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Reflections of Root Values on Secondary School Mathematics Textbooks

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ABSTRACT

The recent importance of value education is the efforts to prepare the contents of textbooks by taking these values into consideration. In this regard, the aim of the study is to examine whether secondary school mathematics textbooks reflect the root values in the program. The research is a case study, and the document review method was used. Descriptive analysis techniques and statistical analysis were used to analyze the root values in the textbooks. Values investigated in the study; An umbrella has been created within the framework of the root values determined by the Ministry of National Education. During the data analysis process, the elements in the books were examined by breaking them down into introduction, information, activities and examples/questions. The total number of contents in the books examined was determined as 6037 (77.58% examples and questions; 2.17% activities). As a result, it was concluded that the root values most mentioned were responsibility, self-control and patriotism, and the root values least mentioned were patience and honesty.

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1. Introduction

Values are the most significant factors that shape the identity of individuals and societies. Like every aspect of society, values also hold a crucial place in the education system. The development and changes observed worldwide in the 21st century have led to significant transformations in education and teaching. However, these changes have also resulted in a weakening of societal values. Strengthening societal values and concepts through education will help reduce societal shocks and problems (Ministry of National Education, 2023; Jarmoszko, 2023).

Value education begins in an individual's family life before school age. The foundation for this learning process is laid in the family, but it is solidified and given meaning through education and teaching. The concept of intentional enculturation, which imparts values to individuals, is primarily presented in the school environment. According to Ertürk, education has many definitions, and the common denominator of these definitions is the concept of "intentional enculturation." Therefore, the goal in the education process is to consciously transmit culture to the individual. There is a need for value education to sustain and perpetuate the culture of society and revive and continue vanishing and eroded values (Ertürk, 1988). Hence, in Turkey, starting from 2005, values and value education have been emphasized in the education curriculum. The document presented in the press conference titled "Our Curriculum Renewal and Change Studies" by the Board of Education and Discipline Presidency of the Ministry of National Education on July 18, 2017, indicates that value education forms the central focus of the renewed curriculum. In the curriculum updates created in 2018, root values that are

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considered important in value education are: justice, friendship, honesty, self-discipline, patience, respect, love, responsibility, helpfulness, and patriotism (Ministry of National Education [MEB], 2018).

In line with the fundamental principles of holistic education, values education should be integrated into mathematics instruction just as it is in all other subjects. Ensuring coherence and continuity across courses is essential for the effective internalization of values. Lasting and meaningful development in students' value formation can only be achieved when mathematics, as a core component of the curriculum, actively contributes to this process. Therefore, the values emphasized within the mathematics curriculum—identified as key program objectives—must be reflected in concrete instructional materials, particularly in mathematics textbooks. This requirement stems from the fact that textbooks used in schools are expected to be developed in alignment with the goals and targets outlined in the national curriculum (Demirci & Özdemir, 2025).

In value education, it is necessary to collaborate and act with a common purpose with all disciplines. Based on this, value education is of significance within the scope of mathematics lessons. The root values found under the title "Our Values" in the mathematics curriculum indicate that the inclusion of values in mathematics teaching is targeted (Ministry of National Education [MEB], 2018). Since the textbooks to be used in schools are prepared according to the goals of this curriculum, mathematics textbooks should include the values that are one of the goals of the program. This study aims to determine the extent to which middle school mathematics textbooks incorporate the values intended to be conveyed as an objective of the mathematics curriculum, as well as to identify the suitability of these textbooks for this purpose and the areas requiring improvement. The research is considered valuable as it contributes to the enhancement of values education in middle school mathematics textbooks, which plays an important role in transmitting the culture of society.

Therefore, this study examined the frequency and levels of the root values contained in the mathematics textbooks for middle school, considering the scarcity of research on whether middle school mathematics textbooks transmit the values targeted by the mathematics curriculum. Based on this, the research problem is as follows:

"What is the frequency of root values in middle school mathematics textbooks between 2018 and 2022, and at what levels do they contribute to imparting the values?"

The sub-problems of this research are as follows:

1. How often are root values included in the content of 5th-grade mathematics textbooks between 2018 and 2022?
2. How often are root values included in the content of 6th-grade mathematics textbooks between 2018 and 2022?
3. How often are root values included in the content of 7th-grade mathematics textbooks between 2018 and 2022?
4. How often are root values included in the content of 8th-grade mathematics textbooks between 2018 and 2022?
5. Is there any difference in the frequency of inclusion of root values in the content of the mathematics textbooks used between 2018 and 2022?
6. What are the levels of imparting root values in the content prepared by including root values in the mathematics textbooks used between 2018 and 2022?

2. Method

Our study was conducted as qualitative and descriptive research using a case study design. In case study research, a limited number of samples are used to examine an event, situation, relationship, or process in-depth (Denscombe, 2010). The cases involved in a case study can be individuals, books, curricula, groups (communities), behaviors, or events (Creswell, 2017; Neuman, 2014; Yin, 2011). In the context of our study, the case is the expressions containing root values found in the middle school mathematics textbooks between 2018 and 2022.

The study's research group consists of the middle school mathematics textbooks published by the Ministry of National Education between 2018 and 2022. The data obtained are as follows:

- Hayriye Cırtıç, İlker Gönen, Dilara Araç, Murat Özarslan, Neşe Pekcan, and Meltem Şahin authored textbook approved as the 5th-grade textbook by the Board of Education and Discipline of the Ministry of National Education on 28.05.2018 - Ministry of National Education Publications.
- Neziha Çağlayan, Aybike Dağıstan, and Betül Korkmaz authored textbook approved as the 6th-grade textbook by the Board of Education and Discipline of the Ministry of National Education on 28.05.2018 - Ministry of National Education Publications.
- Mahmut Bektaş, Sabrinur Kahraman, and Yakup Temel authored textbook approved as the 6th-grade textbook by the Board of Education and Discipline of the Ministry of National Education on 28.05.2018 - Ministry of National Education Publications.
- Arzu Keskin Oğan and Soner Öztürk authored textbook approved as the 7th-grade textbook by the Board of Education and Discipline of the Ministry of National Education on 18.04.2019 - Ministry of National Education Publications.
- Hadi Bölge and Ramazan Akıllı authored textbook approved as the 8th-grade textbook by the Board of Education and Discipline of the Ministry of National Education on 28.05.2018 - Ministry of National Education Publications.
- Dr. Özal Çetin, Umut Aksakal, Ümran Ertürk, Gürkan Şay, and İpek Tıgılı authored textbook approved as the 8th-grade textbook by the Board of Education and Discipline of the Ministry of National Education on 18.04.2019 - Ministry of National Education Publications.

This case study aims to explore how frequently root values are included in these middle school mathematics textbooks between 2018 and 2022 and to what extent they contribute to imparting the values. The research also includes sub-problems related to each grade's textbooks.

1. Book Title: Middle School and Imam Hatip Middle School 5th Grade Mathematics Textbook Book Code: 5th Grade
2. Book Title: Middle School and Imam Hatip Middle School 6th Grade Mathematics Textbook Book Code: 6th Grade-1
3. Book Title: Middle School and Imam Hatip Middle School 6th Grade Mathematics Textbook Book Code: 6th Grade-2
4. Book Title: Middle School and Imam Hatip Middle School 7th Grade Mathematics Textbook Book Code: 7th Grade
5. Book Title: Middle School and Imam Hatip Middle School 8th Grade Mathematics Textbook Book Code: 8th Grade-1
6. Book Title: Middle School and Imam Hatip Middle School 8th Grade Mathematics Textbook Book Code: 8th Grade-2

In the study, for data collection, a criteria form for root values containing behaviors and expressions, determined by the Ministry of National Education Board of Education and Discipline, along with a literature review on attitudes and behaviors related to root values, was used. To enable evaluators to identify root values in the elements, a three-point Likert scale (1: weak, 2: moderate, 3: strong) assessment method was employed. The data collected in the study were categorized into four subheadings: Introduction - Information - Activities - Examples/Questions. The created criteria form for root values was tested for reliability by obtaining the opinions of two different experts, and the Fleiss Kappa coefficient was calculated to be 0.89.

In qualitative research, consistency in data analysis and interpretation, as well as clear explanations of findings, is expected to ensure validity and reliability (Gibbs, 2007). To achieve reliability and validity in our research, three independent evaluators, one of whom was the researcher, were used, and the identified expressions were accurately transcribed. Statistical consistency analyses were used to assess the differences and consistencies among evaluators. Validity, according to Fraenkel and Wallen (2012), is achieved by explaining the significance, appropriateness, and usefulness of the study based on the

obtained data. In the study, the appropriateness of the collected data in relation to the study's purpose was examined to ensure validity. The significance of the study was supported by the obtained ratios and findings. The usefulness of the study was established based on its benefits and contribution to the existing literature.

In qualitative research, rather than reliability, consistency is often considered. Although the same criterion was used for consistency in the study, the coding made by different coders were compared. Confirmability, one of the reliability methods in research, refers to the researcher's objectivity, realism, and reflection of the truth (Yıldırım, 2018). Analyst triangulation, a method to ensure consistency among multiple evaluators, involves evaluating data from different perspectives to achieve similar results (Yaşar, 2018). In our study, consistency was evaluated by examining whether different experts reached the same conclusion from the same data at different times. For this purpose, the statistical method of kappa consistency test was applied, and both the minimum significant and highly significant levels were achieved in our study. The kappa test is a statistical method that measures the agreement among observers. Furthermore, Fleiss' kappa provides stronger statistical results than percentage-based methods by considering the possibility of chance agreement among observers (Fleiss, 1971).

In the study, three evaluators used descriptive and statistical analysis, which are data analysis methods commonly used in qualitative research, to analyze the content obtained from textbooks. Since the study was based on pre-determined themes, and the findings were interpreted according to these themes, a descriptive analysis approach was adopted (Yıldırım and Şimşek, 1999). To enable statistical analysis by evaluators, the expressions were evaluated in three levels: weak, moderate, and strong expression power. The collected data were grouped according to predetermined categories and analyzed and evaluated descriptively and statistically using Microsoft Office and IBM SPSS software. Qualitative research does not have fixed boundaries like quantitative research and has a flexible working structure. In our study, abstract concepts such as root values were examined, and each item was individually assessed for the presence of one or more values. After the evaluations, qualitative data were further evaluated using numerical and percentage values along with tables for clearer interpretation. Fleiss Kappa (1971) statistics were used for consistency. This statistic was calculated using SPSS 24 software. The interpretation of the κ value was based on the study by Landis and Koch (1977).

3. Results or Findings and Discussions

Results which are related to the first sub-problem:

In the analyzed 5th-grade textbook, examples of findings related to some radical values are presented below.

Table 1. Perceived Distribution of Root Value Content by Evaluators

	Evaluator 1	Evaluator 2	Evaluator 3	Minimum- Maximum
Justice	14	14	15	14-15
Helpfulness	4	4	4	4-4
Friendship	10	7	9	7-10
Honesty	5	5	5	5-5
Love	18	18	18	18-18
Respect	3	2	2	2-3
Patience	0	0	0	0-0
Self-control	27	31	29	27-31
Patriotism	13	13	17	13-17
Responsibility	24	26	26	14-26
Total	118	120	125	118-125

The root values and their distributions given in the 5th grade mathematics textbook are given in the table below. In the examination carried out by three separate evaluators, it was found that the most mentioned value in the book for all evaluators was self-control, with a rate of approximately 22.88%. It has been found that the root value of patience is not included in the book. (Table 1)

Kan Bağıışı Hayat Kurtarır

1868'den bugüne birçok savaş ve afette binlerce insana yardım eli uzatan Türk Kızılayı, gönüllü bağışçılardan alınan kanları ihtiyaç sahiplerine ulaştırmaktadır. Bağışlanan bir ünite kan, 3 kişinin hayatını kurtarmaktadır. 17 bölgede kan bağıışı merkezi bulunan Kızılay'a, 2016 yılında Orta Karadeniz Bölgesi Kan Merkezi'nden 92 923, Batı Anadolu Bölgesi Kan Merkezi'nden 79 180, Doğu Anadolu Bölgesi Kan Merkezi'nden ise 51 874 ünite kan bağıışı yapılmıştır.

Kan bağıışının önemi hakkında ne düşünüyorsunuz?

Her bölgeden az miktarda da olsa kan bağıışı yapıldığında bu bağıışlar nasıl bir fark oluşturmaz?

Bu üç bölgeden 2016 yılında tahmini kaç ünite bağıışı yapılmış olabilir?



Figure 1. Example of Helpfulness Root Value 2

In the 'Introduction' section of the book, the element discussed is about the Turkish Red Crescent organization and its function. Since the Turkish Red Crescent is an institution that provides services for the benefit of society, this element has been included under the benevolence radical value.

Her bir satış sorumlusunun 8 farklı üründen sorumlu olduğu bir mağazada toplam 63 satış sorumlusu bulunduğuna göre bu mağazada en çok kaç farklı ürün vardır?

Figure 2 Example of Responsibility Root Value 2

In the 'Examples/Questions' section of the book, the element discussed is about the job responsibility of a sales representative. Therefore, it has been included in the responsibility root value.

Results which are related to the second sub-problem:

The root values and their distributions provided in Table 2 of the 6th Grade-1 mathematics textbook are presented. In the examination conducted by three different evaluators, it has been found that the value with the highest occurrence in the book, with an approximate rate of 21.05%, is responsibility. However, it was observed that the value of honesty does not appear in the book.

Table 2. The Distribution of Root Values in the 6th Grade-1 Book According to Evaluators

	Evaluator 1	Evaluator 2	Evaluator 3	Minimum- Maximum
Justice	9	6	7	6-9
Helpfulness	8	6	5	5-9
Friendship	10	14	13	10-14
Honesty	0	0	0	0-0
Love	26	25	21	21-26
Respect	6	2	5	2-6
Patience	2	3	1	1-3
Self-control	16	29	19	16-29
Patriotism	19	19	17	17-19
Responsibility	24	35	26	24-35
Total	120	139	114	114-139

Some examples of findings related to certain root values in the analyzed 6th Grade-1 textbook are presented below.

Hazır mıyız?

Sağlık hizmeti veren kuruluşlarda bazı bireylerin hizmetlerden öncelikli olarak yararlanma hakkı vardır. Muayene olmak için sıra bekleyen hamile, engelli, 65 yaş üstü ve 7 yaş altı bireylerden birinci öncelik engellilerde, ikinci öncelik hamilelerde, üçüncü öncelik 65 yaş üstü bireylerde, dördüncü öncelik ise 7 yaş altı bireylerdedir.

Günlük hayatımızda yapmış olduğumuz birçok işlemden bir öncelik sırası vardır. Benzer şekilde matematikte de yaptığımız işlemlerde öncelik sırasını düşününüz ve açıklayınız.



Figure 3. Example of Respect Root Value 1

In the 'Introduction' section of the book, the element discusses individuals who are prioritized in certain institutions. Due to some needs and deficiencies of these individuals, it is essential for other people to be respectful towards them and to facilitate their tasks. Considering this aspect, it is observed that this element serves the root value of respect.

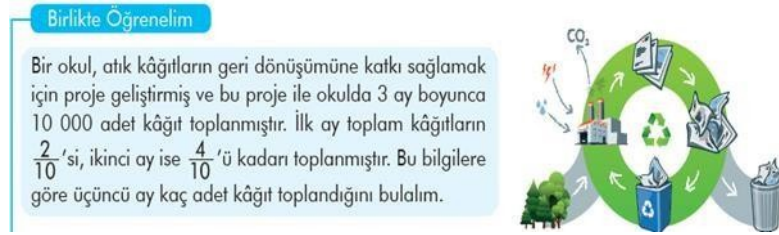


Figure 4. Example of Responsibility Root Value 3

In the 'Examples/Questions' section of the book, the element includes activities related to waste collection and recycling carried out in school. Preserving nature and supporting recycling are responsibilities that every individual should undertake. Therefore, this element has been included under the root value of responsibility.

In the 6th Grade-2 mathematics textbook, the root values and their distributions are provided in Table

3. In the examination conducted by three different evaluators, it was found that the value with the highest occurrence in the book, with an approximate rate of 27.7%, is responsibility. The value of honesty has been determined to be the least represented root value in the book, with a percentage of 1.35%.

Table 3. The Distribution of Root Values in the 6th Grade-2 Book According to Evaluators

		Evaluator 1	Evaluator 2	Evaluator 3	Minimum - Maximum
6th Grade-2	Justice	7	6	6	6-7
	Helpfulness	18	13	14	13-18
	Friendship	10	4	4	4-10
	Honesty	2	2	2	2-2
	Love	28	28	25	25-28
	Respect	11	4	4	4-11
	Patience	5	5	2	2-5
	Self-control	22	16	16	16-22
	Patriotism	31	36	32	31-36
	Responsibility	41	48	43	41-48
	Total	175	162	148	148-175

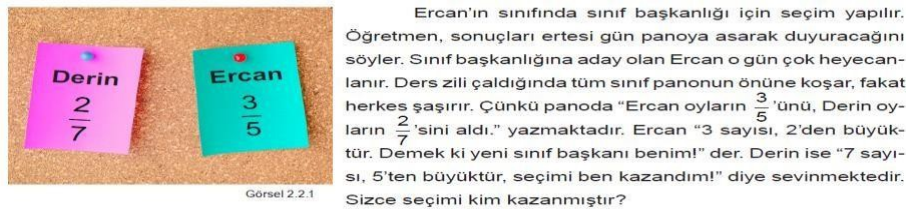


Figure 5. Example of Justice Root Value 2

In the 'Examples/Questions' section of the book, the element revolves around class presidency elections and their outcomes. Casting a vote in any election directly serves the root value of justice by ensuring the deserving candidate is elected.

Results which are related to the third sub-problem:

In the 7th Grade Mathematics textbook, the root values and their distributions are provided in Table 4. In the examination conducted by three different evaluators, it has been found that the value with the

highest occurrence in the book, with an approximate rate of 23.4%, is responsibility. The value of honesty has been determined to be the least represented root value in the book, with a percentage of 1.1%.

Table 4. The Distribution of Root Values in the 7th Grade Book According to Evaluators

	Evaluator 1	Evaluator 2	Evaluator 3	Minimum-Maximum
Justice	10	7	9	7-10
Helpfulness	3	3	2	2-3
Friendship	3	5	4	3-5
Honesty	0	1	1	0-1
Love	4	7	5	4-7
Respect	10	9	9	9-10
Patience	2	2	2	2-2
Self-control	17	17	13	13-17
Patriotism	19	17	17	17-19
Responsibility	19	19	19	19-19
Total	87	87	81	81-87

Some examples of findings related to certain root values in the analyzed 7th Grade-1 textbook are presented below.



Figure 6. Example of Helpfulness Root Value 1

In the 'Introduction' section of the book, the element discusses the actions of Florence Nightingale, the founder of modern nursing, during wartime. Mentioning her efforts for the health of people in environments that inflict significant harm on societies, especially during times of war, and doing something for the sake of humanity, are among the greatest indicators of helpfulness. Therefore, it has been concluded that this element serves the root value of helpfulness.

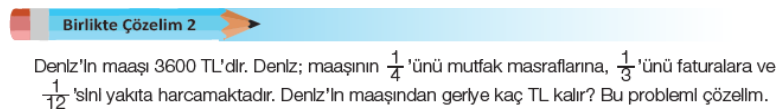


Figure 7. Example of Self-Control Root Value 2

In the 'Examples/Questions' section of the book, the element utilizes Deniz's salary situation. Knowing one's own salary and making payments, thereby exercising self-control, is important. Therefore, this element has been associated with the root value of self-control.

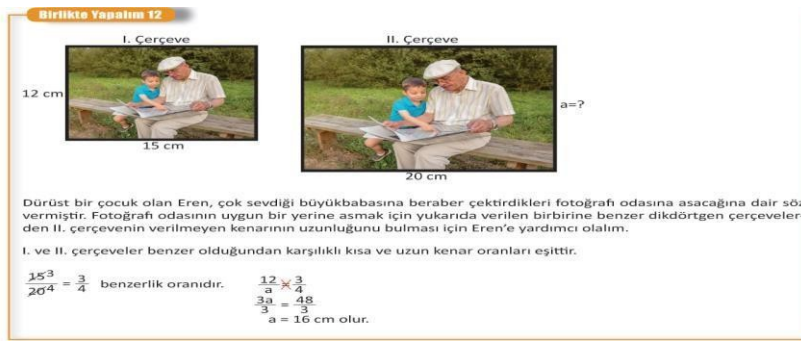
Results which are related to the fourth sub-problem.

In the 8th Grade-1 Mathematics textbook, the root values and their distributions are provided in Table 4. In the examination conducted by three different evaluators, it has been found that the value with the highest occurrence in the book, with an approximate rate of 27.1%, is responsibility. There was no finding related to the root value of patience in the book.

Table 5. Distribution of Root Values in the 8th Grade-1 Book According to Evaluators

		Evaluator 1	Evaluator 2	Evaluator 3	Minimum- Maximum
8th Grade-1	Justice	5	5	4	4-5
	Helpfulness	9	7	7	7-9
	Friendship	5	3	3	3-5
	Honesty	2	1	2	1-2
	Love	16	15	11	11-16
	Respect	5	2	2	2-5
	Patience	0	0	0	0-0
	Self-control	6	5	5	5-6
	Patriotism	13	11	9	9-13
	Responsibility	20	19	16	16-20
	Total	81	68	59	59-81

Some examples of findings related to certain root values in the analyzed 8th Grade-1 textbook are presented below.

**Figure 8.** Example of Honesty Root Value 1

In the 'Examples/Questions' section of the book, the element is about Eren keeping his promise to his grandfather and hanging his photos. The expression 'honest boy Eren' mentioned in this element contains the root value of honesty.

The root values and their distributions provided in Table 6 of the 8th Grade-2 Mathematics textbook are presented. In the examination conducted by three different evaluators, it has been found that the value with the highest occurrence in the book, with an approximate rate of 35.4%, is patriotism. The value for patience has been determined to be the least represented root value in the book, with a percentage of 1.7%.

Table 6. Distribution of Root Values in the 8th Grade-2 Book According to Evaluators

		Evaluator 1	Evaluator 1	Evaluator 1	Minimum - Maximum
8th Grade-2	Justice	3	6	5	3-6
	Helpfulness	2	4	4	2-4
	Friendship	2	2	2	2-2
	Honesty	1	1	1	1-1
	Love	4	4	4	4-4
	Respect	8	7	8	7-8
	Patience	0	1	1	0-1
	Self-control	2	3	2	2-3
	Patriotism	19	17	18	17-18
	Responsibility	11	10	11	10-11
	Total	52	55	56	52-56

Some examples of findings related to certain root values in the analyzed 8th Grade-2 textbook are presented below.

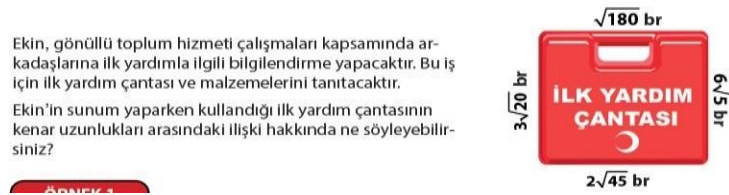


Figure 9. Example of Helpfulness Root Value 1

In the 'Introduction' section of the book, the element revolves around Ekin and his friends engaging in voluntary community service activities. A person's engagement in voluntary community service stems from their benevolence. Therefore, this element has been associated with the root value of benevolence.

Results which are related to the fifth sub-problem.

The total content provided in middle school mathematics books has been determined to be 6037. The majority of the content in middle school mathematics books, approximately 77.58%, consists of examples and questions. The least represented content, with 2.17%, is activities. It has been observed that there is no mention of activities in the 6th Grade-1 and 8th Grade-1 books (Table 7).

Table 7. Numerical Distribution of According to Sections in the Books

	Introduction Section n(%)	Informations n(%)	Activities n(%)	Examples Questions n(%)	Total n (%)
5th Grade	43(4,39)	93(9,50)	39(3,98)	804(82,12)	979(100)
6th Grade-1	43(3,29)	405(30,96)	0	860(65,12)	1308(100)
6th Grade-2	42(5,08)	91(11,02)	33(4,0)	660(79,90)	826(100)
7th Grade	46(5,03)	164(17,92)	41(4,48)	664(72,57)	915(100)
8th Grade-1	52(5,05)	86(8,35)	0	892(86,60)	1030(100)
8th Grade-2	43(4,39)	93(9,50)	39(3,98)	804(82,12)	979(100)
Total	269(4,45)	932(15,43)	152(2,17)	4684(77,58)	6037(100)

*n: Number of Items %: Percentage Rate

In middle school mathematics textbooks, the percentage rate of content containing radical values to the total content is given in Table 8. Upon examining the data, it was found that the book with the highest percentage of content containing radical values is 6th Grade-2, while the book with the lowest content ratio is 8th Grade-2. The section with the highest percentage of content containing radical values is the "Introduction" section, with a ratio of 40.89%, while in other sections, this ratio is below 5%

Table 8. Numerical Distribution of Root Values According to Sections in the Books

	Introduction section	Information	Activities	Examples Questions	Total
5th Grade	%41,86	%0	%0	%7,08	%7,66
6th Grade-1	%16,27	%1,23	%0	%6,97	%5,50
6th Grade-2	%85,71	%0	%9,09	%5,60	%8,47
7th Grade	%39,13	%4,26	%4,87	%4,66	%6,33
8th Grade-1	%23,07	%2,32	%0	%4,93	%4,27
8th Grade-2	%44,18	%0	%0	%1,79	%3,88
Total	%40,89	%1,50	%3,2	%4,99	%6,01

*n: Number of Items %: Percentage Rate

In our study, when examining which sections of the analyzed textbooks contained expressions with radical values, it was observed that as the grade level increased, the number of expressions with radical values decreased. A statistically significant difference was found when comparing the total number of expressions provided in the books ($p < 0.001$). It was found that 7th and 8th-grade books contained fewer expressions compared to 5th and 6th-grade books. When analyzing the distribution of expressions with radical values, it was observed that they were predominantly concentrated in the "Introduction" section and the "Examples/Questions" section. The findings obtained are presented in Table 9.

Table 9. Statistical Comparison of the Distribution of Root Values According to Book Sections

	Introduction section	Information	Activities	Examples Questions	Total	$\chi^2 p^{**}$
5th Grade	18(24,0)	0(0)	0(0)	57(76,00)	75(100)	62,110
6th Grade-1	7(9,72)	5(6,94)	0(0)	60(83,33)	72(100)	
6th Grade-2	36(47,36)	0(0)	3(4,28)	37(52,85)	70(100)	
7th Grade	18(31,03)	7(12,06)	2(3,44)	31(53,44)	58(100)	<0,001
8th Grade-1	12(27,27)	2(4,54)	0(0)	30(68,18)	44(100)	
8th Grade-2	19(50,00)	0(0)	0(0)	19(50,00)	38(100)	
Total	110(100)	14(100)	5(100)	234(100)	363(100)	

* The items that were accepted to contain root values by at least one evaluator have been selected

** Chi-square test

Results which are related to the sixth sub-problem.

When examining the overall distribution of root values by evaluators in all the textbooks, it was found that patriotism is the most frequently provided root value in middle school books, with a rate ranging from 17.91% to 18.87%. Other commonly provided root values are self- control with a rate ranging from 14.22% to 16.01%, and love with a rate ranging from 14.41% to 15.37%. The distribution of root values is presented in Table 10.

Table 10. The Distribution of Root Value Perceptions by Evaluators

	Evaluator 1 n(%)	Evaluator 2 n(%)	Evaluator 3 n(%)
Justice	48(7,58)	44(6,97)	46(7,89)
Helpfulness	44(6,95)	37(5,86)	36(6,17)
Friendship	40(6,32)	35(5,55)	35(6)
Honesty	10(1,58)	10(1,58)	11(1,89)
Love	96(15,17)	97(15,37)	84(14,41)
Respect	43(6,79)	26(4,12)	30(5,15)
Patience	9(1,42)	11(1,74)	6(1,03)
Self-control	90(14,22)	101(16,01)	84(14,41)
Patriotism	114(18,01)	113(17,91)	110(18,87)
Total	48(7,58)	44(6,97)	46(7,89)

*n: Number of Items %: Percentage Rate

In the study, evaluators were asked to assess the strength of the expressions in which root values are mentioned as weak, moderate, or strong.

Table 11. The Distribution of Expression Strength Perceived by Evaluators Regarding Root Values in the Content.

	Evaluator 1 n(%)	Evaluator 2 n(%)	Evaluator 3 n(%)
Weak Expression	45(7,1)	30(4,75)	36(6,16)
Moderate Expression	197(31,07)	202(31,96)	164(28,08)
Strong Expression	392(61,83)	400(63,29)	384(65,75)

*n: Number of Items %: Percentage Rate

When examining the strength of expressions containing root values, it was observed that three evaluators indicated that more than 60% of the items had strong expressions (Table 11).

Table 12. The Distribution of Expression Strength Perceived by Evaluators Regarding Root Values in the Content.

Kappa	Standard Error	z	P	95% Confidence Interval (Minimum- Maximum)
0,747	0,010	75,424	<0,001	0,727-0,766

When all evaluators were examined together, a statistically significant and consistent relationship was found among the assessments ($p < 0.001$). Fleiss' Kappa coefficient was determined to be 0.747, indicating a 74.7% agreement among the dependent evaluators (Table 12).

Table 13. The Distribution of Expression Strength Perceived by Evaluators Regarding Root Values in the Content

Category	Likelihood Ratio Coefficient	Kappa	Standard Error	z	p	95% Confidence Interval (Minimum-Maximum)	
Justice	0,883	0,872	0,025	34,474	<0,001	0,822	0,922
Helpfulness	0,817	0,803	0,025	31,742	<0,001	0,753	0,852
Friendship	0,786	0,771	0,025	30,495	<0,001	0,722	0,821
Honesty	0,933	0,932	0,025	36,848	<0,001	0,882	0,982
Love	0,781	0,739	0,025	29,214	<0,001	0,689	0,789
Respect	0,769	0,755	0,025	29,847	<0,001	0,705	0,805
Patience	0,727	0,723	0,025	28,599	<0,001	0,674	0,773
Self-control	0,790	0,751	0,025	29,710	<0,001	0,702	0,801
Patriotism	0,749	0,692	0,025	27,348	<0,001	0,642	0,741
Responsibility	0,736	0,678	0,025	26,806	<0,001	0,628	0,728

The distribution of root value perceptions by evaluators was examined separately using the Fleiss' Kappa test. As shown in Table 13, it was found that the highest consistency was observed in the "honesty" root value, while the lowest consistency was in the "responsibility" and "patriotism" root values. All root values were determined to have significant and very significant levels of consistency. This study establishes the reliability and consistency of qualitative research, and it was also found that the content provided in middle school mathematics textbooks is highly understandable and clear.

When compared with other studies, different scenarios have emerged. For example, in studies that examined textbooks from different publishing houses, it was found that values were mentioned more frequently, especially in 5th-grade textbooks, which is consistent with the study. This result indicates that value education is intended to begin at the middle school entry level. The study also found the highest percentage of values in 5th-grade textbooks. In Şahin and Başgöl's (2018) research, which examined 5th-grade mathematics textbooks published by the Ministry of Education, it was concluded that responsibility was the most frequently mentioned value, consistent with findings.

Şahin and Başgöl (2018) and Sayın, Orbay, and Altunay Şam (2019) also examined 6th-grade textbooks from different publishing houses. They found that the textbooks from Berkay and Mega Publishers contained more value compared to other publishers. Our findings also indicate that the publishers' textbooks mentioned contained more value elements than the textbooks from the Ministry of Education, which we examined.

In Şahin and Başgöl's (2018) research, they encountered a total of 207 instances of root values in the textbook published by Gizem Yayıncılık. In the study, 87 instances of root values found in the 7th-grade textbook we examined. The 7th-grade mathematics textbook published by Gizem Yayıncılık contains almost three times more values than the textbook we examined. They also found that the textbook from Koza Yayıncılık included 27 instances of root values. Compared to Koza Yayıncılık's textbook, the 7th-grade textbook we examined contains almost three times more values, making it more beneficial for value education.

Lastly, when comparing the 8th-grade textbook we examined with the one from Öğün Yayınları, it was found that the textbook from Öğün Yayınları contains more values than the Ministry of Education's textbooks. When comparing the 8th-grade textbooks from the Ministry of Education with the values created by reviewing literature, our study's examination of the root values resulted in finding more instances of root values in the textbook from the Ministry of Education.

In the study conducted by Deniz (2018), attention was drawn to the fact that the lack of value education is attributed to teachers. Value groups such as honesty and patience were identified by teachers as challenging to convey and difficult to integrate into instruction. The solution expected to address this deficiency is the use of textbooks, which are anticipated to serve as guiding resources to support teachers. However, the aforementioned studies, as well as the present research, indicate that

mathematics textbooks themselves already lack sufficient content, particularly regarding the values of honesty, patience, and friendship. When this outcome is reflected upon in relation to student groups, it can be argued that students are directly subjected to this influence mechanism and are being educated without exposure to highly significant values. Considering that middle school students are at a critical developmental stage (adolescence), the inability to transmit such values during this period may be regarded as a serious concern.

In light of the entire discussion and the reviewed literature, the fundamental issue that emerges is that value education is given very limited space in middle school mathematics textbooks. From a social and societal perspective, the insufficient incorporation of value education represents a significant deficiency and inadequacy both for students and for the educational process, particularly because students encounter this gap during adolescence, a critical stage of their developmental period.

4. Conclusions and Suggestions

The total content found in the examined middle school mathematics textbooks is determined to be 6037. It is concluded that the majority of the content in these textbooks consists of examples and exercises, with activities being the least represented content. Surprisingly, there is no inclusion of activities in the 6th Grade-1 and 8th Grade-1 textbooks.

Regarding the focus on radical values in the examined textbooks, it is observed that, except for the 5th Grade mathematics textbook and the 8th Grade-2 mathematics textbook, the most frequently addressed radical value is the value of responsibility. The 5th Grade mathematics textbook emphasizes self-control, while the 8th Grade-2 mathematics textbook highlights patriotism. Some textbooks contain very few or no instances of certain radical values. For instance, the value of patience is missing in the 5th Grade mathematics textbook, the value of honesty is missing in the 6th Grade mathematics textbook, and the value of patience is absent in the 8th Grade-1 mathematics textbook.

In terms of the proportion of radical values in the textbooks, it is found that the 6th Grade-2 textbook has the highest proportion, while the 8th Grade-2 textbook has the lowest. The introductory section is the part with the highest proportion of radical values, at 40.89%, while in other sections, this proportion is below 5%.

Analyzing the occurrence of radical values in the materials, it is noted that as the grade level increases, the number of instances of radical values decreases. The 7th and 8th Grade textbooks contain fewer instances of radical values compared to the 5th and 6th Grade textbooks. Furthermore, it is observed that radical values are predominantly concentrated in the introduction and examples/exercises sections.

Regarding the evaluation of the total distribution of radical values across all textbooks, it is found that patriotism is the most frequently addressed value, with a range of 17.91% to 18.87% in middle school textbooks. Following that, self-control ranges between 14.22% and 16.01%, while love falls between 14.41% and 15.37%.

When examining the expressiveness of the materials containing radical values, it is found that three evaluators reported that over 60% of the materials contained strong expressions. When considering all evaluators together, a statistically significant and consistent relationship between evaluations is observed. Thus, it can be concluded that materials containing radical values are comprehensible.

Regarding the role of radical values in the textbooks, it is determined that they play a weak role in imparting values at a range of 4.75% to 7.1%, an average role at a range of 28.08% to 31.96%, and a strong role at a range of 61.83% to 65.75%. This indicates that the materials containing radical values have a considerable impact on expressing and imparting these values.

In various studies, textbooks have been approached from different perspectives, leading to various findings. Despite the critical importance of the values mentioned in the study for the curriculum, some values are found to be lacking in textbooks. From a statistical perspective, it can be stated that the presence of values in middle school textbooks is as follows: 12.01% for 5th Grades, 18.59% for 6th

Grades, 8.96% for 7th Grades, and 6.46% for 8th Grades. Considering the significance of value education, the scarcity of these values in textbooks is considered a major deficiency. The current situation, particularly the less than 10% presence in 7th and 8th Grade textbooks, has been characterized as a root problem according to Cao, Seah, and Bishop.

To reinforce these findings with recommendations and to enhance mathematics education and value education for healthier student development, the following suggestions are proposed to the Ministry of National Education:

1. In the middle school mathematics textbooks published by the Ministry of National Education, more attention should be given to the values of patience and honesty, which are currently underrepresented. Furthermore, additional content should be included for all radical values.
2. Efforts should be made to ensure that the radical values expected in middle school mathematics textbooks are evenly distributed in terms of quantity and proportion.
3. The specific role of value education in textbooks should be determined, and a lower limit should be set for each value to ensure that students encounter a sufficient number of instances. Textbooks that do not meet this lower limit should not be included in the curriculum.
4. A group of experts who can oversee the context in which the elements are created should be established to establish a healthy transfer of values and establish the relationship between values and context.
5. When presenting elements in textbooks, it should be specified not only from an academic and scientific perspective but also from the perspective of the value group it belongs to. This will enable students to understand both aspects more closely.
6. Projects developed for textbooks and value education should be well-planned and carefully examined. The value group to which each project refers should be clearly identified.
7. Elements designed to prevent negative value transfer in textbooks can be examined by a specific expert group.
8. All those responsible for the transfer of radical values should be informed accurately.

In addition to correcting textbooks and providing proper instruction to students, families can play a significant role in helping their children by monitoring them in terms of radical values.

As for researchers, the following recommendations are made:

1. Conduct a current study on why patience, an extremely sensitive and valuable value, is the least represented group in textbooks.
2. Investigate the examination of program outcomes in terms of radical values.
3. The impact of the radical values contained in textbooks on students' value perceptions can be researched
4. The competencies of mathematics teachers in middle schools regarding the teaching of radical values can be researched.

These recommendations, combined with the results, can contribute to the development of mathematics education and value education and lead to a healthier student development

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