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MIDDLE SCHOOL STUDENTS' VIEWS ON A CHILDREN'S BOOK INCORPORATING MATHEMATICAL CONCEPTS

ORTAOKUL ÖĞRENCİLERİNİN MATEMATİKSEL KAVRAMLAR İÇEREN ÇOCUK KİTABINA DAİR GÖRÜŞLERİ

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ÖZ

Matematiksel kavramları içeren çocuk edebiyatı, öğrencilerin matematiksel düşünme becerilerini geliştirmek ve kavramları daha iyi anlamalarını sağlamak için etkili bir öğretim aracıdır. Bu tür edebi eserler, matematiksel fikirleri hikâye kurgusuna yerleştirerek matematik içeriğini öğrenciler için daha anlaşılır ve ilgi çekici hale getirebilir. Bu çalışma, matematiksel kavramların yer aldığı bir çocuk kitabına yönelik ortaokul öğrencilerinin görüşlerini incelemiştir. Bu tür kitapların matematik öğretimindeki olası faydaları ve karşılaşılan zorluklar ele alınmıştır. Bu araştırma, Batı Karadeniz Bölgesi'ndeki bir devlet okulunda öğrenim gören 14 ortaokul öğrencisiyle gerçekleştirilmiş nitel bir durum çalışmasıdır. Öğrencilerin görüşlerini analiz etmek için içerik analizi yöntemi kullanılmıştır. Bulgular, katılımcıların genel olarak bu tür kitaplara olumlu yaklaştığını ve bu kitapların matematik öğrenimini kolaylaştırabileceğini düşündüklerini ortaya koymuştur. Bununla birlikte, bazı zorlukların da fark edildiği belirlenmiştir. Öğrencilerin çoğu, matematikte zorlanan ya da bu derse ilgisi az olan arkadaşlarına bu kitapları önerdiğini belirtmiştir. Katılımcılar, kitabın anlatım tarzını, karakterlerini ve ele alınan matematiksel kavramları genel olarak olumlu değerlendirmiş; ancak bazı eleştiriler de sunmuştur. Elde edilen bulgular, öğretim sürecinde kullanılacak kitapların metin ile görseller arasında uyumlu ve dengeli bir ilişki kurmasının önemine dikkat çekmektedir. Gelecek araştırmalarda, çocuk edebiyatının farklı eğitim düzeylerinde matematik öğretimine nasıl entegre edilebileceği ve farklı edebi türlerin matematik öğrenimini desteklemedeki pedagojik etkileri daha ayrıntılı olarak incelenebilir.

ABSTRACT

Children's literature integrating mathematical concepts is an effective pedagogical tool for fostering mathematical thinking and enhancing conceptual understanding. By embedding mathematical ideas within narrative structures, such literature can render mathematical content more accessible and meaningful. This study investigates middle school students' perceptions of children's literature incorporating mathematical concepts, examining its perceived benefits and challenges within mathematics learning. The research was conducted with 14 middle school students from a public school in the Western Black Sea Region, employing a qualitative case study methodology. Content analysis was utilized to examine students' perspectives. Findings indicate that participants generally held positive attitudes toward such literature, recognizing its potential to facilitate mathematics learning, though certain challenges were identified. Many students recommended these books to peers who struggle with mathematics or demonstrate limited interest in the subject. Participants provided favorable evaluations regarding the book's narrative style, character development, and integration of mathematical concepts, though some critiques were noted. The findings underscore the necessity of a well-structured relationship between textual and visual elements to optimize instructional effectiveness. Future research should explore the integration of children's literature in mathematics education across diverse educational levels and examine the pedagogical implications of various literary genres in supporting mathematical learning.

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Introduction

Children's literature is a distinct type of literature characterized by concise textual structures, language specifically adapted for young readers, an emphasis on dialogue and action, and the prevalent inclusion of child protagonists (McDowell, 1976). A particularly significant subcategory within this genre is storybooks, also called picture books or children's books. These texts integrate visual and verbal elements to support children's linguistic development, knowledge acquisition, and creative capacities in both educational and domestic settings (Jalongo, 2004). The Organization for Economic Co-operation and Development (OECD) underscores the significance of competency-based education in fostering essential 21st-century skills, positioning children's literature as a valuable instrument for cultivating various competencies (Ananiadou & Claro, 2009; Crawford et al., 2019; Kersten et al., 2007; OECD, 2008; Rindermann & Baumeister, 2015).

Children's literature is valued in the mathematics edcuation since it has the potential to facilitate a more profound conceptual understanding of mathematical ideas. By embedding mathematical content within narrative structures, children's books promote student engagement and create interdisciplinary learning opportunities. Integrating children's literature into mathematics instruction has encouraged mathematical discourse among students and enhanced conceptual comprehension (den Heuvel-Panhuizen et al., 2009).

Any literary work that stimulates mathematical reasoning—regardless of whether it explicitly addresses mathematics—may be classified as children's literature incorporating mathematical concepts (Nesmith & Cooper, 2010). These texts frequently incorporate visual elements to reinforce students' grasp of mathematical concepts and to support mathematical dialogue (Nesmith & Cooper, 2010; Trakulphadetkrai, 2018). Moreover, literature renders mathematical concepts more accessible and meaningful to learners when narratives are merged with mathematical content, thus fostering positive attitudes toward mathematics education (Luedtke & Sorvaag, 2018). Consequently, children's literature in mathematics education is considered as a practical pedagogical approach that deepens students' mathematical understanding and fosters critical thinking skills (Durmaz & Miçooğulları, 2021; Green, 2013).

Therefore, mathematics and literacy jointly enrich students' learning experiences and contribute to mathematics achievement. By reinforcing prior knowledge, developing communication skills, and alleviating mathematics-related anxiety, children's literature with mathematical concepts plays a significant role in supporting students' cognitive and affective engagement with mathematics (Biemiller & Boote, 2006; Van den Heuvel-Panhuizen & Elia, 2011; Luedtke & Sorvaag, 2018). Engaging narratives in these books facilitate attention, increases motivation, and promotes creativity, problem-solving abilities, and a deeper comprehension of mathematical concepts (Luedtke & Sorvaag, 2018). Although children's literature is frequently associated with early childhood education, research indicates that children's literature incorporating mathematical concepts is a valuable instructional resource across various age groups, including middle school students. These books aid learners in establishing meaningful connections with mathematical concepts, stimulating curiosity, and fostering active learning and critical thinking (Clarke & Broders, 2022).

Literature Review

Children's literature during early education from preschool to middle school is recently considered applicable to help students overcome academic and cognitive challenges. Literature inherently integrates various disciplines, such as history, geography, and art. These integrations broaden students' perspectives and facilitate interdisciplinary connections. In particular, mathematical questions and problem-based narratives have effectively reduced mathematics anxiety (Altunbay & Soylu, 2020). Research highlights that mathematics is not merely a collection of arithmetic operations but a system fostering logical reasoning and critical thinking (Van de Walle et al., 2019). Mathematics often presents comprehension difficulties for students because of its abstract nature. That potentially leads to negative attitudes toward the subject. Integrating mathematical concepts into children's literature offers an effective instructional strategy that makes mathematics more tangible and accessible for learners. Children's literature incorporates mathematical content that supports students in understanding fundamental mathematical concepts. It situates their learning within real-world contexts, encouraging them to apply mathematical reasoning to everyday problem-solving (Van de Walle et al., 2019). Hence, children's literature enhances students' overall engagement with mathematical concepts and potentially

transforms mathematics from a conventional abstract subject into a meaningful learning experience that fosters analytical thinking (Clarke & Broders, 2022).

Teachers have a critical role in students' meaning-making processes since they encourage students to connect texts with their lives and the world around them. To do that, teachers employ various pedagogical approaches such as comprehension strategies and hands-on exploratory methods (Berk & Winsler, 1995; Vygotsky, 1978). Integrating children's literature with mathematical content into instruction fosters meaningful connections across different contexts. Accordingly, teachers must carefully select children's literature incorporating mathematical concepts to promote intertextual relationships and interdisciplinary connections (Columba et al., 2005; Rosenblatt, 1995). High-quality children's literature mathematical concepts help to construct abstract mathematical concepts, making their relevance to everyday life more apparent while reinforcing students' interest and confidence in mathematics (Hyde, 2006). Shatzer (2008) claims that by using children's literature, teachers can increase students' engagement with mathematics, make mathematics learning more enjoyable and meaningful, and strengthen the relationship between literature and mathematics. Clarke and Broders (2022) further argue that children's literature featuring mathematical content is not limited to the elementary level. Such books can also be helpful educational tools at the middle school level. As a result, children's literature with mathematical content has benefits for engaging learners across various age groups.

Various experimental studies have examined the effects of integrating literary elements into mathematics education, including early intervention programs and interactive reading techniques. Research conducted in this area has explored multiple variables, such as verbal problem-solving skills, mathematical modeling competencies, overall mathematical performance (Van den Heuvel-Panhuizen et al., 2016), achievement levels in length measurement (Van den Heuvel-Panhuizen & Elia, 2011), interest in mathematics, the use of mathematical language, understanding of fractions (Lemonidis & Kaifa, 2019), and geometric attitudes (McAndrew et al., 2017). As an illustration, examining a middle school teacher who uses children's literature as a supportive tool in teaching geometry, Capraro and Capraro (2006) have found that this method increased students' academic achievement, notably enhanced their geometric vocabulary and facilitated a more flexible use of geometric concepts.

Similarly, Edelman et al. (2019) identified four key contributions of children's literature to mathematics learning: increased student achievement, improved teacher preparedness for instruction, heightened student motivation and engagement, and stronger promotion of mathematical discussions. Furthermore, other studies (Elia et al., 2010; Van den Heuvel-Panhuizen et al., 2016) have demonstrated that children's literature provides meaningful contexts that support the understanding of mathematical concepts while enhancing both student achievement and mathematical language skills (Anderson et al., 2015; Hassinger-Das et al., 2015; Moyer, 2000; Trakulphadetkrai, 2018). Children's literature with mathematical content also reduces students' mathematics anxiety (Luedtke & Sorvaag, 2018).

Zhang (2023) examined 16 experimental studies on teaching and learning with children's literature related to mathematics and found that incorporating these books into mathematics instruction offers various benefits. This approach has been noted to help develop more positive attitudes toward mathematics, increase learning motivation, and reduce mathematics anxiety among students. It has also been highlighted that these books contribute to students' understanding of mathematical concepts, expression of thoughts, creativity, and general academic performance. Additionally, students with special needs can benefit from this approach, while gifted students can critically engage with the mathematical content, leading to a deeper understanding of concepts.

The integration of children's literature into mathematics teaching can enhance students' understanding of abstract concepts by presenting them in meaningful real-life contexts (McAndrew et al., 2017). This approach positively impacts students' communication skills, conceptual understanding, attitudes, and self-confidence (Hong, 1996; Moyer, 2000; Hassinger-Das et al., 2015; Welchman-Tischler, 1992). Divrik and Coşkun (2023) demonstrate that story-supported mathematics teaching positively influences students' attitudes, especially for younger students, although its impact on older students remains unclear (Yalçın et al., 2022). Integrating children's literature with mathematics makes the subject more relatable to daily life (Moyer, 2000), uncovers misconceptions, enhances mathematical language, and improves problem-solving skills (Courtade et al., 2013; Durmaz & Can, 2021). Furthermore, it reduces mathematics anxiety and increases motivation (Durmaz & Can, 2021; Furner, 2017; Whitney et al., 2017).

Despite these benefits, research shows that the way teachers use children's literature in mathematics education is related to teachers' beliefs and teaching approaches. For instance, in their studies, Luedtke and Sorvaag (2018) showed that teachers use children's literature in limited ways, such as introducing new concepts or reinforcing existing knowledge rather than fully integrating it. Studies have found that teachers generally prioritize the relevance of the book's subject matter when selecting a book but may overlook critical aspects such as its pedagogical value, mathematical context, and contribution to students' conceptual development (Rogers et al., 2015; Cooper et al., 2020; Prendergast et al., 2019). Sianturi (2024) notes that teachers believe children's literature supports mathematical literacy and interdisciplinary learning but face challenges such as a lack of pedagogical knowledge and insufficient resources.

In this regard, selecting appropriate books and integrating them effectively into the teaching is a critical ability for teachers to instruct mathematical concepts meaningfully (Akdağ, 2021). Effective integration should not be limited to reading the book but also involve structuring the book's content to promote mathematical discussions. Understanding the relationship between text and visuals is crucial to supporting students' conceptual development (Zhang, 2023). In line with this, studies on how teachers' beliefs and pedagogical approaches shape the integration of children's literature with mathematics provide essential insights into how these elements can be more effectively utilized in the teaching process (Farrugia & Trakulphadetkrai, 2020; Prendergast et al., 2019; Yang et al., 2021).

Given the challenges teachers face in fully integrating children's literature into mathematics instruction and the impact of pedagogical approaches on integration, it is crucial to address this topic during teacher education programs. Studies involving pre-service teachers examine their beliefs about integrating children's literature with mathematics, the lesson plans they develop, and the integrated activities they design; these studies also investigate the long-term effects of their experiences (Can & Durmaz, 2020; Durmaz, 2022; Edelman, 2017). In-service studies, on the other hand, evaluate teachers' views and experiences regarding integration, assessing the opportunities and barriers encountered in practice (Can & Durmaz, 2023; Cotti & Schiro, 2004). Thus, it is emphasized that children's literature and mathematics integration should be systematically addressed in both pre-service and in-service teacher education programs and professional development activities to improve teachers' pedagogical skills.

In this regard, a self-assessment scale developed by Can and Durmaz (2023) evaluated K-8 teachers' beliefs about integrating children's literature with mathematics teaching. The findings indicate that teachers' beliefs about resources and pedagogical benefits vary according to their level of experience and grade level. For example, preschool teachers hold more positive beliefs about the benefits of integration than elementary and middle school teachers. Furthermore, pre-service teachers hold stronger beliefs about integration's potential impact than experienced teachers. Research indicates that awareness of integration significantly shapes teachers' attitudes, with higher awareness associated with more positive views. According to these findings, teachers can apply this integration process more effectively when a comprehensive approach to integrating children's literature with mathematics teaching in teacher education is provided. Therefore, providing sufficient pedagogical support and resources to teachers in pre-service and in-service training will play a key role in enhancing the sustainability of this integration.

Recent studies support that claim by showing that integrating children's literature with mathematics significantly affects student achievement, motivation, and mathematical thinking skills. Successful integration processes have increased students' academic achievement (Capraro & Capraro, 2006; Durmaz & Miçooğulları, 2021; Lemonidis & Kaifa, 2019; Yalçın et al., 2022), strengthened their interest in mathematics (Mink & Fraser, 2005), and improved their attitudes toward the subject (Cankoy, 2011; Can & Durmaz, 2023). However, some studies reveal that integration does not always clearly impact academic achievement, attitudes, or self-efficacy (Hassinger-Das et al., 2015; Yalçın et al., 2022). These conflicting findings suggest a need for further empirical studies to explore under what conditions the integration of children's literature with mathematics teaching is most effective (Divrik & Coşkun, 2023).

In this context, research on integrating children's literature with mathematics teaching has predominantly focused on early childhood and elementary levels (BjSrklund & Palmér, 2020; Capraro & Capraro, 2006; Green et al., 2018). While there is a relatively small number of studies on elementary students, experimental research examining how this integration occurs at middle school and high school levels is quite limited (Cooper et al.,

2011; Lemonidis & Kaifa, 2019; Durmaz & Miçooğulları, 2021; Yalçın et al., 2022). A comprehensive review by Zhang et al. (2023) reveals that most experimental studies published between 2000-2022 focused on preschool and elementary levels, while studies exploring the use of literary elements at middle and high school levels are minimal. This situation underscores the need for new research on how children's literature can be more effectively used in mathematics teaching at higher grade levels (Zhang et al., 2023). The current literature further highlights the need for studies that explore how literary elements can be integrated into mathematics teaching at middle and high school levels.

This study explores middle school students' views on children's literature, including mathematical concepts, their benefits, and the challenges encountered, evaluating their potential effects on students' attitudes toward mathematics. The limited number of studies on this topic in the literature (Durmaz & Miçooğulları, 2021) underscores the importance of this research.

The views of middle school students on children's literature incorporating mathematical concepts are important because understanding the perspectives helps teachers design literary elements in instructional methods by considering students' interests, needs, and preferences. Staub and Stern (2002) state that student opinions directly influence teachers' processes of integrating literary elements into mathematics instruction. Therefore, this study addresses students' views on using literary aspects in mathematics education. This study's results can contribute to teachers' awareness and competence in effectively integrating such materials into their instruction.

Notably, the research question in this study is as follows:

What are middle school students' views on children's literature with mathematical concepts, and what benefits and challenges do they identify?

The findings are expected to significantly contribute to existing research on the use of children's literature in mathematical instruction and provide recommendations for middle school mathematics education.

Method

This study employs a qualitative research method. To better understand middle school students' views on children's literature books containing mathematical concepts and their perspectives on the integration of these books into mathematics lessons, a case study approach was chosen (Merriam, 1998; Yin, 2009). According to Creswell (2013), a case study aims to describe and present a phenomenon in its real-life context. By examining a specific case, researchers can gain a comprehensive and practical perspective on issues such as the behaviors of small groups and the dynamics of a particular process (Yin, 2009). This study used that approach to understand middle school students' perspectives on children's literature that include mathematical concepts. It allows for a detailed exploration of students' views and challenges.

Participants

This study was conducted with 14 middle school students (9 girls, 5 boys) voluntarily selected from a public middle school located in the Western Black Sea Region in Türkiye. The research focuses on 6th-grade middle school students. Purposive sampling was used to diversify the students' mathematical abilities and attitudes toward mathematics (Merriam, 2009). Purposive sampling is an approach that requires the researcher to select the sample that will provide the most learning on a specific topic. Additionally, by including students from different genders, a more comprehensive sample was created by obtaining perspectives from participants with various demographic characteristics. The students were identified through teachers at a middle school under the Ministry of National Education in the Western Black Sea Region.

The selection of a small number of students in this study is based on the requirements of purposive sampling. The researcher selected participants with rich and varied characteristics, enabling an in-depth investigation of a specific topic (Merriam, 2009). Students with a diverse range of mathematical abilities and attitudes in this study represent an appropriate number of participants. Furthermore, the sample size in the stduy is sufficient to facilitate compelling one-on-one interviews with students and is an appropriate sample size to increase the depth and diversity of the data. During participant selection, students from different genders were aslo considered to broaden the perspective of the sample. The data collected from the students provided in-depth responses to the

research questions, better reflecting the diversity of mathematical thinking processes. The study was conducted following the regulations recommended by the ethics committee, with participants' voluntary consent. Participants' confidentiality was maintained, and pseudonyms (S1, S2, S3... S14) were used instead of their real names. After reading the assigned books, the students participated in one-on-one interviews lasting 20-25 minutes outside class time. This approach allowed for the collection of more detailed data regarding the students' views on children's literature books containing mathematical concepts.

Data Collection

The researchers involved in the study examined mathematical concept-based and well-known children's literature with mathematical concepts and created a list of these books. The books were thoroughly read and analyzed after obtaining expert opinions on the compiled list. Divrik and Coşkun (2023) recommend enhancing the effectiveness of integrating children's literature and mathematics. Teachers should select books with content, language, and visuals appropriate for the student's age group. In this context, the books chosen for this study were analyzed based on criteria such as appropriateness for the middle school level, integration of mathematical concepts, coverage of various mathematical topics, effective storytelling, use of suitable visuals, educational value, and potential for discussion (Hellwig et al., 2000; Hunsader, 2004; Schiro, 1997). Seventeen books were evaluated according to these criteria. Some of the books are internationally known, and academic studies featuring these books are present in the literature. Based on the above categories and criteria, the book *How Many Lives Does Mathematics Have? (Matematiğin Kaç Canı Var?)* was chosen and given to students for reading. The 14 middle school students who voluntarily participated in the study were given two weeks to read the selected book, with the books distributed during the mid-term break to ensure students could read them at their convenience. To ensure that students had read the books, methods such as maintaining a reading journal and preparing written reports were recommended during the reading process.

Individual interviews were conducted with the students at the end of the book reading process. The interview questions were as follows:

1. What did you like the most about the book you read? (This could be the topic, characters, illustrations, or the way mathematical ideas were presented.) Explain why?
2. Was there anything you didn't like in the book? If so, what was it, and why didn't you like it?
3. Were there any characters or events in the book that you found especially interesting or surprising? Can you tell me more about them?
4. Do you think reading this type of book helps you understand mathematics better? Why or why not?
5. What mathematical concepts or topics were mentioned in the book?
6. Which mathematical idea in the book did you find most interesting or enjoyable? Can you explain what it was and why it caught your attention?
7. Were there any mathematical concepts in the book that you had never heard of before? If yes, what were they?
8. Was there a mathematical concept you already knew but understood more clearly after reading the book? If so, can you explain how the book helped?
9. Would you like to read similar books in your mathematics classes in the future? Why or why not?

The interviews were taken in a quiet environment to ensure the students' comfort. The researcher audio-recorded all the interviews. The questions were asked conversationally to facilitate the students' expression. After the interviews, the audio recordings were transcribed into a Word document. To account for any details the students may have been unable to express or recall during the interviews, a written version of the interview questions was prepared, and students were asked to respond in writing.

Data Analysis

The qualitative data in this study were analyzed through content analysis. The researchers identified codes, categories, and themes from the data in the analysis process. Initially, codes were derived from patterns and key

points within the data. These codes were then grouped into categories, ultimately leading to theme development. Essentially, the data identified as interconnected or similar were analyzed within these structured codes, categories, and themes (Creswell, 2013). Unlike approaches that use predefined categories and themes, this study developed a framework based on recurring data patterns to guide the content analysis process. Specifically, codes were identified from recurring statements in student interviews and response forms and organized into categories. The themes corresponding to these categories were then determined. To ensure the accuracy of the qualitative findings, two researchers independently reviewed all data and compared the results to reach a consensus (Merriam, 1998).

Findings

In this section, the findings obtained from the analysis of the research data are presented. The study's findings are organized under three main themes that emerged from the data analysis.

Students' General Views on a Children's Literature Book Containing Mathematical Concepts

The students' motivations for participating in this study were categorized into three main themes: interest in books, a desire to participate in research, and the intention to change or develop their interest/perspective towards mathematics.

Table 1. Students' Motivations for Participating in the Study

Categories	Students	Frequency (n)
Interest in the book	S1, S2, S4, S5, S6, S9, S8, S11, S12	n=9
Desire/Curiosity to participate in the research	S13, S10, S14	n=3
Changing/Improving interest in mathematics	S11, S4,	n=2

Most students (n=9) identified their interest in reading books as the primary motivation for participating in this study. Below are some example statements:

> *S2: I love reading books. I enjoy acquiring and reading new books. When I saw this book, I felt the desire to participate. I didn't expect the book to be this good.*
>
> *S6: I participated because I love reading books. I also attended because I found the book to be appealing.*

These responses suggest that the students' enthusiasm for reading contributed to their interest in this research.

Three students indicated that their curiosity about the research and their desire to engage in activities were key factors motivating them to participate in the project. Example statements are as follows:

> *S13: I enjoy participating in such projects; I like participating in these activities.*
>
> *S14: I was curious because I had never participated in a project like this before.*

These statements illustrate that the students were motivated to participate in the project by their eagerness to gain new experiences.

Two students stated that their participation in this study was motivated by their interest in mathematics or their desire to enhance their perspective.

> *S4: I wanted to participate because it would make me like mathematics even more. It was my first time reading children's literature related to mathematics.*
>
> *S11: I love both mathematics and reading books. Since it was related to mathematics, it caught my interest.*

These perspectives highlight the potential of children's literature books to foster a positive attitude toward mathematics among students.

Students' opinions on the aspects they liked and disliked in the children's literature with mathematical concepts were categorized into seven themes (Table 2). The aspects they appreciated included the book's language and writing style, the characters and their traits, the inclusion of mathematical concepts, and the book's influence on their interest and attitude toward mathematics. Conversely, the disliked aspects were categorized as the book's writing style, characters and concepts, and the overall storyline.

Table 2. Aspects of the Book That Students Liked and Disliked

General Opinions on the Book	Categories	Students	Frequency (n)
Aspects Liked	Language/Writing Style	S1, S2, S6, S12	n=4
	Characters and Their Traits	S1, S2, S3, S4, S10, S11, S12, S13, S14	n=9
	Inclusion of Mathematical Concepts	S5, S7, S8, S9	n=4
	Interest and Attitude Toward Mathematics	S10	n=1
Aspects Disliked	Writing Style	S2, S3, S4, S5, S8, S10, S12, S13, S14	n=9
	Characters and Concepts	S11	n=1
	Storyline	S7, S9	n=2

Some students expressed their appreciation for the book's language and writing style. They noted that the author's narrative style stimulated their interest in reading and that presenting fictional events as accurate was captivating. Additionally, the students positively evaluated the adventurous storytelling and dialogues between the characters.

> *S2: I liked the writing style; it encourages reading. The way it presents unrealistic events as if they were real is engaging. I also liked the dialogue between the characters. I liked Grand Pi. I appreciated his discipline. He never treated Can badly.*

Secondly, the book's characters, mainly "Pi" and "Can," emerged as key points of interest for students. They appreciated Pi's authoritative and infinite nature and Can's determination to overcome mathematical challenges. The disciplined and extensive nature of the Pi character and Can's interest and perseverance in mathematics captured students' attention.

> *S13: I liked the character Grand Pi. I enjoyed the fact that he involved a lot of numbers.*

Thirdly, the students appreciated the mathematical concepts in the story, particularly the lattice method and the mystery of the number nine.

> *S5: There was column multiplication; I liked that (Lattice Method).*
>
> *S9: Maybe nine because when you add something to something, it makes nine.*

These concepts were found to be engaging and comprehensible within the flow of the story and were explicitly mentioned by four students.

Finally, it was observed that students' attitudes toward mathematics were positively influenced through the story. The character Can initially disliked and feared mathematics; however, as the story progressed, his attitude changed, and by the end, he developed an appreciation for mathematics. This transformation had a particular impact on the students. As expressed by one student:

> *S10: I liked that Can put a lot of effort into mathematics, maintained his motivation, and developed an interest in it.*

Can's perseverance and motivation in dealing with mathematics are considered to have the potential to influence students to develop a more positive attitude toward the subject.

As shown in Table 2, one of the aspects that students disliked about the book was its writing style. The most frequently mentioned criticisms relate to the book's writing style and ending. Nine students (n=9) stated that they found some parts of the book repetitive and tedious, that certain sections were too long, or that the beginning was unengaging. Additionally, the students did not receive the ambiguous and open-ended conclusion of the book. Other aspects of the book that were not well received included its characters, concepts, and storyline. One student (n=1) expressed discontent with the behavior of a particular character. Furthermore, two students (n=2) stated that they struggled to understand or did not enjoy certain book sections.

> *S11: There is nothing I dislike. Everything suits me. However, I did not like the dwarf character. He seemed arrogant, and I did not enjoy his jokes.*

Student 11 disliked the arrogant traits of a character in the book. As indicated by the number of students in the table, some said they disliked nothing about the book.

According to the study's findings, another general perspective of the students regarding the book is their tendency to recommend it to others. As presented in Table 3, this tendency is categorized into four main groups: recommending the book to older or younger individuals, recommending it to peers and those in their immediate environment, suggesting it to individuals who dislike or struggle with mathematics, and generally recommending it to everyone.

Table 3. Students' Views on Recommending the Book and the Intended Audience

Categories	Students	Frequency (n)
To those who are older/younger	S1, S2, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14	n=13
To their peers and those around them	S1, S3, S4, S5, S6, S8, S9, S10, S11, S12, s13	n=11
To those who do not enjoy mathematics or struggle with it	S1, S2, S3, S6, S9, S11, S12	n=7
To everyone, to encourage reading	S2, S4, S5, S6, S11, S14	n=6

The first category focuses on recommending the book to older or younger individuals. Students have expressed that the book can appeal to younger and older age groups. For instance, one student recommended the book to their sibling and older sister, while another emphasized that it could be suitable for all ages. This suggests that the language and content of the book are sufficiently appropriate and accessible to a broad audience.

The second category pertains to recommending the book to peers and those in one's immediate circle. Students in this group noted that they recommended the book to their friends, cousins, and peers. This indicates that the students found the book suitable for their age group and considered it worth sharing with their friends.

The third category is based on recommending the book to individuals who do not enjoy mathematics or struggle with the subject. Students believed that the book could help develop a positive attitude toward mathematics and, as a result, recommended it to friends who did not enjoy the subject. This finding suggests that the book has the potential to bring about positive change in individuals with opposing views toward mathematics.

The fourth category concerns recommending the book to everyone and encouraging reading habits. Students in this category recommended the book to a broad audience, regardless of age or interests. Some students even suggested that the book could encourage reading habits in individuals who do not typically enjoy reading.

Benefits and Challenges Encountered in the Book Reading and Interpretation Process

Students encountered both beneficial and challenging sections while reading the book. The parts of the book that students found helpful and how these sections supported their mathematical understanding have been examined in detail. The challenges students faced during the reading process and the sources of these difficulties

have also been analyzed. The data in Table 4 provide information about the book's sections that students found successful and those they struggled with.

Table 4. Aspects of the Book that Students Found Successful and Challenging During the Reading Process

	Categories	Students	Frequency (n)
Successful Aspects	Mathematical concepts learned through the book	S1, S2, S4, S5, S6, S7, S9, S10, S11, S12, S14	n= 11
	Concepts that were better understood and reinforced	S1, S2, S3, S4, S7, S8, S9, S10, S11, S14	n=10
Challenging Aspects	The narrative style	S4, S8, S13	n=3

Examples of student opinions related to the category of mathematical concepts learned through the book are presented below.

> *S1: I didn't know that Pi contains everything, such as our birthdays. I learned this from the book.*
> *S2: There was nothing I didn't know, but there were things I had forgotten. For example, I had forgotten about Pi. Thanks to this book, I remembered it's 3.14. Through this, I realized that the book taught me something.*
> *S6: I didn't know. There were a few things. I learned the grid method. I also learned about the relationship with nine from the book. I realized that Pi contains so many things.*

Upon analysis, most students said they learned from the book that Pi includes their birthdays and car license plates, that Pi is 3.14, that Pi is infinite, and that there is a relationship with multiples of nine. Some students stated that they learned the grid method from the book and mentioned that it would help multiply large numbers and could be applied in calculations.

Students also noted that they understood or reinforced some concepts they already knew through the book. Some example opinions are provided below.

> *S1: Since I had seen algebraic expressions before, I knew the concept of x. But I couldn't understand it very well. Thanks to this book, I have learned this concept better.*
> *S3: I already knew the concept of Pi, but I didn't think it was infinite. I learned this through the book.*
> *S4: Well, I was a bit weak with factors and multiples. I only understood them a bit better while working on them.*
> *S8: I think I had. For example, I knew the value of Pi, but I didn't think it was this large. Or I didn't see the part with the rabbit going like that.*

When these opinions are examined, it is evident that although students had some prior knowledge of the concept of Pi, they learned through the book that Pi is infinite. S1, on the other hand, mentioned that although they had heard of the concept of x in a mathematics class before, they couldn't fully understand it due to its abstract nature, but they gained a better understanding through the event described in the book.

It was observed that the only difficulty students faced in reading and interpreting the book was the narrative style, and only three students mentioned this concern.

> *S4: I didn't struggle much, but some parts seemed too absurd. For example, touching x and being transported to different places didn't feel realistic, but the book was good overall.*
> *S8: In mathematics, at first, explaining things in that way confused me, but later, it was expressed verbally. I was slightly confused when it was initially presented procedurally, but I understood it afterward.*

Certain parts of the book contain unrealistic events. S4 stated that they did not enjoy the unrealistic elements in the story. Additionally, S8 mentioned having difficulty understanding the section where mathematical expressions were presented.

Students' Views on the Educational Impact of Children's Literature Books Incorporating Mathematical Concepts

Students expressed their views on relating reading books to mathematics in two main categories: positive perspectives and hesitant perspectives.

Table 5. Relating Reading Books to Mathematics

Views	Common Responses	Students	Frequency
Positive	We can learn mathematics better. It contributes to our learning. Reading books is beneficial, and reading about mathematics can be even more helpful. It helps us read fast when dealing with long questions. It assists in understanding problems while solving questions. It helps improve reading comprehension. It makes problem-solving easier. It supports more permanent learning. It makes learning fun.	S2, S3, S4, S6, S7, S8 S9, S10, S11, S12, S13, S14	n=12
Hesitant	Reading books alone is not enough; we can learn through explanations. I don't usually relate reading to mathematics, but it might be possible. Somewhat. These kinds of books make mathematics easier. While not as effective as lessons, we can still learn mathematics. If the books are math-related, we can learn from them. If they contain topics we haven't learned, we can benefit from them. If someone struggles with math, they may improve through books.	S1, S2, S3, S5, S6, S8, S9, S14	n=7

Students who provided positive responses (n=12) established a clear connection between reading books and mathematics, emphasizing that reading could enhance their mathematical understanding and problem-solving skills. Some notable student responses in this category include:

> *S10: It helps us understand problems while solving questions. That's why it contributes to learning.*
>
> *S8: If someone who enjoys reading but is not good at mathematics reads a book that includes mathematical concepts, they may learn mathematics better.*

Students indicated that reading books could support better learning and assist in understanding complex problems. They also believed reading, particularly books with mathematical content, can make learning more enjoyable and memorable.

Students who provided neutral responses (n=7) expressed reservations about whether reading books alone is sufficient for learning mathematics. Some students stated that they had not previously considered a connection between reading and mathematics but recognized its potential benefits. S5 provides an example of this perspective:

> *S5: I did not think this way until I read this book, but it might be possible.*

S1: Reading books is insufficient; we can understand better with direct instruction.

S1 acknowledged that reading books could be beneficial but emphasized that it might not be sufficient and that additional instructional support may be necessary.

Students generally responded positively when asked whether they would like children's literature books that incorporate mathematical concepts to be used in mathematics lessons. The common reasons for their preferences are presented in Table 6.

Table 6. Students' Views on the Use of Children's Literature Books in Mathematics Lessons

Views	Common Responses
Makes Mathematics More Enjoyable/Engaging	I would like that.
	I would prefer it if the book included action.
	It would be different.
	It would make the lesson more fun.
	I think it would help those who dislike math to enjoy it.
Enhances Understanding/Reinforcement/Learning	It might be beneficial.
	I believe it would be helpful.
	It helps us understand mathematics better.
	Improves reading skills.
	It helps reinforce mathematical concepts.
	Helps in better retention of topics.

The analysis of students' views on using children's literature in mathematics lessons indicates that students believe such books can make mathematics more enjoyable, enhance comprehension, and facilitate learning. It has been observed that students who support using these books in mathematics lessons do not find mathematics enjoyable and anticipate that these books will add fun to the subject. Additionally, students believe these books can help those who do not enjoy mathematics develop a greater appreciation for it.

Moreover, many students stated that these books contribute to a better understanding of mathematical concepts, improve retention, and support overall mathematics learning. They also believe that such books can be beneficial in understanding and solving next-generation problem types. Most students preferred using these books in mathematics lessons, emphasizing that incorporating action and diverse storylines would make them more engaging. However, some students responded with hesitation, expressing concerns that these books might focus solely on entertainment rather than effectively teaching mathematical concepts.

According to the data presented in Table 7, students' views on the contribution of reading books to mathematics are categorized into positive and neutral responses.

Table 7. Students' Views on the Contribution of Reading Books to Mathematic

Common Responses	Students	Frequency
Provides benefits	S3, S5, S6, S7, S8, S9, S10, S11, S12	n=9
Partially provides benefits	S1, S2, S4, S3, S14	n=5

Students who provided positive responses (n=9) believe reading books impact mathematics and contributes to learning significantly. These students stated that books reinforce topics they do not fully understand, facilitate learning new concepts, make mathematics more enjoyable, and assist in exam preparation. Additionally, they expressed that reading books enhances the comprehension of mathematical problems and supports overall mathematical development.

On the other hand, students who provided neutral responses (n=5) believe that reading books offers only partial benefits to mathematics learning. These students indicated that, since they find mathematical topics more

challenging, reading alone may not be sufficient for learning mathematics. However, they acknowledged that books at an appropriate level could still provide some benefits.

In conclusion, most students perceive reading books as a positive contribution to mathematics learning. However, some students believe that its impact may be limited.

Discussion

This study aimed to explore middle school students' perspectives on children's literature incorporating mathematical concepts and their views regarding the integration of these books into mathematics lessons. The findings revealed that students appreciated children's literature with mathematical concepts. The aspects that participants stated they enjoyed the most in these books are the book's writing style, the characters in the narrative, and the mathematical concepts covered. Students reported that these aspects influenced their attitudes toward mathematics. Some students criticized a few aspects of the book, such as how the story ended and the writing style. However, they still provided positive comments about the mathematical concepts and visuals covered in the book.

Students thought the book was appropriate for different age groups and recommended the book for students who struggle with mathematics. They stated that the language and content of the book are accessible and engaging for struggling students. Although some students claimed that they encountered challenges while reading the book, they reported that they learned new mathematical concepts, and the book reinforced their existing knowledge. Most students acknowledged that the book contributed to their mathematical understanding and believed children's literature could make mathematics lessons more enjoyable and comprehensible. Some students raised concerns about the primary role of books. To illustrate, some students expressed concerns that such books might primarily add an element of fun rather than thoroughly teach mathematical concepts. Nevertheless, students perceived reading books as a beneficial contribution to mathematical learning. Note that the students participated in this study willingly and enthusiastically. This engagement stems from their interest in the book and their desire to improve their attitudes toward mathematics.

The literature highlights that children's literature can positively shape students' attitudes toward mathematics (den Heuvel-Panhuizen et al., 2009; Green, 2013). Children's literature's entertaining and engaging nature can make mathematical concepts more accessible, increasing students' interest in lessons. Students reported that they began to learn mathematical concepts more comfortably through the book and showed a positive tendency toward changing their previously negative perceptions of mathematics. The study's findings emphasize the potential of children's literature to contribute to mathematical learning.

Although students provided positive feedback regarding the book's writing style, characters, and mathematical concepts, as mentioned in the findings, critiques concerning aspects such as the writing style and the story's ending were also apparent. This highlights the importance of content and narrative style in integrating children's literature and mathematics. Furthermore, these findings emphasize the necessity for careful selection of the relationship between text and visuals and the narrative for mathematical concepts to be effective (Luedtke & Sorvaag, 2018; Zhang, 2023). Some students mentioned that they had learned new mathematical concepts and discovered the connections between these concepts and real-life situations. This suggests that children's literature can make mathematical concepts more concrete and meaningful (McAndrew et al., 2017; Van den Heuvel-Panhuizen & Elia, 2011).

Students recommended the book to a broad audience, particularly those who struggle with mathematics or have negative attitudes toward it. This indicates that the book is accessible and engaging. The literature highlights that children's literature books can reduce mathematics anxiety and foster positive attitudes toward mathematics (Luedtke & Sorvaag, 2018; Green, 2013). Although integrating children's literature into mathematics education has positive effects, some studies suggest it does not constantly improve mathematical achievement (Hassinger-Das et al., 2015; Yalçın et al., 2022). Nevertheless, it is emphasized that integrating children's literature into mathematics education enhances students' mathematical thinking and conceptual understanding. However, some students expressed concerns that reading alone might be insufficient for mathematics instruction. These findings support similar results found in the literature.

This study reveals that students believe using children's literature books in mathematics lessons would make mathematics more enjoyable and understandable. This finding underscores the potential of children's literature to support mathematical learning and highlights students' interest in such resources (Moyer, 2000; Can & Durmaz, 2023). Students ' generally positive views toward books reinforce the idea that children's literature can effectively teach mathematical concepts. The findings of this study align with the literature that advocates such books' effectiveness in teaching mathematical concepts and improving students' attitudes toward mathematics. However, it is concluded that the appropriate content and narrative are crucial aspects for these books to be practical teaching tools. In other words, such books may not always be equally effective for all students, and their integration into the teaching process must be carefully planned. Among the challenges of integrating children's literature with mathematics education are the alignment of the text with mathematical content, the clarity of the narrative style, and how students will connect the concepts in the book to real-life situations. At this point, to maximize the impact of children's literature books on mathematical learning, careful consideration must be given to the alignment between the content and the narrative style of the books.

The study has limitations that should be taken into account. Firstly, the research was conducted with students from a specific grade level. Studies conducted with students of different ages and educational levels could help generalize the findings to a broader audience. Future studies could enhance the validity of findings in this field by examining the integration of children's literature books into mathematics education across a broader range of age groups and educational levels. Additionally, studies investigating the long-term effects could reveal the lasting impact of children's literature books on students' mathematical learning. Finally, research comparing the effectiveness of different types of children's literature books on mathematical learning could help identify which types are more effective, thereby enabling the development of more targeted instructional materials.

Conclusion

Recent research on children's literature with mathematical concepts has highlighted such books' role in students' mathematical understanding and attitudes toward mathematics. Some studies state the benefits of integrating children's literature into mathematics instruction. However, other studies highlight that children's literature may not always be sufficient to enhance mathematical achievement directly. This study contributes to the current body of research by presenting the middle school students' perspectives on what aspects of children's literature support or fail to support their understanding of mathematical concepts and foster more positive attitudes toward mathematics. This study emphasizes the importance of the content and narrative style in children's literature incorporating mathematical concepts. Furthermore, the findings indicate that children's literature can be effective in reducing mathematics anxiety and making learning more enjoyable while also identifying critical elements—such as the coherence between text and visuals and the clarity of mathematical concepts—that must be considered for the effective use of such materials in instruction.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Statements of Publication Ethics

We hereby declare that the study does not have unethical issues and that research and publication ethics have been observed carefully.

Researchers' Contribution Rate

The contributions of the authors are as follows: The first author contributed 70%, primarily responsible for conceptualization, methodology, data analysis, and manuscript writing. The second and third authors each contributed 15%, focusing on data collection and validation.

Ethics Committee Approval Information

Ethics committee approval was obtained for this study from the Bartın University Ethics Committee for Social and Human Sciences, with its decision dated 11/12/2023 and numbered 2023-SBB-0790.

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GENİŞLETİLMİŞ ÖZET

Çocuk edebiyatı, özellikle kısa ve öz anlatımı, olay örgüsüne dayalı yapısı ve çocuk karakterleriyle, çocukların duygusal ve bilişsel gelişimine katkıda bulunan önemli bir araçtır. Çocuk edebiyatı, hem ev içinde hem okulda eğitimsel bağlamda kritik bir rol oynamaktadır. McDowell (1976) ve Jalongo (2004) gibi araştırmacılar, çocuk edebiyatının eğitsel faydalarını vurgulamış ve çocukların sosyal, duygusal ve dilsel gelişimlerini destekleyen güçlü bir etken olduğunu belirtmişlerdir. Bu edebi türün alt dallarından biri olan resimli kitaplar, görsel ve sözel öğeleri birleştirerek dil gelişimini ve yaratıcılığı teşvik eder. Resimli kitaplar, özellikle çocukların erken dönem gelişiminde önemli bir yer tutar, çünkü hem okuma becerilerini hem de yaratıcı düşünmeyi destekler (OECD, 2008).

Matematik eğitimi bağlamında, çocuk edebiyatı, öğrencilerin matematiksel kavramları anlamalarını derinleştirmek ve öğrenme süreçlerine aktif katılımlarını artırmak açısından etkili bir araç olarak öne çıkmaktadır. Matematiksel kavramların hikayeler yoluyla sunulması, öğrencilerde matematiksel söylemin teşvik edilmesini sağlamanın yanı sıra, matematik kaygısının azaltılmasına ve derse yönelik olumlu tutumların gelişmesine katkı sunmaktadır (den Heuvel-Panhuizen vd., 2009; Luedtke & Sorvaag, 2018). Matematiksel içerikler, resimli kitaplarla sunulduğunda öğrenciler, soyut kavramları somut bağlamlarda keşfeder ve bu da kavramların daha kolay anlaşılmasına yardımcı olur. Bu tür kitaplar, aynı zamanda çocukların düşünme becerilerini geliştirerek muhakeme ve problem çözme becerilerinin artırılmasına katkı sağlar (Nesmith & Cooper, 2010; Trakulphadetkrai, 2018).

Çocuk edebiyatının eğitsel etkilerinin önemli bir yönü de disiplinler arası öğrenme ile bağlantılıdır. 21. yüzyıl becerilerinin kazandırılması, sadece bireysel disiplinlerde değil, aynı zamanda disiplinler arası bir yaklaşımın benimsenmesiyle mümkün olmaktadır. Çocuk edebiyatı, matematiksel kavramları günlük yaşamla ilişkilendiren, aynı zamanda öğrencilerin kritik düşünme becerilerini geliştirmeye yönelik bir araç olarak kullanılabilir. Clarke & Broders (2022), matematiksel kavramların anlatıldığı metinlerin, öğrencilerin soyut düşünme becerilerini geliştirerek bu kavramları gerçek dünyadaki problemlerle ilişkilendirmelerine yardımcı olduğunu belirtmişlerdir. Bu durum, öğrencilerin matematiksel kavramları anlamalarını ve onlara dair tutumlarını değiştirmelerini kolaylaştırır.

Çocuk edebiyatı, aynı zamanda matematiksel kaygıyı azaltmada önemli bir rol oynamaktadır. Özellikle matematikle ilgili olumsuz deneyimler yaşayan öğrenciler, edebi materyaller aracılığıyla daha rahat bir şekilde matematikle tanışabilirler. Altunbay & Soylu (2020), çocuk edebiyatının, öğrencilerin matematiksel kaygılarını azaltarak öğrenmeye daha istekli hale gelmelerine katkı sağladığını vurgulamışlardır. Edebiyat eserlerinin matematiksel kavramları içermesi, öğrencilere matematiksel düşünmeyi daha az kaygı verici ve daha erişilebilir hale getirir. Ayrıca, bu tür kitaplar çocukların problem çözme becerilerini geliştirmelerine yardımcı olur ve onları yaratıcı düşünmeye teşvik eder (Van de Walle vd., 2019; Clarke & Broders, 2022). Öğretmenlerin, bu edebi materyalleri sınıf içi uygulamalara etkili bir şekilde entegre etmeleri, öğrencilerin matematiksel kavramları daha iyi anlamalarını sağlar.

Edebiyat temelli yaklaşımların öğrencilerin akademik başarılarını artırdığı ve kavramsal gelişimlerini desteklediği de birçok araştırma tarafından ortaya konmuştur (Van den Heuvel-Panhuizen vd., 2016; Capraro & Capraro, 2006; Edelman vd., 2019). Bu tür yaklaşımlar, sadece genel öğrenci kitlesi için değil, özel gereksinimleri olan öğrenciler için de olumlu sonuçlar doğurabilmektedir. Zhang (2023) ve Hassinger-Das vd. (2015) gibi araştırmacılar, yaratıcı düşünme, iletişim ve kavramsal gelişim gibi becerilerin gelişmesinde edebiyatın önemli bir rol oynadığını belirtmişlerdir. Çocuk edebiyatının matematiksel modelleme becerilerini artırmada etkili olduğu, yaratıcı düşünmeyi teşvik ettiği ve matematiksel iletişimi güçlendirdiği de gözlemlenmiştir. Ancak, bu tür yaklaşımların sınıf içi uygulamalarda sınırlı düzeyde gerçekleştiği, bunun ise öğretmenlerin pedagojik bilgi düzeyinden, inançlarından ve kaynaklara erişimden kaynaklandığı görülmüştür (Rogers vd., 2015; Sianturi, 2024).

Çocuk edebiyatının matematik öğretimiyle entegrasyonu konusunda öğretmenlerin yeterliliklerinin artırılması kritik öneme sahiptir. Hem hizmet öncesi hem de hizmet içi öğretmen eğitim programları, öğretmenlerin çocuk edebiyatını etkin bir şekilde kullanabilmeleri için gerekli becerileri kazandırmalıdır (Can & Durmaz, 2020; Durmaz, 2022). Bu eğitimler, öğretmenlerin matematiksel kavramları edebi materyaller aracılığıyla öğretme yetkinliklerini geliştirebilir. Ancak, yapılan araştırmalar, öğretmenlerin deneyim düzeylerinin, görev yaptıkları sınıf kademelerinin ve öğretmenlerin inançlarının, çocuk edebiyatının pedagojik değerine dair görüşlerini

etkilediğini göstermektedir (Can & Durmaz, 2023). Bu durum, öğretmenlerin eğitim sürecinde daha derinlemesine rehberlik ve destek alması gerektiğini ortaya koymaktadır.

Bu çalışmanın amacı, öğrencilerin bir çocuk edebiyatı kitabına dair görüşlerini derinlemesine inceleyerek, bu kitapların matematik derslerine entegrasyonuna ilişkin algılarını anlamaktır. Bu bağlamda, Batı Karadeniz Bölgesi'nde yer alan bir devlet okulunda, 14 altıncı sınıf öğrencisiyle (9 kız, 5 erkek) yapılan nitel bir araştırma gerçekleştirilmiştir. Durum çalışması yöntemiyle yürütülen araştırmada, veri toplama aracı olarak öğrenci günlükleri, yazılı cevaplar ve yarı yapılandırılmış bireysel görüşmeler kullanılmıştır. Katılımcılar, matematiksel yeterlik ve tutum açısından çeşitlilik gösteren öğrencilerden seçilmiştir. Katılımcılar, "Matematiğin Kaç Canı Var?" adlı çocuk kitabını okuyup ardından kitapta yer alan matematiksel kavramlara ve anlatım biçimine ilişkin görüşlerini yazılı olarak ifade etmiş ve bireysel görüşmelere katılmışlardır. Öğrenciler, kitapları okuduktan sonra bireysel görüşmelere katılmış ve yazılı formlar doldurmuşlardır.

Araştırma bulguları, öğrencilerin çocuk edebiyatı yoluyla sunulan matematiksel kavramlara genellikle olumlu ve ilgili yaklaştıklarını ortaya koymuştur. Öğrenciler, soyut matematiksel kavramların bir hikâye kurgusu içinde sunulmasının kavramları daha anlaşılır ve ilgi çekici hale getirdiğini ifade etmişlerdir. Ayrıca, bazı öğrencilerin kitap sayesinde daha önce karşılaşmadıkları matematiksel kavramlarla tanıştıkları ve bu kavramları günlük yaşam bağlamında düşündükleri gözlemlenmiştir. Bununla birlikte, bazı öğrencilerin kitapta sunulan kavramları anlamakta zorlandıkları ve anlatımın zaman zaman soyut kaldığını belirttikleri de görülmüştür. Öğrenciler, hikâyede geçen karakterlerin merak uyandırıcı ve eğlenceli olmasının okuma sürecine olumlu katkı sağladığını vurgulamışlardır. Genel olarak, çocuk edebiyatı ürünlerinin matematiğe yönelik kaygıyı azaltmada, matematiğe karşı olumlu tutum geliştirmede ve kavramsal anlamayı desteklemede potansiyel taşıdığı sonucuna ulaşılmıştır.

Sonuç olarak, çocuk edebiyatı kitapları, öğrencilerin matematiksel kavramlara olan ilgisini artırmakta, öğrenme sürecini daha anlamlı ve eğlenceli hale getirmektedir. Ancak, bu tür kitapların etkili olabilmesi için öğretmenlerin doğru materyalleri seçmesi ve pedagojik hedeflere uygun şekilde entegre etmeleri gerekmektedir. Bu sayede, çocuk edebiyatının matematik öğretimindeki potansiyelinden tam anlamıyla yararlanılabilir. Araştırma sonuçları, öğretmen adaylarının ve öğretmenlerin çocuk edebiyatını matematik öğretiminde etkili bir araç olarak nasıl kullanabilecekleri üzerine düşünmelerini teşvik etmektedir. Gelecekte yapılacak çalışmalarda farklı yaş grupları, çeşitli kitap türleri ve disiplinlerarası yaklaşımlarla çocuk edebiyatının matematik öğretimindeki rolü daha derinlemesine araştırılabilir.