



Student Challenges and Effective Strategies in Everyday Mathematics Learning for Junior High School Students

Wa Ode Indrawati ¹⁾ *, La Ode Ahmad Jazuli ¹⁾, La Arapu ¹⁾, Muhammad Ihwal ²⁾, Dian Ulfa Sari ³⁾

¹⁾Department of Mathematics Education, Universitas Halu Oleo. Kendari, Indonesia.

²⁾Study Program of Statistics, Universitas Halu Oleo. Kendari, Indonesia.

³⁾Department of Mathematics Education, Universitas Sembilanbelas November Kolaka. Kolaka, Indonesia.

Received: 1 April 2024

Revised: 15 April 2024

Accepted: 30 April 2024

Abstract

Mathematics learning often faces various obstacles that affect the effectiveness and quality of education. Mathematical concepts are often abstract and difficult for students to understand without a clear and applicable explanation. As a result, students can feel confused and unable to master mathematical concepts with practical applications, hindering understanding and application of the material. The objectives of this research is to find out the students' description of the challenges and effective strategies in daily learning mathematics. This type of research is a qualitative description. Data collection is carried out through interviews, observations, or other methods, and then the data is analyzed in depth to find patterns, themes and meanings that emerge. The research instruments were interviews and questionnaires. The research results show that students prefer mathematics subjects compared to other subjects, only achieving a percentage score of 53%. Of course this is a challenge for a teacher. To overcome these challenges, several strategies that are considered effective in learning mathematics are the use of active learning methods, technology integration; differentiation approach, and development of problem solving skills..

Keywords: challenge; effective strategy; mathematics learning.

INTRODUCTION

One of the daily challenges of learning mathematics for junior high school students is low student motivation. Many students find mathematics difficult and irrelevant to their daily lives, so they are less motivated to learn. An effective strategy in facing these challenges is to require a creative approach and focus on students' needs and interests. The role of teachers in mathematics learning is very important regarding the methods used in teaching students. According to (Suhendra, 2023), the level of student learning outcomes depends on the teacher.

Mathematics is a branch of science that includes a series of concepts consisting of operations, numbers, symbols and patterns that are definitive (Nurhikmayati, 2018). Mathematics learning often faces various challenges that affect the effectiveness and quality of education. One of the main challenges is difficulty in understanding abstract concepts (Wulandari, Sugiatno, & Bistari, 2020). Mathematics often involves ideas that cannot be directly observed, such as complex numbers, functions, and variables. For many students, especially at the middle school level, these concepts can be very confusing and difficult to understand without a solid foundation.

Additionally, lack of student motivation and engagement is also a significant problem. Many students see mathematics as a difficult subject and irrelevant to their daily lives. When students can't relate what they're learning to real applications or don't see the practical benefits

* Author Correspondence. E-mail: waodeindrawati17@uho.ac.id

of the material being taught, they may lose motivation and be reluctant to try harder. According (Ruseffendi, 1980), to identify the causes of students' difficulties in learning, we can examine several aspects, namely the material taught, teaching methods, and the students themselves.

Improving teaching skills is also important for successful mathematics learning. Professional training for teachers to develop their skills in teaching mathematics and utilize various pedagogical strategies can bring positive changes in the learning process. Teachers who are skilled in applying various teaching methods will be better able to handle the challenges students face and create a supportive learning environment. Students are considered to face difficulties in learning mathematics if they do not achieve the quality standards of learning outcomes set in accordance with the learning objectives to be achieved (Azis, 2021; Mayangsari, 2015).

Learning is expected to help students develop various abilities, including critical thinking, problem solving, and thinking and acting creatively and innovatively. Apart from that, learning must also improve students' communication and collaboration skills so that they can compete at the international level (Rafi et al., 2020). Without us realizing it, mathematics is applied in various daily activities, even though it often only involves numbers and simple operations. Many students find mathematics difficult because they have experienced fear before, and have not been able to learn and accept the material enthusiastically (Manik et al., 2022). On the other hand, students are expected to apply critical thinking in facing challenge (Hmelo-Silver, 2004).

In learning mathematics, students are expected to use high-level thinking skills and creativity in completing calculations, because mathematics is often related to material that has been studied previously. As a result, many students feel that mathematics is a difficult subject (Ayuningsih, 2022). Identifying and overcoming challenges in mathematics learning is an important step in improving the quality of education. Teachers need to have skills in designing learning so that it can be relevant and provide significant benefits (Pujiasih, 2020). By implementing effective strategies such as active teaching methods, technology integration, adapting to students' learning styles, and improving teaching skills, educators can create more effective and motivating mathematics learning experiences. This will not only help students understand math concepts better but also improve their overall academic performance. Teachers need to have skills in designing learning so that it can be relevant and provide significant benefits.

Based on previous research conducted by (Manik, 2022), stated that various strategies and techniques are applied so that mathematics learning remains effective in achieving the desired competencies and goals. The concept of Independent Learning is now the main policy in the new era of education. Therefore, the researcher wants to conduct research related to students' descriptions of the challenges and effective strategies for everyday mathematics learning for junior high school students.

In the context of everyday mathematics learning, teachers face various challenges that influence the way they teach mathematics subjects and their impact on students. Therefore, it is important for teachers to know these challenges and the strategies that can be implemented to overcome problems and increase the effectiveness of mathematics learning. Thus, researchers conducted research entitled "Analysis of Challenges and Effective Strategies in Everyday Mathematics Learning for Junior High School Students in Kendari City". The aim is to understand students' descriptions of the challenges and effective strategies in daily learning mathematics.

METHODS

This type of research is quantitative descriptive research. Quantitative descriptive is a research approach that aims to explain and understand the quantitative characteristics of phenomena, events, social activities, attitudes, perceptions and thoughts both individually and

in groups. Data collection is carried out through observation, or other methods, then the data is analyzed in depth to find patterns, themes and meanings that emerge. In descriptive quantitative research, researchers often use an inductive approach, where theories and findings are developed based on the data obtained, not based on predetermined hypotheses. This approach allows researchers to gain an in-depth understanding of individual experiences and views, as well as the social and cultural context in which the phenomenon occurs. This research was carried out at SMPN 5 Kendari. The research instrument used was a questionnaire. Questionnaires are given to students to measure daily mathematics learning activities which include challenges and strategies. The data analysis techniques in this research are descriptive statistics, data visualization, data presentation in the form of diagrams or graphs, and presentation of results. The questionnaire covering daily life in learning mathematics includes the following challenges and effective strategies:

Table 1. Indicators Of Students' Daily Lives In Mathematics Learning

Number	Indicators	Statement Item Number
1.	Motivation and interest	1, 13
2.	Material difficulties	2,3
3.	Teacher readiness and skills	4,5
4.	Teaching and methods	6,8,10
5.	Evaluation and feedback	7,9
6.	Student engagement	11, 12

RESULTS AND DISCUSSION

In the questionnaire statement regarding students preferring mathematics subjects compared to other subjects, a score percentage of 53% was obtained. This means that the average student is hesitant about the aspect of liking mathematics lessons compared to other subjects. In the questionnaire statement regarding students having difficulty understanding mathematics subject matter, a percentage score of 71% was obtained. This means that on average students agree in the aspect of experiencing difficulties in understanding mathematics subject matter. In the questionnaire statement regarding students feeling at a loss if they were not present or did not pay enough attention when the teacher explained the material, a score of 90% was obtained. This means that on average students strongly agree with the aspect that students feel at a loss if they are not present or pay less attention when the teacher explains the material. In the questionnaire statement regarding students' ability to utilize online learning resources such as video tutorials or mathematics learning applications, a score percentage of 79% was obtained. This means that on average students agree with the aspect of utilizing online learning resources such as video tutorials or mathematics learning applications.

The questionnaire stated that students felt more interested in learning when the teacher used diagrams, schemes and graphs when explaining the material. Obtained a score percentage of 74%. This means that on average students agree in the aspect of feeling more interested in learning when the teacher uses diagrams, schemes and graphs when explaining the material. In the questionnaire statement regarding when students face difficulties in solving problems, students always try to ask teachers or friends who understand the material, obtaining a score percentage of 89%. This means that on average students strongly agree in the aspect that when students face difficulties in solving problems, students always try to ask teachers or friends who understand the material. In the questionnaire statement regarding students feeling happy when they can create weighty story questions, a score of 62% was obtained. This means that on

average students agree in the aspect that students feel happy when they can create weighty story questions. In the questionnaire statement regarding students feeling happy when learning mathematics is carried out in groups, because students can work together with their friends, a score of 77% was obtained. This means that on average students agree in the aspect that students feel happy when mathematics learning is done in groups, because students can work together with their friends. In the questionnaire statement regarding students asking for an explanation from the teacher when there was material they did not understand, a percentage score of 75% was obtained. This means that on average students agree in the aspect regarding students asking for explanations from the teacher when there is material they do not understand.

In the questionnaire statement regarding students having difficulty understanding material presented only through the lecture method without any examples or pictures, a percentage score of 77% was obtained. This means that on average students agree in the aspect that students find it difficult to understand the material presented only through the lecture method without any examples or pictures. In the questionnaire statement regarding students feeling calm and relaxed when working on mathematics problems, a percentage score of 62% was obtained. This means that on average students agree that students feel calm and relaxed when working on math problems. In the questionnaire statement regarding students who usually change sitting positions when they feel bored or face difficulties in doing math problems, a percentage score of 75% was obtained. This means that on average students agree in the aspect that students usually change sitting positions when they feel bored or face difficulties in working on math problems. In the questionnaire statement regarding students enjoying drawing or making simple sketches when studying mathematics, a percentage score of 79% was obtained. This means that on average students agree on the aspect that students like to draw or make simple pictures when studying mathematics.

The graph of the results of the questionnaire analysis of daily study of mathematics learning which includes experiences, challenges and strategies can be seen in the following graph:

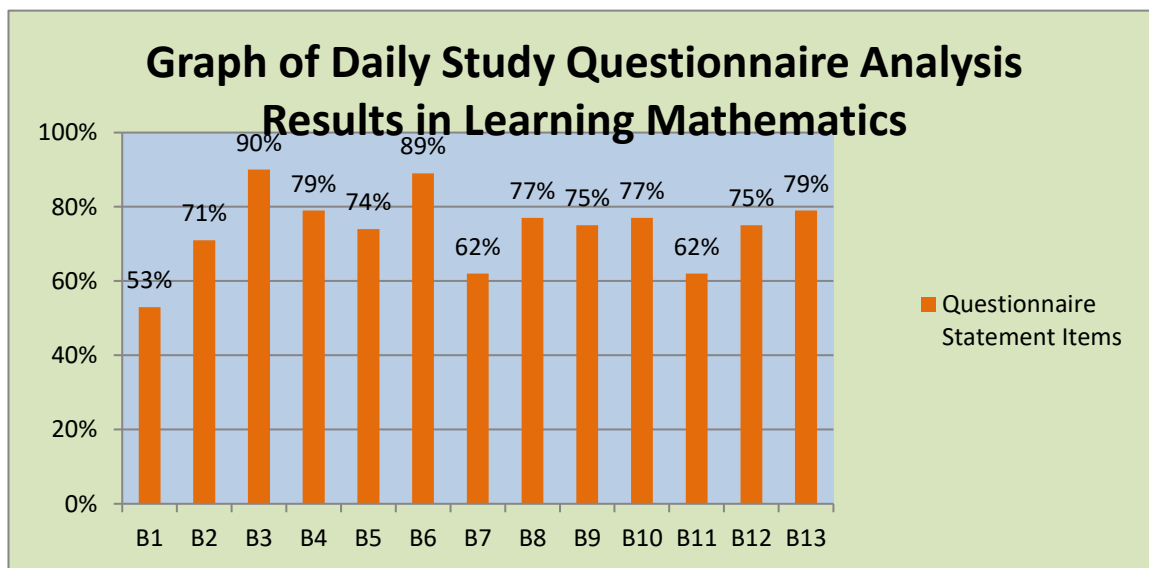


Figure 1. Graph of Daily Study Questionnaire Analysis Results in Learning Mathematics

Research findings by (Arnidha, 2021) revealed that teachers face limitations in utilizing internet-based learning media, coupled with a lack of internet access and a lack of availability of smartphones among students. Challenges in learning mathematics often reflect the obstacles students face in understanding and applying mathematical concepts. Mathematics opens the

way to various opportunities (National Research Council, 1989). Referring to the importance of mathematics in life, learning mathematics is expected to create a fun and enthusiastic atmosphere. This aims to enable students to achieve systematic, logical and critical thinking skills while prioritizing noble national character values (Azis, 2020; Safari & Wicaksono, 2024). This is in line with the findings that students prefer mathematics subjects compared to other subjects, only achieving a score percentage of 53%. With effective strategies, these challenges can be overcome, helping students not only to understand mathematics better but also to apply it in their everyday contexts. Appropriate strategies help students to: (1) connect mathematical theory with real practice; (2) increasing motivation and involvement in learning; and (3) acquire the skills necessary to use mathematics in everyday situations. Therefore, identifying challenges and implementing effective strategies is key to improving students' understanding and application of mathematics in everyday life.

CONCLUSION

The findings that students preferred mathematics subjects compared to other subjects only reached a score percentage of 53%. Of course this is a challenge for a teacher. To overcome these challenges, several strategies that are considered effective in learning mathematics are the use of active learning methods, technology integration; differentiation approach, and development of problem-solving skills. Overall, to improve everyday mathematics learning in junior high school students, it is important to identify and overcome existing challenges and then implement effective strategies. With the right approach, students can more easily understand and apply mathematical concepts in their daily lives.

ACKNOWLEDGEMENTS

We would like to express our thanks to all parties who have played a role in carrying out this research. We greatly appreciate the support and assistance provided during this process. We hope that this learning activity can provide long-term benefits for the development of the learning process in the classroom and support the progress of students now and in the future

REFERENCES

- Arnidha, Y. et.al. (2021). Tantangan dan Strategi Pembelajaran Matematika di Masa Adaptasi Kebiasaan Baru Covid-19. *Journal of Elementary School Education*, 1(2), 77-85.
- Ayuningsih, F., et.al. (2022). Pembelajaran Matematika Polinomial Berbasis STEAMPjBL Menumbuhkan Kreativitas Peserta Didik. *JURNAL BASICEDU*, 6(5), 8175 – 8187. DOI : <https://doi.org/10.31004/basicedu.v6i5.3660>
- Azis, A. (2020). Laga Pinter Sebagai Media Pembelajaran pada Materi Segi Empat Siswa Kelas VII K SMP Negeri 5 Kendari. *Jurnal Amanah Pendidikan dan Pengajaran*, 1(2), 102-112.
- Azis, A. (2021). Pemanfaatan Laptop Gadget dan Printer (Laga Pinter) sebagai Media Pembelajaran pada Materi Segi Empat Siswa Kelas VII K SMP Negeri 5 Kendari. *Jurnal Didaktika Pendidikan Dasar*, 5(3), 867-886. <http://doi:10.26811/didaktika.v5i3.342>
- Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn?. *Educational psychology review*, 16, 235-266.

- Manik, H. (2022). Tantangan Menjadi Guru Matematika Dengan Kurikulum Merdeka Belajar Di Masa Pandemi Omicron Covid-19. *EDUMASPUL (Jurnal Pendidikan)*, 6(1), 328-332.
- Mayangsari, S. (2015). Strategi Belajar Matematika. *Jurnal Likhitaprajna*, 17(2), 107-117. <https://doi.org/10.37303/likhitaprajna.v17i2.20>
- National Research Council (NRC). (1989) *Food and Nutrition Board Recommended Dietary Allowances 10th Edition*. Washington DC: National Academy Press.
- Nurhikmayati, I. (2019). Implementasi STEAM dalam Pembelajaran Matematika. *Jurnal Didactical Mathematics*, 1(2). 41-50
- Pujiasih, E. (2020). Membangun generasi emas dengan variasi pembelajaran online di masa pandemi covid-19. *Ideguru: Jurnal Karya Ilmiah* 42–48.
- Rafi, I., Nurjannah, F. F., Fabella, I. R., & Andayani, S. (2020). Peluang dan Tantangan Pengintegrasian Learning Management System (LMS) dalam Pembelajaran Matematika di Indonesia. *Jurnal Tadris Matematika*, 3(2), 229–248. <https://doi.org/10.21274/jtm.2020.3.2.229-248>
- Ruseffendi, E.T. (1992). *Pengajaran Matematika Modern*. Bandung: Tarsito.
- Safari, Y. ., & Wicaksono, B. R. (2024). Strategi Efektif dalam Pembelajaran Matematika untuk Siswa Sekolah Dasar . *Karimah Tauhid*, 3(7), 7644–7651. <https://doi.org/10.30997/karimahtauhid.v3i7.14150>
- Suhender, A.W. & Yanto, A. (2023). Pembelajaran Matematika Menyenangkan di SD Melalui Permainan. *Jurnal Polinomial*, 2(1), 18-23. <https://doi.org/10.56916/jp.v2i1.316>
- Wulandari, A. C., Sugiarno, & Bistari. (2020). Tantangan Belajar Matematika Dalam Materi Aritmatika Sosial Pada Peserta Didik Berkebutuhan Khusus. *Jurnal AlphaEuclidEdu*, 1(2), 135-143.