	34,63	8,81				
	Upper middle	37	38,26	9,87				

	Good	25	43,44	7,03				
	Very good	19	40,89	8,86				
Monarchic	very low	54	34,35	6,13	7,08	,00	very low-good low-good lower middle-good upper middle-good	,11
	low	79	36,61	7,48				
	lower middle	61	34,44	6,67				
	upper middle	37	37,47	8,80				
	good	25	43,28	6,89				
	very good	19	39,57	8,22				
Hierarchic	Very low	54	37,51	8,14	3,75	,00	very low-good low-good lower middle-good	,06
	Low	79	38,76	8,68				
	Lower middle	61	39,06	8,74				
	Upper middle	37	40,61	9,36				
	Good	25	45,80	6,78				
	Very good	19	41,31	8,30				
Oligarchic	Very low	54	32,06	7,18	7,36	,00	very low-good low-good lower middle-good very low-very good low-very good	,12
	Low	79	32,15	7,93				
	Lower middle	61	34,98	7,58				
	Upper middle	37	36,08	10,09				
	Good	25	40,92	6,95				
	Very good	19	39,21	7,26				
Anarchic	Very low	54	33,93	8,25	3,98	,00	very low-good low-good	,06
	Low	79	34,12	8,38				
	Lower middle	61	35,86	7,44				
	Upper middle	37	37,64	8,97				
	Good	25	40,20	6,39				
	Very good	19	39,43	6,92				
Global	Very low	54	34,23	7,40	3,29	,00	very low-good	,05
	Low	79	35,02	7,10				
	Lower middle	61	36,54	8,82				
	Upper middle	37	36,75	9,39				
	Good	25	40,22	6,69				
	Very good	19	40,19	8,45				
Local	Very low	54	35,36	7,58	3,19	,00	low-good	,05
	Low	79	34,60	7,69				
	Lower middle	61	35,44	9,45				
	Upper middle	37	38,69	10,18				
	Good	25	40,65	7,54				
	Very good	19	38,93	7,57				
Internal	Very low	54	34,72	8,33	5,26	,00	very low-upper middle very low-good low-good lower middle-good	,08
	Low	79	37,09	8,43				
	Lower middle	61	36,90	8,72				
	Upper middle	37	40,07	8,82				
	Good	25	44,24	5,25				
	Very good	19	38,69	9,41				
External	Very low	54	35,84	8,18	4,16	,00	low-good lower middle-good low-very good	,07
	Low	79	34,21	9,21				
	Lower middle	61	34,49	9,90				
	Upper middle	37	38,37	10,99				
	Good	25	41,40	8,36				
	Very good	19	41,01	7,41				

Liberal	Very low	54	37,47	8,23	2,86	,01	low-good	,05
	Low	79	36,87	7,91				
	Lower middle	61	37,70	9,20				
	Upper middle	37	40,37	10,47				
	Good	25	42,82	7,16				
	Very good	19	41,18	6,38				
Conservative	Very low	54	33,94	7,91	3,56	,00	very low-good very low-very good	,06
	Low	79	35,90	7,87				
	Lower middle	61	35,36	9,03				
	Upper middle	37	34,97	10,80				
	Good	25	40,46	7,11				
	Very good	19	40,99	5,96				

According to the table, no significant difference ($p>0.05$) was found between the legislative thinking style and the family's monthly income as an independent variable. However, significant differences were found ($p\leq0.05$) in executive, judicial, monarchic, hierarchic, oligarchic, anarchic, global, local, internal, external, liberal and conservative thinking styles.

The ANOVA revealed a significant difference ($p=0.04$) between executive style and the family's monthly income variable. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income ($\bar{X}=43.73$) preferred the executive style more than those who had a low income ($\bar{X}=38.54$). Accordingly, it can be assumed that those with good monthly incomes are more likely to be compliant, act within the rules, and follow instructions than those with lower incomes.

A significant difference ($p=0.00$) was found in the judicial style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income ($\bar{X}=43.44$) preferred the judicial style more than those who had a very low ($\bar{X}=35,67$), low ($\bar{X}=36,91$) and lower-middle ($\bar{X}=34,63$) family incomes. Accordingly, it can be said that those with a good monthly income prefer to evaluate and think critically more than those with very low, low, and lower-middle incomes.

A significant difference ($p=0.00$) was found in the monarchic style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income ($\bar{X}=43.28$) preferred the monarchic style more than those who had a very low ($\bar{X}=34,35$), low ($\bar{X}=36,61$) and lower-middle ($\bar{X}=34,44$) and upper-middle ($\bar{X}=37,47$) family incomes. Accordingly, it can be said that those with a good monthly income are more successful in achieving their goals and accomplishing what they set their minds to, compared to those with very low, low, lower-middle, and upper-middle incomes.

A significant difference ($p=0.00$) was found in the hierarchic style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income ($\bar{X}=45.80$) preferred the hierarchic style more than those who had a very low ($\bar{X}=37,51$), low ($\bar{X}=38,76$) and lower-middle ($\bar{X}=39,06$) family incomes. Accordingly, it can be said that those with a good monthly income prefer to work step-by-step by ranking more than those with very low, low, and lower-middle incomes.

A significant difference (p=0.00) was found in the oligarchic style. As a result of the post-hoc test, it was determined that high school students whose families had a good (X̄=40,92) and very good (X̄=39,21) family incomes, preferred the oligarchic style more than those who had a very low (X̄=32,06), low (X̄=32,15) and lower-middle (X̄=35,86) family incomes. Accordingly, it is observed that those with good and very good monthly incomes prefer working with multiple situations more than those with very low, low, and lower-middle incomes.

A significant difference (p=0.00) was found in the anarchic style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income (X̄=40.20) preferred the anarchic style more than those who had a very low (X̄=33,93), and low (X̄=34,12) family incomes. Accordingly, it can be said that those with a good monthly income prefer to approach tasks more randomly and avoid putting them into a system more than those with very low and low incomes.

A significant difference (p=0.00) was found in the global style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income (X̄=40.22) preferred the global style more than those who had a very low income (X̄=34.23). Accordingly, it can be said that those with a good monthly income prefer looking at the big picture and the overall situation more than those with very low incomes.

A significant difference (p=0.00) was found in the local style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income (X̄=40.20) preferred the local style more than those who had a low income (X̄=34.12). Accordingly, it can be said that those with a good monthly income pay more attention to details and specifics compared to those with a low income.

A significant difference (p=0.00) was found in the internal style. As a result of the post-hoc test, it was determined that high school students whose families had an upper-middle (X̄=40,07) and good (X̄=44,24) family incomes, preferred the internal style more than those who had a very low (X̄=34,72), low (X̄=37,09) and lower-middle (X̄=36,90) family incomes. Accordingly, it is observed that those with upper-middle and good monthly incomes prefer working alone more than those with very low, low, and lower-middle incomes.

A significant difference (p=0.00) was found in the external style. As a result of the post-hoc test, it was determined that high school students whose families had a good (X̄=41.40) and very good (X̄=41,01) family incomes, preferred the external style more than those who had a low (X̄=34,21) and lower-middle (X̄=34,49) family incomes. Accordingly, it can be said that those with a good and very good monthly incomes prefer working collaboratively in groups more than those with low and lower-middle incomes.

A significant difference (p=0.01) was found in the liberal style. As a result of the post-hoc test, it was determined that high school students whose families had a good monthly income (X̄=42.82) preferred the liberal style more than those who had a low family income (X̄=36.87). Accordingly, it can be said that those with a good monthly income more open to change than those with a low income.

A significant difference (p=0.00) was found in the conservative style. As a result of the post-hoc test, it was determined that high school students whose families had a good ($\bar{X}$=40.46) and very good ($\bar{X}$=40,99) monthly incomes, preferred the conservative style more than those who had a very low ($\bar{X}$=32,06) family incomes. This suggests that those with good and very good monthly incomes prefer to minimize change and avoid uncertainty compared to those with very low incomes.

When the Eta-squared effect size data were examined, a small effect size (η^2<0.06) was detected in legislative, executive, global, local and liberal thinking styles; while a moderate effect size (0.06≥η^2≤0.13) was detected in judicial, monarchic, hierarchic, oligarchic, anarchic, internal, external and conservative thinking styles. Meaning, while the family income variable had a small effect on legislative, executive, global, local, and liberal thinking styles; a moderate effect was observed in judicial, monarchic, hierarchic, oligarchic, anarchic, internal, external, and conservative thinking styles.

4.1.6 Changes in High School Students' Thinking Styles According to Student Achievement Variable

ANOVA was conducted to determine how high school students' thinking styles changed according to their achievements. Achievement level was classified as poor (0-49), passing (51-69), good (70-84), and very good (85-100) on a scale of 100 points. The analysis results are given in the table.

Table 6: ANOVA Table Examining the Relationship Between Academic Achievement and Thinking Styles Among High School Students

Style	Academic Achievement	N	$\bar{X}$	SS	F	p	Post Hoc	η^2
Legislative	Poor	14	44,14	7,23	1,82	,14		,02
	Pass	85	41,66	7,29				
	Good	56	43,53	7,23				
	Very good	69	44,47	8,81				
Executive	Poor	14	38,07	5,69	2,54	,05		,03
	Pass	85	38,36	8,18				
	Good	56	40,71	8,45				
	Very good	69	41,75	8,58				
Judicial	Poor	14	34,21	6,32	2,57	,05		,03
	Pass	85	36,79	7,79				
	Good	56	37,32	8,20				
	Very good	69	39,94	10,59				
Monarchic	Poor	14	33,35	5,37	3,27	,02	very good-poor	,04
	Pass	85	36,62	6,87				
	Good	56	37,65	7,60				
	Very good	69	39,56	9,29				
Hierarchic	Poor	14	35,42	5,72	3,31	,02	very good-poor	,04
	Pass	85	38,52	8,05				
	Good	56	40,66	9,04				
	Very good	69	41,94	9,77				
Oligarchic	Poor	14	32,50	3,34	4,92	,00		,06

	Pass	85	34,08	7,42			very good-poor	
	Good	56	34,59	9,36			very good-pass	
	Very good	69	38,68	9,31			very good-good	
Anarchic	Poor	14	33,67	5,79	3,15	,02	very good-good	,04
	Pass	85	36,51	7,04				
	Good	56	35,35	9,78				
	Very good	69	39,33	9,72				
Global	Poor	14	30,71	5,10	5,14	,00	very good-poor	,06
	Pass	85	36,15	7,95				
	Good	56	35,78	9,90				
	Very good	69	39,52	8,54				
Local	Poor	14	32,00	4,70	2,97	,03	very good-poor	,03
	Pass	85	35,52	7,54				
	Good	56	36,83	9,93				
	Very good	69	38,69	9,93				
Internal	Poor	14	35,21	6,70	2,95	,03	very good-good	,03
	Pass	85	37,16	8,42				
	Good	56	36,76	9,18				
	Very good	69	40,58	9,81				
External	Poor	14	30,92	6,39	2,14	,09		,02
	Pass	85	36,27	9,50				
	Good	56	37,81	8,50				
	Very good	69	37,71	11,60				
Liberal	Poor	14	34,42	5,86	2,58	,05		,03
	Pass	85	37,93	8,82				
	Good	56	38,33	9,69				
	Very good	69	40,97	10,00				
Conservative	Poor	14	34,57	5,41	1,15	,32		,01
	Pass	85	35,88	8,42				
	Good	56	36,42	9,43				
	Very good	69	38,18	9,57				

According to the Table 6, significant differences ($p \leq 0.05$) are observed in the monarchic, hierarchic, oligarchic, anarchic, global, local, and internal thinking styles. However, no significant difference ($p > 0.05$) was found in the legislative, executive, judicial, external, liberal, and conservative thinking styles. Accordingly:

A significant difference ($p=0.02$) was found in the monarchic style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}=39.56$) achievement levels preferred the monarchic style more than those with poor ($\bar{X}=33.35$) achievement levels ($\bar{X}=33.35$). Accordingly, it can be said that those with very good achievement levels are more successful in committing to their goals and achieving them compared to those with poor achievement levels.

A significant difference ($p=0.02$) was found in the hierarchic style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}=41.94$) achievement levels preferred the hierarchic style more than those with poor ($\bar{X}=35.42$) achievement levels ($\bar{X}=33.35$). Accordingly, it can be said that those with very good

achievement levels prefer to work step-by-step, ranking more than those with poor achievement levels.

A significant difference (p=0.00) was found in the oligarchic style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}$=38.68) achievement levels preferred the oligarchic style more than those with poor ($\bar{X}$=32,50), passing ($\bar{X}$=34,08), and good ($\bar{X}$=34,59) achievement levels. Accordingly, it is observed that those with very good achievement levels prefer working with multiple situations more than those with poor, passing, and good achievement levels.

A significant difference (p=0.02) was found in the anarchic style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}$=39.33) achievement levels preferred the anarchic style more than those with good ($\bar{X}$=35.35) achievement levels. Accordingly, it can be said that those with very good achievement levels tend to approach tasks more randomly and avoid systematizing them, compared to those with good achievement levels.

A significant difference (p=0.00) was found in the global style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}$=39.52) achievement levels preferred the global style more than those with poor ($\bar{X}$=30.71) achievement levels. Accordingly, it can be said that those with very good achievement levels tend to look for a bigger and a whole picture compared to those with poor achievement levels.

A significant difference (p=0.03) was found in the local style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}$=38.69) achievement levels preferred the local style more than those with poor ($\bar{X}$=32.00) achievement levels. Accordingly, it can be said that those with very good achievement levels, pay more attention to details and specifics compared to those with poor achievement levels.

A significant difference (p=0.03) was found in the internal style. As a result of the post-hoc test, it was determined that high school students with very good ($\bar{X}$=36.76) achievement levels preferred the internal style more than those with good ($\bar{X}$=40.58) achievement levels. Accordingly, it is observed that those with very good achievement levels prefer working alone more than those with good achievement levels.

When the Eta-squared effect size data were examined, a small effect size (η^2<0.06) was detected in oligarchic and global thinking styles. A moderate effect size ($0.06 \geq \eta^2 \leq 0.13$) was observed in the oligarchic style with η^2=0.06 and in the global style with η^2=0.06. Therefore, it can be said that the student achievement variable moderately influenced thinking styles in both oligarchic and global styles; and has a small effect on legislative, executive, judicial, monarchic, hierarchic, anarchic, local, internal, external liberal and conservative thinking styles.

4.1.7 High School Students' Human Values Scale Scores

In order to determine the human values scale scores of high school students, the descriptive statistical results are given in the table.

Table 7: Descriptive Statistics for High School Students' Human Values Subdimensions

Value	N	$\bar{X}$	SS
Honesty	301	4,03	,54
Responsibility	301	3,46	,63
Friendship/Companionship	301	3,85	,76
Peacefulness	301	3,43	,64
Respect	301	3,47	,68
Tolerance	301	3,08	,54

Table 7 shows that high school students received the highest score in the honesty sub-dimension ($\bar{X}$=4.03) and the lowest score in the tolerance sub-dimension ($\bar{X}$=3.08), compared to other values.

Based on the obtained data, it is seen that high school students have a high level of human values in the sub-dimensions of honesty ($\bar{X}$=4.03), responsibility ($\bar{X}$=3.46), friendship/companionship ($\bar{X}$=3.85), peacefulness ($\bar{X}$=3.43) and respect ($\bar{X}$=3.47). However, in the tolerance sub-dimension ($\bar{X}$=3.08), it can be said that high school students are at a moderate level in terms of human values.

Table 8: Descriptive Statistics Results for High School Students' Total Human Values Score

	N	$\bar{X}$	SS
Human Values Score	301	3,55	,37

According to Table 8, high school students have a high level of human values with a score of $\bar{X}$=3.55 on the entire Human Values Scale.

4.1.8 Changes in High School Students' Human Values Scale Scores According to The Independent Variables

Statistical analyses were conducted to determine whether high school students' human values scale differed according to independent variables (gender, age, family's monthly income, and student achievement). The analyses are explained below in detail.

4.1.9 Changes in High School Students' Human Values Scale Scores According to Gender Variables

An independent samples t-test was applied to determine how high school students' human values scale scores changed according to the gender variables. The analysis results are given in the table below.

Table 9: Independent-Samples t-test Results Examining the Relationship Between High School Students' Gender and Human Values Scale Scores

Value	Gender	N	$\bar{X}$	SS	t	p	η^2
Honesty	Female	204	4,11	,51	4,09	,00	.05
	Male	97	3,84	,56			
Tolerance	Female	204	3,08	,57	,25	,80	.00
	Male	97	3,06	,47			
Respect	Female	204	3,48	,70	,37	,70	.00
	Male	97	3,44	,64			
Peacefulness	Female	204	3,51	,64	3,00	,00	.02
	Male	97	3,27	,61			
Friendship/Companionship	Female	204	3,93	,77	2,53	,01	.02
	Male	97	3,69	,73			
Responsibility	Female	204	3,48	,62	,70	,48	.00
	Male	97	3,42	,64			
Total Human Values Score	Female	204	3,60	,37	3,07	,00	.03
	Male	97	3,46	,37			

The results of the independent samples t-test showed a significant difference ($p<0.05$) between genders in the sub-dimensions of honesty, peacefulness, and friendship/companionship on the human values scale for high school students.

In the honesty sub-dimension, a significant difference ($p=0.00$) was observed in favor of female students ($\bar{X}=4.11$) and male students ($\bar{X}=3.84$). Based on this difference, it can be said that female high school students are more honest than male high school students.

In the peacefulness sub-dimension, a significant difference ($p=0.00$) was observed between female students ($\bar{X}=3.51$) and male students ($\bar{X}=3.27$), in favor of female students. Based on this difference, it can be said that female high school students are more peaceful than male high school students.

In the friendship/companionship sub-dimension, a significant difference ($p=0.01$) was observed between female students ($\bar{X}=3.93$) and male students ($\bar{X}=3.69$), in favor of female students. Based on this difference, it can be said that female high school students possess a higher value of friendship than male high school students. Finally, it can be said that female students ($\bar{X}=3.60$) have higher levels of human values than male students ($\bar{X}=3.46$).

However, no statistically significant difference was found in the sub-dimensions of responsibility, respect, and tolerance ($p>0.05$). Therefore, it can be said that gender is not an effective independent variable in terms of responsibility, respect, and tolerance values.

When the Eta-squared effect size data is examined, small effect sizes ($\eta^2<0.06$) are observed in all the total scores and sub-dimensions of human values. Therefore, it can be said that the gender independent variable has a small effect on human values.

4.1.10 Changes in High School Students' Human Values Scale Scores According to Age Variables

ANOVA was conducted to determine whether high school students' human values scale scores differed according to age variable. According to the analysis results, no significant difference ($p>0.05$) was found in the human values scale scores and its sub-dimensions; which are honesty, tolerance, respect, peacefulness, friendship/companionship, and responsibility, according to the age variable. Accordingly, it can be said that the age factor does not affect the level of human values and their sub-dimensions in high school students. When the Eta-squared effect size data is examined, small effect sizes ($\eta^2<0.06$) are observed in all the total scores and sub-dimensions of human values. Therefore, it can be said that the age independent variable has a small effect on human values.

4.1.11 Changes in High School Students' Human Values Scale Scores According to Family Income Level Variables

ANOVA was conducted to determine whether high school students' human values scale scores differed according to their family's monthly income variables. According to the analysis results, no significant difference ($p>0.05$) was found in the human values scale scores and its sub-dimensions; which are honesty, tolerance, respect, peacefulness, friendship/companionship, and responsibility, according to the family income variable. Accordingly, it can be said that the family income variable does not affect the level of human values and their sub-dimensions in high school students. When the Eta-squared effect size data is examined, small effect sizes ($\eta^2<0.06$) are observed in all the total scores and sub-dimensions of human values. Accordingly, it can be said that the family's monthly income variable has a small effect on human values.

4.1.12 Changes in High School Students' Human Values Scale Scores According to Achievement Variables

ANOVA was conducted to determine whether high school students' human values scale scores differed according to their achievement variable. Achievement level was classified as poor (0-49), passing (51-69), good (70-84), and very good (85-100) on a scale of 100 points. The analysis results are given in the table.

Table 10: ANOVA Results Examining the Relationship Between High School Students' Academic Achievement and Human Values Scale Scores

Value	Academic Achievement	N	$\bar{X}$	SS	F	p	Post Hoc	η^2
Honesty	Poor	14	4,00	,68	1,16	,32		,01
	Pass	85	3,98	,56				
	Good	56	4,12	,50				
	Very good	69	4,11	,49				
Tolerance	Poor	14	2,80	,37	1,55	,20		,02
	Pass	85	3,11	,50				
	Good	56	3,12	,55				
	Very good	69	3,14	,60				
Respect	Poor	14	3,69	,53	1,38	,24		,01

	Pass	85	3,39	,67				
	Good	56	3,36	,72				
	Very good	69	3,52	,69				
Friendship/ Companionship	Poor	14	4,27	,69	1,93	,12		,02
	Pass	85	3,91	,74				
	Good	56	3,75	,74				
	Very good	69	3,90	,76				
Peacefulness	Poor	14	3,22	,45	4,10	,00	very good-pass	,05
	Pass	85	3,28	,63				
	Good	56	3,53	,62				
	Very good	69	3,58	,62				
Responsibility	Poor	14	3,52	,76	,64	,58		.00
	Pass	85	3,40	,63				
	Good	56	3,54	,63				
	Very good	69	3,42	,55				
Total Human Values Score	Poor	14	3,58	,35	1,04	,37		,01
	Pass	85	3,51	,35				
	Good	56	3,57	,33				
	Very good	69	3,61	,37				

According to Table 10, a significant difference (p=0.00) was found in the value of peacefulness. No significant difference (p>0.05) was found in the values of honesty, tolerance, respect, friendship/companionship, responsibility, and human values levels.

A pairwise comparison analysis revealed a significant difference (p=0.00) in the value of peacefulness: High school students with very good achievement ($\bar{X}$=3.58) were found to have a higher value of being peaceful compared to those with passing grades ($\bar{X}$=3.28). It can be said that the achievement of high school students did not lead to any differentiation in their values of honesty, tolerance, respect, friendship/companionship, responsibility, and human values.

When the Eta-squared effect size data is examined, small effect sizes (η^2<0.06) are observed in all the total scores and sub-dimensions of human values. Accordingly, it was determined that the achievement variable has a small effect on human values.

4.1.13 Relationship Between the Sub-dimensions of The Thinking Styles Inventory (TSI) and The Total Score of The Human Values Scale

Pearson correlation analysis was applied to determine the relationship between high school students' thinking styles and their scores on the Human Values Scale. This analysis examined the relationship between scores obtained from the sub-dimensions of the Thinking Styles Inventory and the total score on the Human Values Scale. The analysis results are given in the table.

Table 11: Correlation Analysis Table Between High School Students' Human Values Scale Total Score and Thinking Styles Sub-Dimensions

Total Human Values Level Scores		
Style	**r**	**p**
Legislative	-,00	,95
Executive	,04	,48
Judicial	-,06	,29
Monarchic	-,04	,48
Hierarchic	-,03	,51
Oligarchic	,00	,88
Anarchic	-,01	,84
Global	,00	,92
Local	,02	,67
Internal	,03	,57
External	-,07	,19
Liberal	-,03	,49
Conservative	-,05	,32

Table 11 reveals a very low level of correlation between the human values scale score and the sub-dimensions of thinking styles.

When looking at the sub-dimensions of thinking styles, there is a positive and very low correlation between the executive (r=,04), oligarchic (r=,00), global (r=00), local (r=,02), and internal (r=,03) styles and the level of human values. A very low negative correlation was found in the remaining styles: legislative (r=-0.00), judicial (r=-0.06), monarchic (r=-0.04), hierarchic (r=-0.03), anarchic (r=-0.01), external (r=-0.07), liberal (r=-0.03), and conservative (r=-0.05).

4.2 Discussion and Conclusion

This study aims to examine the relationship between high school students' thinking styles and their scores on the human values scale, to analyze high school students' thinking styles in relation to certain variables, and to analyze high school students' scores on the human values scale in relation to certain variables. The findings for each sub-problem are presented below, and these findings are explained by supporting them with literature data.

4.2.1 Results and Suggestions of High School Students' Thinking Styles According to Various Variables

The two most common thinking styles among high school students is legislative (n=82) and executive (n=40) External (n=32) and hierarchic (n=32) thinking styles were also frequently preferred. Accordingly, it can be said that high school students are innovative, follow tasks in an organized manner, are good with rules, and are social individuals. Öz Aydın vd. The top four most preferred styles in the study by Öz Aydın *et al.* (2023) and the top four most preferred styles identified in this study are consistent in the same order. While the same can be said for the legislative thinking style in Demir and Osmanoğlu's

study, it should be noted that "*the conservative thinking style, which was one of the least preferred styles in this study*," was among the most preferred in the 2013 research. Similarly, in Mardin's 2010 study, legislative, executive, hierarchic, and external styles were found to be among the most preferred styles. In conclusion, high school students can be described as creative, innovative, adaptable to rules, able to fulfill given tasks, and responsible individuals.

The study found that thinking styles did not show a significant difference according to the gender variable. However, Sternberg (2009) states that gender is one of the factors influencing thinking styles. Contrary to our findings, Mardin (2010) also found significant differences in favor of males in conservative, global, and local styles in his study. Öz Aydın *et al.* (2023) found significant differences in favor of males in anarchic and global styles. According to the study conducted by Demir and Osmanoğlu (2013) on 307 high school students, a significant difference was found in favor of males in the monarchic and oligarchic styles. Finally, in Çelik's (2016) study conducted with 11th-grade students, it was observed that the gender variable and thinking styles differed significantly in favor of girls in the legislative, executive, internal, and hierarchic styles.

Regarding thinking styles, a significant difference was found in favor of 17-year-olds in the executive style, monarchic style, hierarchic style, anarchic style, and global style. In Mardin's (2010) study, a significant difference was found in favor of 18-year-olds in the legislative style. In the study by Demir and Osmanoğlu (2013), the class level variable was considered instead of age, and a significant difference was found in favor of 12th-grade students in the legislative style, 11th-grade students in the judicial style, 11th-grade students in the oligarchic style, and 11th-grade students in the anarchic style. Sternberg (2009) states that the age variable affects thinking styles. Sternberg's statement supports this study, which is based on the literature.

A significant difference was found in the study favoring those with good (80,000-99,999 TL) family incomes in the judicial, monarchic, hierarchic, anarchic, global, local, and liberal styles; those with good (80,000-99,999 TL) and very good (100,000 TL+) family incomes in the oligarchic, external, and conservative styles; and those with upper-middle (60,000-79,999 TL) and good (80,000-99,999 TL) family incomes in the internal thinking style. A review of the literature revealed no studies examining the relationship between income level and thinking styles. Accordingly, this study found that as income level increases, thinking styles also differ.

Finally, the study examined whether there was a significant difference between the variable of student achievement and thinking style. A significant difference was found in favor of those with very good achievement scores (85-100) in the monarchic, hierarchic, oligarchic, global, and local styles. A review of the literature revealed no studies examining the relationship between high school students' achievement and thinking styles. Accordingly, it was determined that successful students are quite good at multiple and one way thinking, seeing the whole and the specifics, and progressing through their tasks step by step, and that they think in these styles.

4.2.2 Results and Suggestions of High School Students' Scale Scores Regarding Their Values According to Various Variables

When high school students' human values dimensions are examined, it was determined that they have a high level of human values in the sub-dimensions of honesty, responsibility, friendship/companionship, peacefulness, and respect; however, they are at a moderate level in the tolerance sub-dimension. Similar findings were obtained in the studies of Kayır (2011) and Kurt Kaban (2019). İnan Kılıç (2020) found that the value of respect was at a moderate level among high school students. In the research of Yılmaz *et al.* (2022), similar to this study, it was found that the values of respect and friendship/companionship were at a high level, while the value of tolerance was at a moderate level. However, researchers determined that students were at a moderate level in the values of responsibility, honesty, and peacefulness. Another study also supports these findings: According to the study, high school students' tolerance level was found to be moderate; while the sub-dimensions of honesty, responsibility, friendship/companionship, peacefulness, and respect were found to be at a high level of human values (Yılmaz, 2016).

It was determined that there were significant differences in favor of women in the levels of honesty, peacefulness, friendship/companionship, and total human values scores according to the gender variable. Similar findings were also revealed in Yılmaz's (2016) study. In Akgül's (2013) study, it was observed that all dimensions of the level of human values differ significantly in favor of women. In Kavun's (2016) study focusing on the level of human values, a significant difference emerged in favor of women. It should be noted that the literature supports the findings obtained and that human value levels differ in favor of women, indicating that women possess more human values than men.

No significant difference was found in the human values scale scores and its sub-dimensions; which are honesty, tolerance, respect, peacefulness, friendship/companionship, and responsibility, according to the age variable. However, it can be said that the scores obtained decrease as age increases. A study on human values found that 14-year-old participants had higher levels of human values (Kavun, 2016). In Büyükyıldırım's thesis study conducted in 2013, no significant difference was found between the level of human values and their sub-dimensions and the age variable. Similarly, in the study by Yiğit and Dilmaç (2011), no significant difference was found between age and the level of human values and their sub-dimensions. Therefore, it is believed that the age variable does not significantly affect human values.

The study examined whether the level of human values and its sub-dimensions differed according to the family's monthly income, and no significant differences were found in any sub-dimension. Looking at the literature, Yılmaz (2009), Büyükyıldırım (2013), Dursun (2016), and Kavun (2016) also found no significant difference between the level of human values and its sub-dimensions and income levels. Therefore, it can be concluded that the family's monthly income does not affect the level of human values and their sub-dimensions.

Finally, the study examined whether there was a difference between achievement level and the level of human values and its sub-dimensions. Based on the findings, a significant difference was found only in the peacefulness sub-dimension, favoring the "very good" (85-100) achievement score. In his study, Güneş (2015) examined the relationship between values and achievement using a different scale than the one used in this study and found a significant difference in value levels in favor of successful students. Apart from Güneş's study, no other research examining the value/achievement aspect has been found. Based on this, it was concluded that successful students have higher value scale scores.

4.2.3 Results and Suggestions on the Relationship Between the Sub-Dimensions of the Thinking Styles Inventory and the Total Score of the Human Values Scale

There is a very low positive correlation between the sub-dimensions of thinking styles: executive, oligarchic, global, local, and internal. There is a very low negative correlation between legislative, judicial, monarchic, hierarchic, anarchic, external, liberal, and conservative thinking styles. Therefore, it can be said that there is no high correlation between thinking styles and human values.

In short, although no relationship was found between human values and thinking styles, values and styles show significant differences according to gender, age, family's monthly income, and student achievement status as independent variables. It is believed that this study will contribute to future studies both in practice and scientifically.

5. Recommendations

5.1 Recommendations for Practitioners

- Teachers may differentiate their instruction by identifying their students' thinking styles.
- Teachers may differentiate values education by determining students' levels of human values.

5.2 Recommendations for Researchers

- Researchers may conduct similar studies with larger samples.
- Researchers may carry out similar studies based on independent variables such as geographical regions and cities.
- Researchers may conduct in-depth qualitative studies to investigate the underlying reasons for the identified findings.

5.3 Recommendations for High School Students

- High school students may personalize their learning in accordance with their own thinking styles.

Conflict of Interest Statement

The authors declare no conflicts of interest

About the Authors

İsmail Gelen is a Professor Dr. in the field of Curriculum and Instruction. His primary research interests include 21st-century skills, thinking education, values education, teacher education, instructional principles and methods, curriculum development, and curriculum evaluation. He has contributed to scientific studies by undertaking academic roles across many continents beyond Türkiye. He has also served as a reviewer and editor for both national and international journals. He has authored more than 50 articles, 14 of which have been published in SSCI-indexed journals, presented more than 50 papers at national and international conferences, and contributed to 21 books and book chapters. In addition, he has been involved in 27 national and international projects and has supervised 19 graduate theses, while also serving as a jury member. He has participated actively in numerous panels, seminars, conferences, councils, radio and television programs, and scientific meetings. As of January 24, 2025, his Google Scholar citations total 2,245, and his i10-index is 30. In Türkiye, he has held roles in institutions such as TÜBİTAK, YÖKAK, EPDAD, and the Ministry of National Education (MoNE). Proficient in English and Ottoman Turkish, İsmail Gelen continues his academic work at Ondokuz Mayıs University as Professor Dr. and Head of the Department of Curriculum and Instruction within the Department of Educational Sciences.
ORCID: https://orcid.org/0000-0001-6669-8702
Institutional Profile: https://avesis.omu.edu.tr/ismailgelen
Email: ismailgelen@omu.edu.tr, profdrismailgelen@gmail.com

Mehmet Örüker is a graduate student in Curriculum and Instruction. He completed his undergraduate education in the Turkish Language Teaching program.
ORCID: https://orcid.org/0009-0005-6425-6616
Email: orukermehmet72@gmail.com

References

Akbaş, O. (2008). Değer eğitimi akımlarına genel bir bakış. *Değerler Eğitimi Dergisi*, *6*(16), 9-27. Retrieved from https://dergipark.org.tr/tr/pub/ded/article/312499

Akgül, T. (2013). *Ortaöğretim öğrencilerinin okul iklimine ilişkin algıları ile insani değerleri benimseme düzeyleri arasındaki ilişki* [Yayımlanmamış yüksek lisans tezi]. Fırat Üniversitesi.

Akın, U., & Arslan, G. (2014). İdeoloji ve eğitim: devlet-eğitim ilişkisine farklı bir bakış. *Trakya Üniversitesi Eğitim Fakültesi Dergisi, 4*(1), 81-90. Retrieved from https://dergipark.org.tr/tr/download/article-file/200329

Bayter, M. (2008). Kütüphanelerin Örgütsel Davranışının Gelişimi. *Türk Kütüphaneciliği*, *22*(1), 3-24. Retrieved from https://dergipark.org.tr/tr/pub/tk/article/624235

Büyüköztürk, Ş. (2012). *Sosyal Bilimler için Veri Analizi El Kitabı*. Pegem Akademi Yayıncılık. Retrieved from https://dergipark.org.tr/en/download/article-file/787025

Büyükyıldırım, İ. (2013). *Siber mağdur olmanın insani değerler ve sosyodemografik değişkenler açısından incelenmesi.* [Yayımlanmamış yüksek lisans tezi]. Necmettin Erbakan Üniversitesi. Retrieved from https://dergipark.org.tr/en/pub/ded/article/312351

Çelik, D. (2016). *11.sınıf öğrencilerinin düşünme stilleri, öğrenme stratejileri ve düşünme stilleri ile öğrenme stratejileri arasındaki ilişki*. [Yayımlanmamış yüksek lisans tezi]. Pamukkale Üniversitesi. https://doi.org/10.17860/efd.37220

Çınar, G. (2016). *Öğretmen adaylarının düşünme stilleri ile yansıtıcı düşünme eğilimleri arasındaki ilişki.* [Yayımlanmamış yüksek lisans tezi] Ondokuz Mayıs Üniversitesi. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=glbftH_S7sPhZuCChcPEkw&no=qTbjmrASX2zyzEeHcx9KTQ

Demir, Ö., & Osmanoğlu, D. E. (2013). Lise öğrencilerinin düşünme stillerinin çeşitli değişkenler acısından incelenmesi. *Eğitim Bilimleri Araştırmaları Dergisi, 3*(1), 165-184. Retrieved from https://dergipark.org.tr/tr/pub/ebader/article/555208

Demirkan, Ö. (2023). Eğitim ihtiyaçlarının belirlenmesi. In H. Ünsal (Ed.), *Eğitimde Program Geliştirme* (pp. 141-169). Pegem Akademi. Retrieved from https://avesis.gazi.edu.tr/yayin/96521f20-bc10-484a-a392-601a136157da/egitimde-program-gelistirme

Dilmaç, B. (1999). *İlköğretim öğrencilerine insani değerler eğitimi verilmesi ve ahlaki olgunluk ölçeği ile eğitimin sınanması*. [Yayımlanmamış yüksek lisans tezi]. Marmara Üniversitesi. Retrieved from https://toad.halileksi.net/wp-content/uploads/2022/07/ahlaki-olgunluk-olcegi-moral-maturity-scale-toad.pdf

Dilmaç, B. (2007). *Bir grup fen lisesi öğrencine verilen insani değerler eğitimin İnsani Değerler Ölçeği ile sınanması*. [Yayımlanmamış doktora tezi]. Selçuk Üniversitesi. Retrieved from https://search.trdizin.gov.tr/tr/yayin/detay/78679

Dursun, H. (2016). *Lise öğrencilerinin değer tercihleri ve yaşam doyumları arasındaki ilişki*. [Yayımlanmamış yüksek lisans tezi]. Atatürk Üniversitesi.

Fer, S. (2005). Düşünme stilleri envanterinin geçerlik ve güvenirlik çalışması. *Kuram ve Uygulamada Eğitim Bilimleri, 5*(1), 31-68.

Gay, L. R., Mills, G. E., & Airasian, P. (2006). *Educational Research*. Pearson: Ohio. Retrieved from https://books.google.ro/books/about/Educational_Research.html?id=ecpjQgAACAAJ&redir_esc=y

Gelen, İ. (2002). Sınıf öğretmenlerinin sosyal bilgiler dersinde düşünme becerilerini kazandırma yeterliklerinin değerlendirilmesi. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 10*(10), 100-119. Retrieved from https://dergipark.org.tr/tr/pub/cusosbil/article/59709

Gelen, İ. (2017). P21-program ve öğretimde 21. yüzyıl beceri çerçeveleri (ABD uygulamaları). *Disiplinlerarası Eğitim Araştırmaları Dergisi*, *1*(2), 15-29. https://dergipark.org.tr/en/download/article-file/386403

Gelen, İ., Yılmaz, A., & Kurtulmuş, M. (2010). İlköğretim 5. Sınıf öğrencilerinin sosyo ekonomik düzeyleri ile değerleri arasındaki ilişkinin belirlenmesi. *Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *7*(14), 237-246. Retrieved from https://www.semanticscholar.org/paper/%C4%B0lk%C3%B6%C4%9Fretim-5.-S%C4%B1n%C4%B1f-%C3%B6%C4%9Frencilerinin-sosyo-ekonomik-Gelen-Y%C4%B1lmaz/bfa905d74d445cf665a34f645207af28cb7474bc

George, D., & Mallery, P. (2010). *SPSS for Windows step by step. A simple study guide and reference.* Pearson Education. Retrieved from https://books.google.ro/books/about/SPSS_for_Windows_Step_by_Step.html?id=KS1DPgAACAAJ&redir_esc=y

GPE. (2020). *21st century skills: What potential role for the global partnership for education? A landscape review*. Global Partnership for Education Retrieved from https://www.globalpartnership.org/library/21st-century-skills-what-potential-role-global-partnership-education

Güneş, A. (2015). *Lise öğrencilerinin şiddet ve değer eğilimlerinin bazı değişkenler açısından incelenmesi (Rize ili örneği).* [Yayımlanmamış doktora tezi]. Sivas Cumhuriyet Üniversitesi. Retrieved from https://avesis.kocaeli.edu.tr/yonetilen-tez/b5f788c3-3808-462f-979b-6012278aa878/lise-ogrencilerinin-siddet-ve-deger-egilimlerinin-bazi-degiskenler-acisindan-incelenmesi-rize-ili-ornegi

Hall, T., Strangman, N., & Meyer, A. (2003). Differentiated instruction and implications for UDL implementation. *Preventing School Failure, 52*(2), 21–30. Retrieved from https://www.cast.org/resources/tips-articles/ncac-differentiated-instruction-udl/

İnan Kılıç, A. (2020). Lise Öğrencilerinin Manevi- İnsani Değerler Eğilimi. *Cumhuriyet İlahiyat Dergisi, 24*(2), 807-831. https://doi.org/10.18505/cuid.765415.

İşçan Demirhan, C. (2019). Değerler eğitiminde temel kavramlar. In A. F. Ersoy & P. Ünüvar (Eds.), *Karakter ve değerler eğitimi* (pp. 31–50). Anı Yayıncılık.

Kayır, G. (2011). *Ortaöğretim öğrencilerinin değer algılarının incelenmesi. Eskişehir örneği.* [Yayımlanmamış yüksek lisans tezi]. Eskişehir Osmangazi Üniversitesi.

Kavun, Y. (2016). *Ergenlerde dindarlık ve insani değerler.* [Yayımlanmamış yüksek lisans tezi]. Necmettin Erbakan Üniversitesi. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/tezDetay.jsp?id=jzKAnGSx-UwR6CAUnaQd7w&no=0RHmQpHcwGtvj_h-EjzqWg

Keskin, Y., Öksüz, Y., Gelen, İ., & Yılmaz, H. B., (2012). İlköğretim 5. sınıf öğrencilerinin bazı evrensel değerleri kazanım düzeylerinin karşılaştırılması Samsun İli Örneği. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, (31)*2, 351-374. Retrieved from https://dergipark.org.tr/tr/download/article-file/187990

Kurt Kaban, G. (2019). *Ergenlerde siber zorbalığın insani değerler açısından incelenmesi (Kocaeli örneklemi)*. [Yayımlanmamış yüksek lisans tezi]. Afyon Kocatepe Üniversitesi. https://doi.org/10.52528/genclikarastirmalari.859192

Q'leary, Z. (2004). *The essential guide to doing research*. Sage Publications. Retrieved from https://www.univ-setif2.dz/images/ecr-sc/The_essential_guide_to_doing_research.pdf

Mardin, S. (2010). *Lise öğrencilerinin düşünme stilleri*. [Yayımlanmamış yüksek lisans tezi]. Aydın Adnan Menderes Üniversitesi.

MEB (2024). Türkiye Yüzyılı Maarif Modeli Öğretim Programları Ortak Metni. MEB.

Öz Aydın, S., Öztürk, G., Aydar, M., & Avcu, M. (2023). Lise Öğrencilerinin Düşünme Stilleri ile Çevresel Bakış Açıları Arasındaki İlişki. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi(55)*, 1-20. https://doi.org/10.53444/deubefd.1099961

Özdamar, K. (2013). SPSS ile bilimsel araştırma sürecinde nicel veri analizi. Nisan Kitabevi.

Palut, B. (2008). Düşünme stilleri ve anne-baba tutumları arasındaki ilişki. *Dokuz Eylül Üniversitesi Buca Eğitim Fakültesi Dergisi (24)*. Retrieved from https://dergipark.org.tr/en/pub/deubefd/article/268239

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Sage Publications. Retrieved from https://books.google.ro/books/about/Qualitative_Research_Evaluation_Methods.html?id=FjBw2oi8El4C&redir_esc=y

Sarı, E. (2005). Öğretmen adaylarının değer tercihleri. *Değerler Eğitimi Dergisi, 3*(10), 73-87. Retrieved from https://dergipark.org.tr/tr/pub/ded/article/312548

Sternberg, R. J. (1988). Mental self-government: A theory of intellectual styles and their development. *Human Development, 31*, 197-224. Retrieved from https://www.jstor.org/stable/26767535

Sternberg, R. J. (1994). Allowing for thinking styles. *Educational Leadership 52*(3), 36. Retrieved from https://www.ascd.org/el/articles/allowing-for-thinking-styles

Sternberg, R. J., & Grigorenko, E. L. (1995). Styles of thinking in the school. *European Journal of High Ability, 6*(2), 201–219. https://doi.org/10.1080/0937445940060211

Sternberg, R. J. (2009). *Düşünme stilleri*. Redhouse Eğitim Kitapları.

Sternberg, R. J., & Wagner, R. K. (1992). Thinking Styles Inventory. (Unpublished test). Yale University. https://doi.org/10.1037/t14063-000

Taşpınar, M. (2017). *Sosyal bilimlerde SPSS uygulamalı nicel veri analizi*. Pegem Akademi. Retrieved from https://depo.pegem.net/9786052410585.pdf

Tavşancıl, E., & Aslan, E. A. (2001). *İçerik analizi ve uygulama örnekleri*. Epsilon Yayıncılık. Retrieved from https://www.kitapyurdu.com/kitap/icerik-analizi-ve-uygulama-ornekleri-sozel-yazili-ve-diger-meteryaller-icin/34094.html?srsltid=AfmBOorP5AjlYG4GrkCGVBOnssq88uYOdJjGRNVH1LBYmbE1iu1qxRm1

Toraman, Ç., & Özdemir H. F. (2023). Evren ve örneklem. In A. İlğan, & A. Ekinci (Eds.), *Eğitimde araştırma yöntemleri* (pp. 135-167). Nobel Akademik Yayıncılık.

Türel, Y. K., Şimşek, A., Şengül Vautier, C. G., Şimşek, E., & Kızıltepe, F. (2023). *21. yüzyıl becerileri ve değerlere yönelik araştırma raporu*. Millî Eğitim Bakanlığı. https://ttkb.meb.gov.tr/meb_iys_dosyalar/2023_05/11153521_21.yy_becerileri_ve_degerlere_yonelik_arastirma_raporu.pdf

Türk Dil Kurumu (TDK). (2025a, April 10). Düşünmek. *Güncel Türkçe Sözlük*. Retrieved June 6, 2025, from https://sozluk.gov.tr/

Türk Dil Kurumu (TDK). (2025b, April 10). İhtiyaç. *Güncel Türkçe Sözlük*. Retrieved June 6, 2025, from https://sozluk.gov.tr/

Ulusoy, K. (2010). Değer eğitimi; davranışçı ve yapılandırmacı yaklaşıma göre hazırlanan tarih programlarında değer aktarımı, *Trakya Üniversitesi Sosyal Bilimler Dergisi, 12*(1), 32-51. Retrieved from https://dergipark.org.tr/tr/pub/trakyasobed/article/326336

Yılmaz, E., Güner, B., & Caner, N. (2022). Meslek lisesi öğrencilerinin öz-yeterliklerinin yordayıcısı olarak insani değerler. *Milli Eğitim Dergisi, 51*(236), 3181–3209. https://doi.org/10.37669/milliegitim.938186

Yılmaz, S. (2016). *İmam Hatip Lisesi öğrencilerinin akran ilişkilerinin, insani değerler ve öznel iyi oluş düzeyleri açısından incelenmesi.* [Yayımlanmamış yüksek lisans tezi]. Marmara Üniversitesi. Retrieved from https://doi.org/10.23863/kalem.2017.66

Yılmaz, E. (2009). *Açık öğretim lisesi ve mesleki açık öğretim lisesi öğrencilerinin insani değer profillerinin karşılaştırılması*. [Yayımlanmamış yüksek lisans tezi]. Yeditepe Üniversitesi.

Yiğit, R., & Dilmaç, B. (2011). Ortaöğretimde öğrencilerin sahip oldukları insani değerler ile akademik erteleme davranışlarının bazı değişkenler açısından incelenmesi. *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, 31*, 159-177. Retrieved from https://library.dogus.edu.tr/mvt/pdf.php?pdf=0011854&lng=1

Zhang, L. F., & Sternberg, R. J. (2000). Are learning approaches and thinking styles related? A study in two Chinese populations. *The Journal of Psychology, 134*, 469-489. https://doi.org/10.1080/00223980009598230