



Teachers Difficulties in Mathematics Learning at SDN 3 Karangbener Kudus

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Abstract

Mathematics is a fundamental subject taught at all levels of education and holds significant relevance in everyday life. Mathematics learning in elementary school serves as a critical foundation for students' understanding at higher levels. However, teachers often face challenges in teaching basic mathematical concepts, primarily due to a reliance on rote memorization, low student interest, and external factors such as limited parental support and the influence of mass media. This study aims to identify the difficulties faced by teachers in teaching mathematics to fourth-grade students at SDN 3 Karangbener, as well as the strategies used to overcome them. A descriptive qualitative approach was employed, with data collected through semi-structured interviews and documentation. The findings reveal that the main challenges stem from both external factors (such as students' lack of mastery of basic mathematical concepts, difficulties in understanding word problems, and media influence) and internal factors (including students' psychological conditions, intelligence levels, and learning motivation). Teachers address these challenges through various measures, such as contextual learning (e.g., using real-life materials), additional tutoring, and motivational approaches. The study recommends that educators place greater emphasis on conceptual understanding rather than rote learning and encourage parental involvement to better support students' learning processes.

INTRODUCTION

Mathematics is a fundamental discipline that plays a crucial role in students' intellectual development. As a core subject, mathematics is taught continuously from elementary, secondary, to higher education levels (KG Permatasari, 2023). Its significance extends beyond the academic realm into daily life, including financial

management, practical problem-solving, and the development of logical thinking (Council & Education, 2001). Elementary mathematics education serves as a critical foundation because the concepts learned at this level determine students' success in learning more advanced mathematics (Anggraini et al., 2023; Fatimah et al., 2019).

However, various challenges emerge in implementing mathematics education at the elementary level. Research indicates that many students struggle to understand basic mathematical concepts such as number operations, fractions, and problem-solving (Clements et al., 2004). This is often caused by teaching approaches that emphasize rote memorization and mechanical procedures rather than conceptual understanding (Boaler, 2016). According to Piaget's cognitive development theory, elementary school children are at the concrete operational stage that requires hands-on experience and visual aids to comprehend abstract concepts like mathematics (Anggraini et al., 2023; Prasad Gnawali, 2025).

On the other hand, teachers also face numerous obstacles in teaching mathematics. A study by Utari et al. (Utari et al., 2019) revealed that 60% of elementary school teachers encounter difficulties in explaining mathematical concepts accurately. Contributing factors include limited content mastery, lack of teaching method variation, and insufficient use of appropriate instructional media (Adawiyah et al., 2021). The problem is further complicated by students' tendency to seek instant answers on the internet rather than understanding the problem-solving process. This phenomenon has led to declining critical thinking and analytical skills in solving mathematical problems (Mubarok et al., 2023).

These issues are particularly evident at SDN 3 Karangbener Kudus, where many fourth-grade students still struggle with basic mathematical concepts, especially fractions and mixed operations. Preliminary observations show that most student errors stem from weak conceptual understanding rather than computational inability. Meanwhile, teachers often rely on conventional methods that fail to actively engage students in the learning process.

Previous studies have examined teachers' difficulties in mathematics instruction, such as Fatimah (Fatimah et al., 2019) focus on students' conceptual difficulties or (Adawiyah et al., 2021) research on technology's impact on mathematics learning. However, this study offers several unique aspects. First, it specifically investigates the case at SDN 3 Karangbener Kudus, which has not been previously studied. Second, unlike Utari (Utari et al., 2019) study that merely identified problems, this research also provides concrete, field-tested solutions. Third, it integrates analysis of both internal and external factors affecting teaching difficulties - an approach rarely adopted in similar studies. Finally, this study offers specific, context-based recommendations that can be directly implemented by teachers at the school.

METHODS

This study employs a qualitative descriptive method, utilizing qualitative and descriptive data to provide a clear and detailed picture of teachers' difficulties in mathematics instruction. Qualitative research aims to deeply understand phenomena in their natural context (Moleong, 1996). The research subjects were fourth-grade teachers at SDN 3 Karangbener, with data collection conducted on October 17, 2023.

Data were collected through semi-structured interviews and documentation in the form of audio recordings and photographs. Semi-structured interviews provide researchers with flexibility to explore informants' responses in greater depth (Sugiyono; 2013). The research instrument consisted of a semi-structured interview format that allowed more freedom in examining teachers' difficulties during mathematics instruction in the classroom. Subsequently, interviewed teachers were asked to provide solutions and ideas to address related problems, aiming to overcome teaching difficulties in fourth-grade mathematics.

The data analysis followed qualitative data analysis techniques according to Miles and Huberman (Matthew B. Miles & A. Michael Huberman, 1994), consisting of three systematic steps: data reduction, data display, and conclusion drawing/verification.

RESULT AND DISCUSSION

Based on the research findings, several difficulties faced by teachers in the mathematics learning process of 4th-grade students at SD 3 Karangbener have been identified, as well as the strategies used by the teachers to overcome these difficulties in teaching mathematics.

1. External Factors

a. Students Have Not Mastered Basic Mathematical Concepts

Based on the observations, some students were found to have difficulty mastering basic mathematical concepts, such as multiplication and division, as well as addition and subtraction. In addition, many students did not understand the basic concept of fractions. Without a solid grasp of these fundamentals, students are prone to making errors when solving math problems.

During the observation, the most challenging topics for students were multiplication and division. According to Mrs. Rosidah, the 4th-grade mathematics teacher, students struggled particularly with multiplying two- and three-digit numbers. The students said that the procedures were too long and confusing, especially for those who already found arithmetic operations difficult.

As for division, many students simply could not perform the operations correctly. Some were still confused about how to divide when there was a remainder. While remainders are not necessarily a major issue, this confusion could become problematic in future learning.

Under the current curriculum, students are expected to be independent in mastering subject content. However, the fact that some students have yet to master even basic multiplication presents a challenge for teachers. In the face of limited instructional time, many students also show low motivation and a lack of desire to study more diligently.

As Mrs. Rosidah stated:

“These children really struggle with basic math. They’re fine with addition and subtraction, but they get confused and reluctant when it comes to multiplication and division. They say the steps in multiplication are too long, and if they get one number wrong, the whole answer is incorrect. For them, multiplication takes up too much time. After all, in 4th grade, we’re not doing simple 1x1 multiplication anymore-it’s more complex now.”

b. Students Confused in Understanding Word Problems

When students answer problems involving fractions, some may complete the procedures correctly, but the final result is inaccurate. This is often caused by miscalculations. These errors may also occur when students lack attention, are in a hurry to finish, or work through problems too quickly. As a result, their final answers may be wrong or imprecise. According to Sweller et al., when word problems- especially those involving fractions -are designed with overly complex structure and language, they may overload the student’s working memory capacity and lead to miscalculations or inaccurate answers. Students tend to rush and overlook important details if they lack sufficient cognitive scaffolding.

c. Lack of Parental Interest in Students’ Learning Activities

Research shows that some parents pay little attention to their children’s academic development. This lack of involvement can lead to learning difficulties. Parents may be indifferent to their child’s education, show no concern for their interests and learning needs, fail to regulate study time, or neglect providing adequate learning tools.

According to Parental Involvement Theory (Bracke & Education, 2016), parental involvement in a child’s education (such as monitoring academic progress, providing learning resources, and communicating with teachers) significantly affects academic achievement. A lack of parental involvement may lead to academic disengagement.

d. Influence of Mass Media

Researchers found that students spend a great deal of time at home

watching TV, playing games, and using the Internet or other mass media. As a result, they often lose track of time, which disrupts their study schedules. Excessive consumption of mass media can cause learning difficulties when it becomes a distraction.

Uses and Gratifications Theory explains that students use mass media (TV, games, internet) to fulfill entertainment needs, which may interfere with study time if not properly managed (Elihu Katz, 1973). The negative impact is supported by Anderson & Bushman, who found that high screen time reduces students' concentration and self-regulation (Anderson et al., 2018).

2. Internal Factors

a. Physical and Mental Conditions of Students

Research shows that most fourth-grade students are in good physical condition during learning activities. However, some students frequently miss math lessons due to illness. A student's physical condition is one internal factor contributing to learning difficulties. If a student is physically unwell, their concentration and ability to learn may be impaired.

According to Maslow's Hierarchy of Needs, physiological needs (such as health and safety) must be fulfilled before students can focus on learning. Poor physical health obstructs cognitive functioning (A. H. Maslow, 2012).

b. Unstable Emotions

Some students become emotional or angry when they cannot answer questions or understand difficult topics. Psychological states significantly influence learning challenges. Emotional instability, whether innate or caused by experiences, can be difficult for students to overcome and may hinder academic performance. Emotional Intelligence Theory emphasizes the importance of emotional regulation (such as managing frustration during learning difficulties) in achieving academic success (D Goleman, 2025).

c. Low Intelligence Level

Survey results show that the intelligence level of fourth-grade students ranges from average to below average, with an average score of 75.6% and 24.4% of students scoring below average. According to Theory of Multiple Intelligences, intelligence is not limited to numerical or mathematical ability but includes linguistic, spatial, and other intelligences (Practices, 1989). Students with low logical-mathematical intelligence may require alternative teaching approaches. Intelligence significantly impacts learning outcomes. While students with higher intelligence tend to perform better academically, even intelligent students are not guaranteed success without motivation and support.

d. Low Learning Interest

Studies show that students' interest in learning mathematics is relatively low. They may feel bored during lessons and prefer chatting or playing games over engaging with the material. Self-Determination Theory explains that intrinsic motivation arises when students feel the learning material is relevant, competence, and allows autonomy (Scott Rigby et al., 1992). A lack of interest may result from mismatched teaching strategies. Low interest leads to decreased focus and ultimately results in learning difficulties.

e. Ineffective Study Habits

Researchers found that students exhibit various study habits, with some learning better when explanations are given directly by the teacher. However, some students tend to chat or borrow stationery and geometry tools from their peers during class. Therefore, ineffective study habits also contribute to learning difficulties. These include laziness, lack of interest, frequent absences, and anxiety. Poor habits may prevent students from understanding mathematical concepts effectively.

3. Difficulties Encountered by Students in Arithmetic

The following are several common difficulties faced by students in mathematical calculations:

- a. Difficulty with arithmetic operations involving multiplication ($\times$) and addition ($+$)

Some students struggle to use arithmetic symbols correctly, particularly in problems involving mixed numbers. Even if they follow the procedure, their final multiplication or addition answers may be incorrect.

- b. Difficulty with division

Some students find it hard to divide ordinary fractions or mixed numbers and are unfamiliar with long division methods.

- c. Difficulty with percentage (%) problems

Some students struggle to convert fractions into percentages by scaling the denominator to 100. Others do not understand how to perform the steps involved.

- d. Difficulty with fraction addition

Research shows that some students do not understand the concept of fraction addition. Many make mistakes when performing the operation, especially when denominators differ.

4. The Mathematic Strategies for Student

The fourth-grade teacher at SDN 3 Karangbener implemented several strategies to help students overcome difficulties in mathematics

- a. Daily mental math practice every morning, even on days without formal math lessons, to strengthen memory and familiarity.
- b. Quiz competitions at the end of the school day, where students compete to answer questions. The quickest correct answer allows early this builds excitement and motivation.
- c. Individual academic guidance for students who struggle, including extra tutoring sessions outside of regular school hours.
- d. Support and remedial teaching for students scoring below the Minimum Competency Criteria (KKM), to help them stay motivated and improve without feeling discouraged. A concrete strategy used by the teacher includes using real objects like apples to explain fractions: a whole apple represents 1; when cut into two, it represents $\frac{1}{2}$, and so on. This hands-on approach helps students grasp the concept more clearly.

1 apple



$\frac{1}{2}$ apple



CONCLUSIONS AND RECOMMENDATIONS

This study concludes that mathematics learning in Grade IV at SDN 3 Karangbener Kudus faces various challenges, both from external factors such as a lack of mastery of basic mathematical concepts (multiplication, division, fractions), confusion in solving word problems, low parental involvement, and the negative influence of mass media, as well as internal factors such as students' physical and emotional conditions, varying intelligence levels, low interest in learning, and ineffective study habits. The main difficulties students face are in mixed operations, fractions, and percentages, often due to weak conceptual understanding. However, teachers have implemented effective strategies such as daily mental math practice, interactive quizzes, individual tutoring, and the use of concrete teaching aids (e.g., apples to explain fractions) to improve students' understanding and motivation. The findings highlight the importance of a more interactive learning approach, parental support, and adjustments to teaching methods to holistically address difficulties in learning mathematics.

REFERENCES

A. H. Maslow. (2012). *Maslow's Hierarchy of Needs - Research History*. Psychological

- Review. <https://researchhistory.org/2012/06/16/maslows-hierarchy-of-needs/?print=1>
- Adawiyah, F., Tinggi, S., Tarbiyah, I., & Diniyyah, A.-A. (2021). Variasi Metode Mengajar Guru Dalam Mengatasi Kejenuhan Siswa Di Sekolah Menengah Pertama. *E-Journal.Upr.Ac.Id*, 2(1), 68–82. <https://doi.org/10.37304/PARIS.V2I1.3316>
- Anderson, C. A., Bushman, B. J., Hall, L., Boxer, P., Gentile, D. A., Krahé, B., & Warburton, W. A. (2018). Media violence and the general aggression model. *Wiley Online Library*, 74(2), 386–413. <https://doi.org/10.1111/JOSI.12275>
- Anggraini, D. M., Faizah, M., Afrida, F. N., Hanifah, N. H., & Norfika, R. (2023). Developing manipulative thing for mathematics learning. *Pubs.Aip.Org*, 2595. <https://doi.org/10.1063/5.0123744>
- Boaler, J. (2016). Designing mathematics classes to promote equity and engagement. *The Journal of Mathematical Behavior*, 41, 172–178. <https://doi.org/10.1016/J.JMATHB.2015.01.002>
- Bracke, D., & Education, D. C. (2016). Parental involvement and the theory of planned behavior. *Ingentaconnect.Com*, 5(4), 570–572. <https://doi.org/10.21275/V5I4.NOV162664>
- Clements, D. H., Wilson, D. C., & Sarama, J. (2004). Young Children's Composition of Geometric Figures: A Learning Trajectory. *Mathematical Thinking and Learning*, 6(2), 163–184. https://doi.org/10.1207/s15327833mtl0602_5
- Council, N. R., & Education, C. for. (2001). Educating teachers of science, mathematics, and technology: New practices for the new millennium. In *PsycEXTRA Dataset*. <https://doi.org/10.1037/E303082005-001>
- D Goleman. (2025). Emotional intelligence: Issues in paradigm building. *Communicationcache.Com*, 3, 88–101. <https://doi.org/10.4324/9781041057154-7>
- Elihu Katz, J. G. B. and M. G. (1973). Uses and Gratifications Research. *Oxford University Press*, 37(4). <https://www.jstor.org/stable/2747854>
- Fatimah, F., Fitria, Y., & Dasar, Y. E. (2019). Pengaruh pembelajaran tematik terpadu connected terhadap pembelajaran matematika siswa sekolah dasar . *Jurnal.Ummi.Ac.Id*, 6(2), 110–120. <https://doi.org/10.37150/PERSEDA.V6I2.2030>
- KG Permatasari. (2023). Problematika pembelajaran matematika di sekolah dasar/madrasah ibtidaiyah. *Jurnal.Staimuhblora.Ac.Id*, 16(1), 129–145. <https://doi.org/10.63889/PEDAGOGY.V16I1.159>
- Matthew B. Miles, & A. Michael Huberman. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (Vol. 2nd). Sage Publication, Inc. [https://books.google.co.id/books?hl=id&lr=&id=U4lU_-wJ5QEC&oi=fnd&pg=PA10&dq=Miles+and+Huberman+\(1994\)&ots=kGXC4KS0S&sig=vtNecEl9_PePGqVas-QgXSR7GL4&redir_esc=y#v=onepage&q=Miles and Huberman \(1994\)&f=false](https://books.google.co.id/books?hl=id&lr=&id=U4lU_-wJ5QEC&oi=fnd&pg=PA10&dq=Miles+and+Huberman+(1994)&ots=kGXC4KS0S&sig=vtNecEl9_PePGqVas-QgXSR7GL4&redir_esc=y#v=onepage&q=Miles+and+Huberman+(1994)&f=false)
- Moleong, L. J. (1996). TEACHER EDUCATION FOR THE FUTURE. *Proceedings of the Annual Meeting of the Japanese Society for Science Education*, S47–S50. https://doi.org/10.14935/JSSEP.20.0_S47
- Mubarok, H., Anggraini, D. M., & Charis, A. (2023). *The Urgency of Critical Thinking*

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- Character for Elementry Student. Quality.
<https://doi.org/10.21043/quality.v11i1.20523>
- Practices, H. G. (1989). The theory of multiple intelligences. *Taylorfrancis.Com*, 18(8), 4. <https://doi.org/10.2307/1176460>
- Prasad Gnawali, Y. (2025). Role of Manipulative Materials in Mathematics Teaching and Learning. *Education and Development*, 34(1), 111–127. <https://doi.org/10.3126/ED.V34I1.80293>
- Scott Rigby, C., Deci, E. L., Patrick, B. C., & Ryan, R. M. (1992). Beyond the intrinsic-extrinsic dichotomy: Self-determination in motivation and learning. *Springer*, 16(3), 165–185. <https://doi.org/10.1007/BF00991650>
- Sugiyono, P. D. (2013). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*. Alfabeta.
- Utari, D. R., Yusuf, M., Wardana, S., & Damayani, A. T. (2019). Analisis kesulitan belajar matematika dalam menyelesaikan soal cerita. *Ejournal.Undiksha.Ac.Id*, 3(4), 545. <https://doi.org/10.23887/JISD.V3I4.22311>