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Classroom Teachers' Opinions about Primary School Mathematics Textbooks

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Abstract

This research aims to explore in depth the opinions of classroom teachers about primary school mathematics textbooks. For this aim, the relevant research was carried out with a phenomenological pattern within the framework of a qualitative research approach. The study group of this research was determined by convenience sampling technique in line with purposeful sampling. Hence, the study group of this research consists of 14 classroom teachers. A semi-structured interview form was used as a data collection tool in the research. The interviews were conducted face-to-face by the researcher. The data obtained was analyzed according to the descriptive analysis technique. Accordingly, the opinions of the classroom teachers who participated in this research about primary school mathematics textbooks were determined as 1) Content, 2) Program, 3) Language-Expression, 4) Skills, 5) Visual Design, 6) Measurement and Evaluation, and 7) Values. The participants made some suggestions to improve the quality of primary school mathematics textbooks. These are listed as 1) Content, 2) Skills, 3) Visual Design, 4) Measurement and Evaluation, and 5) Values. In line with the findings obtained, the researcher concluded that in order for primary school mathematics textbooks to become more qualified, the books should be prepared by experts in the field and with a multiple approach.

Keywords: Primary school mathematics textbook, teacher, qualification.

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Introduction

Textbooks are printed works prepared for use in educational institutions and used in the teaching process (Demirel & Kıroğlu, 2019). In terms of content, textbooks provide students with opportunities such as repetition, reinforcement, and progress at their own pace. Textbooks provide students with access to all the achievements that will be given to students in an academic year (Sefa, 2009). In education, textbooks enable students to learn own as they include subjects sequentially in line with the learning outcomes. For this reason, textbooks are seen as a complementary part of education (Güder & Tutak 2012).

It is known that students who come to the course with their preliminary learning participate more actively in the course. Textbooks also increase the student's readiness level as they enable the student to prepare for the lesson during the teaching process (Semerci, 2004). Textbooks are one of the most basic and vital tools used in the teaching process in educational institutions. For this reason, the content of textbooks must be scientific, be clear in terms of language expression, and allow for measurement and evaluation (Çakır, 2009). In addition, in order for textbooks to attract students' attention, they must be prepared according to design principles and elements, supported with visual elements, and their physical properties must be adjusted according to the student (Arslan & Özpınar, 2009).

Today, textbooks are distributed to students free of charge and come into force after they have been examined and approved by the Board of Education and Instruction. Formal appearance, scientific content, language, and expression are the qualities that should be present in textbooks (cited in Güder & Tutak 2012). The preparation, examination, and evaluation processes of textbooks in which these qualities are provided are carried out healthily (Çakır, 2009). While one of the most critical providers of instruction to be given to students in educational institutions is the teacher, the other is the textbook. No matter how well the curriculum is prepared, if the textbook is not compatible with the curriculum in terms of content or if the textbook is not prepared according to the qualities it should have, the functionality of the curriculum is negatively affected. A dysfunctional curriculum will have a low impact on student learning (Arslan & Özpınar, 2009).

The Ministry of National Education (MoNE) determines the textbooks for each level of education. However, it is often seen that more than one textbook is recommended for the same grade level and course. In this direction, it is significant for the teacher, who is one of the most important providers of teaching, to know the qualities that the textbook should have when choosing the textbook and to make the right decision (Dane, Doğar, & Balkı, 2004).

Textbooks should not have too much encyclopedic information that would bore and overwhelm the students. Considering the age and developmental level of the student, it should be clear and understandable in a way to guides the student's learning. It should be prepared at a level that allows the student to repeat what the teacher tells at any time and place by progressing at their individual pace. For this reason, the content of the textbook should be related to the teacher's teaching programme and should include other disciplinary areas. It should provide the student with methods and strategies appropriate to the level of the student (Dane, Doğar, & Balkı, 2004). The effect of textbooks is seen more at the primary school level. It is one of the most effective tools used especially in the teaching of mathematics lessons. It is seen that textbooks are the most effective tool that teachers can use for teaching mathematics at primary school level. Therefore, special attention should be paid to the content and writing of primary school mathematics textbooks (Semerci & Semerci, 2004).

According to Johansson (2003), one of the basic elements of shaping the course in mathematics education is textbooks. Because basic concepts in mathematics are taught in primary school, a well-prepared mathematics textbook is expected to increase the student's motivation for the course. It also helps the student build their foundation by providing their preliminary learning to ensure their future learning. Therefore, authorized persons have a special responsibility regarding the preparation of primary school textbooks (Semerci & Semerci, 2004). Using methods and techniques that enable students to be active in teaching mathematics in educational institutions makes it easier for students to learn. Textbooks require that the methods and techniques to be used in teaching mathematics be written descriptively at a level that will enable the teacher and the student to understand and practice.

In this way, the teacher will be able to spend more time teaching, and the student will be able to spend more time learning in mathematics class (Dane, Doğar, & Balkı, 2004).

As seen above, textbooks are indispensable for students' learning. Therefore, examining and evaluating textbooks and eliminating their deficiencies will ensure that students get high efficiency from the teaching service (Semerci, 2004). In this context, it is thought that it is important to evaluate primary school mathematics textbooks, which have a significant impact on the development of mathematics learning from an early age, from the perspective of classroom teachers. Accordingly, in this research, classroom teachers' opinions about primary school mathematics textbooks were examined.

Aim of the Research and Research Questions

This research aims to examine in depth the opinions of classroom teachers about primary school mathematics textbooks. For this aim, answers were sought to the following questions. According to classroom teachers:

1. What are the opinions of primary school teachers about primary school mathematics textbooks?

2. What are the suggestions of primary school teachers to improve the quality of primary school mathematics textbooks?

Method

Under this heading, information about the research method, research design, study group, data collection and analysis, and the role of the researcher are given respectively.

Research Method

This research was conducted in line with the qualitative research method. Qualitative research is a method that prefers to create the process of obtaining and analyzing data from a holistic and interpretive perspective instead of numerical expressions (Bryman, 2012).

Research Design

This research was organized using the phenomenological research design, one of the qualitative research designs. According to Yıldırım and Şimşek (2011), phenomenological research produces concrete data to understand how to better comprehend an existing idea, rather than reaching a final conclusion and generalizing to all situations. In this context, research organized according to the phenomenological pattern benefits from people's previous experiences (Onat Kocabıyık, 2016).

Study Group

The study group of this research consists of 14 classroom teachers determined by convenience sampling technique within the framework of a purposeful sampling method. The purposive sampling method can choose information-rich situations to use limited resources efficiently. This sampling method is based on the preference of individuals or groups with the necessary knowledge and experience regarding the subject under investigation (Yağar & Dökme, 2018). This convenience sampling technique, which is frequently used in the qualitative research model, is more economical in terms of cost than other techniques. Data collected from participants who are easy to reach and known to the researcher makes the study more feasible for the researcher and allows the research to be completed in a short time (Yıldırım & Şimşek, 2011).

No personal information about the participants was included in the research and some of the discourses of the participants' statements were included in the findings section to support the findings. The teachers involved in the research were coded as T1, T2, T3, ...and T14. Demographic information about the participant teachers in the research is shown in Table 1

Table 1.
Demographic/Descriptive Data on Teachers Participating in the Research

Number	Age	Marital status	Professional experience	Education level
Teacher 1	38	Single	15	Master's Degree
Teacher 2	40	Married	18	Bachelor's Degree
Teacher 3	35	Married	12	Master's Degree
Teacher 4	45	Married	23	Master's Degree
Teacher 5	48	Married	26	Bachelor's Degree
Teacher 6	60	Married	37	Bachelor's Degree
Teacher 7	58	Single	35	Bachelor's Degree
Teacher 8	37	Married	12	Bachelor's Degree
Teacher 9	38	Single	15	Bachelor's Degree
Teacher 10	45	Married	20	Bachelor's Degree
Teacher 11	51	Married	27	Bachelor's Degree
Teacher 12	61	Married	37	Bachelor's Degree
Teacher 13	43	Married	21	Bachelor's Degree
Teacher 14	54	Married	30	Bachelor's Degree

As seen in Table 1, the ages of the participants ranged between 35 and 61; 3 of them were single, and 11 of them were married. In addition, when the participants are evaluated in terms of their professional experience, 6 of the participants have 11-20 years of professional experience, 5 of them have 21-30 years of professional experience, and 3 of them have 31-40 years of professional experience. All of the participants are working as classroom teachers in primary schools; 3 of them have master's degrees and 11 of them have bachelor's degrees.

Data Collection and Analysis

The data was collected with a semi-structured interview form (6 questions) created by the researcher. While creating the interview form, the researcher conducted a literature review by considering the purpose of the research. Afterward, the researcher consulted the expert opinion in terms of the scope of the questions and finally conducted a preliminary interview with three teachers to confirm the comprehensibility of the interview questions. As a result of the feedback obtained, the researcher finalized the interview form.

Teachers were visited 3 times during the data collection process. In the first interview, the researcher informed the teachers about the subject and invited them to participate in the research. In the second interview, teachers who responded positively to the invitation to participate in the research were visited and interviews were conducted. All interviews were conducted face-to-face by the researcher at a place (school, cafeteria, etc.) and time where the participants could express themselves comfortably. Each interview lasted an average of 30 minutes. During the interviews, the researcher recorded the interviews with a voice recorder by obtaining permission from the participants. The recorded interviews were converted into written form by the researcher word by word in the Word programme. In the third and last interview, the researcher visited the participants for the last time and received participant confirmation of the transcribed interviews. During the data collection, ethical principles were followed.

The collected data was analyzed with the descriptive analysis technique. The researcher created themes and codes as a draft by using the literature. In the descriptive analysis technique, direct quotations are frequently used to present the views of the participants fully. The aim here is to organize and interpret the findings. Thus, the data is first systematically described, then interpreted and some conclusions are reached in the context of cause and effect (Yıldırım & Şimşek, 2011). For this reason, the researcher coded the data in such a way that the personal information of the teachers remained confidential; some of the answers given by the participants were included in the findings section.

Role of the Researcher

The researcher has been working as a classroom teacher in schools affiliated with the Ministry of National Education since 2008. The researcher, who completed her doctorate at Gazi University,

Institute of Educational Sciences, Department of Classroom Education, had the chance to use primary school mathematics books while teaching. In this process, the researcher, who concluded that the books should be improved in terms of quality from time to time, decided to research this issue.

Findings

This study aims to examine in depth the opinions of classroom teachers about mathematics textbooks. The data obtained for this aim was analyzed according to the research questions respectively. In this context, the first research question is "What are the opinions of classroom teachers about primary school mathematics textbooks?". When the data obtained was analyzed, the participants expressed their opinions on primary school mathematics textbooks in terms of 1) Content, 2) Programme, 3) Language-expression, 4) Skills, 5) Visual design, 6) Assessment and evaluation, and 7) Values.

Table 2.
Classroom Teachers' Opinions on Mathematics Textbooks

Number	Code	f	%	Sample Sentence
1	Content	21	26	The subject descriptions and activities of the units in the textbook are prepared in accordance with the teaching. Different types of problems are not sufficiently included in the textbook (T3).
2	Program	18	23	The primary school mathematics teaching program and the activities and topics in the textbook are generally well-matched (T14).
3	Language-expression	15	18	A clear, understandable, plain language was used in the textbooks (T8).
4	Skills	10	13	While the textbooks include skills such as guessing, mental operations, and problem-solving, activities, and practices that will develop metacognitive knowledge and skills and creative thinking skills are not sufficiently included (T10).
5	Visual design	8	10	The physical structure of the textbooks is well-designed. The paper quality is good. The visuals and the font size of the texts are prepared according to the level of the students. However, at each grade level, the visuals are not more interesting and related to daily life (T5).
6	Assessment-Evaluation	5	6	Assessment and evaluation activities and end-of-unit evaluation activities are well prepared in the textbooks. However, the number of questions in the assessment and evaluation activities is low, and the types of questions are limited (T13).
7	Values	3	4	In mathematics books, values such as frugality, love, and respect within the scope of values education are emphasized. However, some values are not emphasized sufficiently while others are not included at all (T11).
Total		80	100	

As can be seen in Table 2, the teachers who participated in the research listed their opinions on primary school mathematics textbooks as content (26%), program (23%), language and expression (18%), skills (13%), visual design (10%), assessment and evaluation (6%), and values (4%).

The second research question is “What are the suggestions of primary school teachers to improve the quality of primary school mathematics textbooks?”. When the data obtained was analyzed, the participants made suggestions to improve the quality of primary school mathematics textbooks in terms of 1) Content, 2) Skills, 3) Visual design, 4) Assessment and evaluation, and 5) Values.

Table 3.
Classroom Teachers' Opinions on Improving the Quality of Mathematics Textbooks

Number	Code	f	%	Sample Sentence
1	Content	21	45	Various types of problems can be included in textbooks. Problems can be associated with daily life (T2).
2	Skills	10	21	Activities and practices that will develop metacognitive knowledge and skills and creative thinking skills can be included more in textbooks (T9).
3	Visual Design	8	17	The visuals in the textbooks at each grade level can be prepared in a more interesting and related to daily life (T12).
4	Assessment-Evaluation	5	11	The number and variety of questions in assessment and evaluation activities in textbooks can be increased (T4).
5	Values	3	6	In maths books, some values can be emphasized more, and values that are not included can be included (T7).
Total		47	100	

As seen in Table 3, the teachers who participated in the research listed their opinions on primary school mathematics textbooks as content 45%, skills 21%, visual design 17%, assessment and evaluation 11%, and values 6%.

Discussion, Conclusion, and Recommendations

The study aims to explore in depth the opinions of classroom teachers about primary school mathematics textbooks. The researcher found the opinions of classroom teachers about primary school mathematics textbooks as content, programme, language expression, skills, visual design, assessment and evaluation, and values. When the relevant literature was analyzed by the researcher, similar results were found. Arslan and Özpınar (2009b) found deficiencies in the assessment and evaluation dimension of the textbooks. Nevertheless, it was concluded that the textbooks were compatible with the general education curriculum and complemented each other. Ozsoy (2007) on the other hand, determined that the textbooks contain words that students may not know. However, s/he stated that the language used was clear and understandable in accordance with the student level. Similarly, Semerci and Semerci (2004) concluded that the language used in the textbooks was clear and understandable, and they were also visually adequate for the level of the students.

Dane, Doğar, and Balkı (2004) concluded in their study that the textbooks contained simple and superficial information in terms of content, were deficient in terms of method and technique because they encouraged the use of presentation method more frequently, and did not include visual elements such as tables, pictures, and graphics. Similarly, Arslan and Özpınar found in their study that the content in the textbooks did not appeal to the level of the students and that the content was sometimes below the level of the students and sometimes above the level of the students. Çakır (2006) found in his study that the examples given in the textbooks were not according to the student level. At the same time, it was determined that there were not enough questions to contribute to the development of students' cognitive skills. Arslan and Özpınar (2009) also found that there were a sufficient number of questions in the textbooks, but the questions were only aimed at measuring the level of knowledge and were not aimed at metacognitive skills. According to the study conducted by Güder and Tutak (2012), it was found that the language of the mathematics textbook and the visuals in the content were sufficient. They found that the activities in the book were compatible with the curriculum and the assessment and evaluation were applicable but remained simple according to the student level. Toluk and Olkun (2002), on the other hand, found that in mathematics textbooks, the subject was not explained with verbal expressions in concept teaching, and it was generally tried to reinforce the subject with sequential problems. They observed that verbal expressions were generally used in teaching rules and techniques.

The researcher found the suggestions of classroom teachers for improving the quality of primary school mathematics textbooks as content, skills, visual design, assessment and evaluation, and values. When the relevant literature was examined by the researcher, similar suggestions were encountered. Arslan and Özpınar (2009) suggested that today's technology should be taken into consideration during the preparation of textbooks and that they should be prepared in a way that enables students to

learn by exploring. They emphasized that students' pre-learning and developmental levels should also be taken into account. Semerci and Semerci (2004) stated that it is crucial to take into consideration the low level of mathematics net averages in our country when preparing textbooks. They suggested that textbooks should be created based on sufficient literature and should include exercises at a level that will allow students to get more reinforcement. Güder and Tutak (2012) suggested that the activities in the textbook should be at a level that would attract students' attention and meet their learning needs. They suggested that the questions in the textbook should be staged in a way that would allow students to use their problem-solving skills.

In line with the findings obtained, the researcher concluded that for primary school mathematics textbooks to become more qualified, the books should be prepared by experts in the field and with a multiple approach.

In line with the findings obtained, the researcher reached some suggestions. In this context, for practitioners:

• Activities and practices in textbooks can be prepared in relation to daily life.

• Experts who prepare textbooks can establish the relationship between all the concepts in our values and mathematics subjects, and the subject of values can be emphasized for a longer period of time.

• Various and more questions can be included in the assessment and evaluation activities in textbooks.

• Textbooks can be prepared by a multi-commission and experts in the field throughout the process.

For researchers:

• Researchers can conduct qualitative studies with different data collection tools.

• By conducting research with action research design, increasing the quality of textbooks can be spread over the process.

References

Arslan, S., & Özpınar, İ. (2009b). Examining the suitability of new primary school 6th-grade mathematics textbooks with the curriculum. *Çukurova University Faculty of Education Journal, 3*(36), 26-38.

Arslan, S., & Özpınar, İ. (2009). Evaluation of 6th-grade mathematics textbooks along with the teacher opinions. *Dicle Üniversitesi Journal of Ziya Gökalp Faculty of Education*, 12, 97-113.

Bingölbali, E. & Özdiner, M. (2022). Investigation of primary and middle school mathematics textbook tasks in terms of real-life connection. *Afyon Kocatepe University Journal of Social Sciences, 24*(1), 45-65.

Çakır, I. (2009). *Evaluation of primary school fifth-grade mathematics textbooks in line with teacher and student opinions.* Master's thesis. *Çukurova University Social Sciences Institute,* Adana.

Dane, A., Doğar, Ç., & Balkı, N. (2004). The evaluation of the primary education seventh grade mathematics textbooks. *Erzincan University Journal of Education Faculty*, *6*(2), 1-18.

Demirel, Ö. & Kıroğlu, K. (2019). *Textbook review (3rd edition).* Ankara: Pegem Akademi.

Johansson, M. (2003). *Textbooks in mathematics education: A study of textbooks as the potentially implemented curriculum.* Doctoral dissertation. Lulea University of Technology.

Güder, Y., & Tutak, T. (2012). The opinions of the primary 5th grade school teachers 'views about mathematics textbook. *Dicle University Journal of Ziya Gökalp Faculty of Education*, 19, 16-28.

Kaya, A., & Azar, A. (2010). Teachers' opinions on the activities in primary school 4th and 5th grade mathematics textbooks. *Journal of National Education, 40*(187), 269-292.

Keleş, T. (2014). An evaluation of the 9th grade mathematics textbooks prepared for according to the MoE 2005 curriculum from teachers' opinions. *Dokuz Eylul University Journal of Buca Faculty of Education, 38, 57-78.*

Khalidova E. S. & Tapan-Broutin M. S. (2017). A comparative study on elementary school mathematics textbooks used in Turkey and Kazakhstan. *Abant İzzet BaysalUniversity Journal of Education Faculty, 17* (4), 1957-1973.

Sefa, A. (2009). *Investigating visual, affective and academic aspects of 7th year mathematics text book.* Master's thesis. Selçuk University Institute of Science and Technology. Konya.

Semerci, Ç. & Semerci, N. (2004). A general evaluation of primary (1st-5th grade) mathematics textbooks. *Journal of National Education*, 162, 1-5.

Semerci, Ç. (2004). A scale for general evaluation of Turkish and Mathematics textbooks about elementary education. *CU Journal of Social Sciences, 28*(1), 49-54.

Şahin, Ö. & Başgül, M. (2019). Mathematics textbooks research trends in Turkey. *Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education, 13*(1), 328-358.

Şahin, Ö. & Tuğrul, K. (2020). Social values in primary school mathematics textbooks. *Journal of Values Education,18* (39),173-208.

Onat-Kocabıyık, O. (2016). Phenomenology and grounded theory: a comparison in terms of some features. *Trakya University Journal of Education Faculty, 6*(1), 55-66.

Özgür, B., & Doğan, M. (2019). Evaluation of mathematics textbook in the concept of creativity. *Journal of Primary Education, 1*(3), 17-23.

Özgür Şen, E. (2022). How multiplication and division operations with integers are taught in mathematics textbooks: comparison of Turkey, the USA, and Canada. *Western Anatolia Journal of Educational Sciences, 13*(2), 806-825.

Özgeldi, M., & Esen, Y. (2010). Analysis of mathematical tasks in Turkish elementary school mathematics textbooks. *Procedia-Social and Behavioral Sciences, 2*(2), 2277- 2281.

Özsoy, H. (2007). Özsoy, H. (2007). *Primary education 4-5. evaluation of classroom science and technology textbooks in the context of student, teacher and parent opinions.* Master's thesis, *Zonguldak Karaelmas University, Social Sciences Institute*, Zonguldak.

Toluk, Z., & Olkun, S. (2002). Problem solving in mathematics education in Turkey: Primary school 1st, 5th grade Mathematics textbooks. *Educational Sciences in Theory and Practice, 567-578.*

Uzunkol, E. & Karaca, G. (2017). An examination of primary school math textbooks with regard to the values they involve. *International Journal of Field Education, 5*(2), 55-71.

Yağar, F., & Dökme, S. (2018). Planning of qualitative researches: Research questions, samples, vaidity and reliability. *Gazi Journal of Health Sciences,3*(3), 1-9.

Yıldırım, A., & Şimsek, H. (2011). *Qualitative research methods in the social sciences*. Seçkin Publishing House.