(JIML) JOURNAL OF INNOVATIVE MATHEMATICS LEARNING
Volume 8, No. 2, June 2025
P-ISSN 2621-4733
E-ISSN 2621-4741
https://dx.doi.org/10.22460/jiml.v8i2.p23842

ANALYSIS OF JUNIOR HIGH SCHOOL STUDENTS' MATHEMATICAL PROBLEM-SOLVING SKILLS IN SOLVING SOCIAL ARITHMETIC PROBLEMS

Dian Mardiansyah[1], Heris Hendriana[2], Tatang Supriatna[3], Harry Dwi Putra[4]
[1]IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
diyanmardiansyah@gmail.com
[2]IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
herishen@ikipsiliwangi.ac.id
[3]IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
statang776@gmail.com
[4]IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia.
harrydp@ikipsiliwangi.ac.id

ARTICLE INFO

Article history:

Received Jul 04, 2024
Revised Sep 14, 2024
Accepted Sep 30, 2024

Keywords:

Mathematical Problem-Solving Skills
Social Arithmetic
Problem-Based Learning
Junior High School

ABSTRACT

Education is the main foundation in character building and individual intellectual abilities. Mathematical problem solving ability is one of the important skills that must be mastered by students in the modern educational era, especially in the context of social arithmetic material that is often applied in everyday life. This study aims to analyze the mathematical problem solving ability of students in class VII-A at SMPN 3 Cisarua in solving social arithmetic problems. This research uses a descriptive qualitative approach with data collection methods through interviews with math teachers and observations of students during the learning process and problem solving. The data analysis process was carried out descriptively to describe the variations in students' problem solving abilities and the factors that influence these abilities. The results of the analysis show that the mathematical problem solving ability of students in class VII-A at SMPN 3 Cisarua still varies, with some students showing significant improvement after the application of the Problem-Based Learning (PBL) learning method. Factors such as student engagement in learning, understanding of mathematical concepts, and critical thinking ability affect students' mathematical problem solving ability. The application of PBL method can be one of the effective strategies to improve student engagement, understanding of mathematical concepts, and mathematical problem solving skills. In conclusion, PBL method is proven to be an effective strategy to improve students' engagement, understanding of concepts, and their mathematical problem solving skills, so it can be implemented more widely in mathematics learning.

Corresponding Author:
Dian Mardiansyah,
Department of Mathematics Education,
Institut Keguruan dan Ilmu Pendidikan Siliwangi,
Jl. Terusan Jend. Sudirman, Cimahi, Indonesia
Email: diyanmardiansyah@gmail.com

How to Cite:

Mardiansyah, D., Hendriana, H., Supriatna, T., & Putra, H. D. (2025). Analysis of Junior High School Students' Mathematical Problem-Solving Skills in Solving Social Arithmetic Problems. *JIML*, 8(2), 181-192.

INTRODUCTION

Education is the primary foundation for character development and individual intellectual abilities. In the context of an increasingly complex globalized world, mathematical problem-

solving ability is one of the essential competencies that must be possessed by students (Nugraha & Hakim, 2022). This ability is not only related to academic skills, but also plays an important role in everyday life and decision-making. One of the efforts to improve students' mathematical problem-solving ability is through the application of innovative and effective learning methods. One method that has been empirically validated in numerous studies is problem-based learning (PBL).

Mathematics is a science that studies patterns, structures, and relationships between concepts and objects using certain symbols and rules. It is a universal language that can be used to describe natural phenomena, solve problems, and develop logical thinking (Agustina, 2023). In an academic context, mathematics involves the comprehension of fundamental concepts, including numbers, geometry, algebra, statistics, and others. Additionally, it encompasses the utilization of analytical and reasoning techniques to address intricate issues across a spectrum of disciplines, encompassing natural sciences, social sciences, and technology. Mathematical skills are not only important in academic contexts, but also have broad implications in everyday life, including in decision making, data analysis, and the development of new technologies (Ismawati et al., 2023). Problem-Based Learning (PBL) is a student-centered learning method, in which students are given real problems as a stimulus for learning. In the context of mathematics learning, PBL not only helps students understand mathematical concepts, but also develops critical, creative, and analytical thinking skills (Apipah & Novaliyosi, 2023). This method places students as active subjects in the learning process, which encourages them to explore, analyze, and solve problems independently or in groups (Cahyani et al., 2021).

Mathematical problem-solving ability is a crucial indicator of the quality of mathematics education. As outlined by Polya (Hendriana & Soemarmo, 2014), the process of mathematical problem solving encompasses four distinct stages: comprehension of the problem, formulation of a solution strategy, execution of the plan, and assessment of the process and solution outcomes. These stages necessitate the deployment of high cognitive abilities, which can prove challenging for students, particularly when confronted with more intricate materials such as social arithmetic (Habibah & Rosyana, 2023). Social arithmetic is a topic that is highly relevant to everyday life. This material encompasses a range of concepts, including percentages, discounts, interest, taxes, and others, which are frequently encountered in economic and social contexts. However, many students encounter difficulties in solving social arithmetic problems due to a lack of understanding of fundamental concepts and the ability to apply these concepts to real-world scenarios (Lailiyah et al., 2021).

Mathematical problem-solving skills are the primary focus of mathematics education at various levels. The mastery of mathematical concepts is not only reflected in the mastery of formulas and theories, but also in the ability of students to apply these concepts to solve problems in the context of the real world. One of the areas of mathematics that students often encounter at the junior high school (SMP) level is social arithmetic material. This material involves solving problems related to everyday life, such as financial calculations, proportions, and solving other everyday problems. In today's digital era and globalization, mathematical problem-solving skills are of great importance in preparing students to face future challenges and demands. Unfortunately, many students have difficulty in applying mathematical concepts to real situations, especially in social arithmetic. This can be attributed to a number of factors, including a lack of comprehension of the underlying concepts, a dearth of experience in navigating practical problems, and even a deficiency in motivation and interest in mathematics.

Research conducted by Lailiyah et al. (2021) has demonstrated that the development of mathematical problem-solving skills can be achieved through an approach that is structured and oriented to the context of students' daily lives. By introducing students to problems that are relevant to their lives, they can be more motivated and actively involved in the mathematics

learning process. It is crucial to analyze the problem-solving abilities of junior high school students. This study aims to identify the difficulties students face in solving mathematical problems in this material and to design more effective and relevant learning strategies for students. By deeply understanding how students encounter and solve problems in social arithmetic, teachers can develop approaches that better suit their needs and help them better master mathematical concepts.

Initial observations and data from several studies indicate that mathematical problem-solving skills among junior high school students require improvement. One contributing factor is the prevalence of conventional learning methods that prioritize procedural and memorization over conceptual understanding and real-world applications. To address this issue, a more interactive and contextual learning approach, such as problem-based learning (PBL), is necessary (Mahendrawan et al., 2022). PBL has the potential to enhance students' mathematical problem-solving abilities. This approach enables students to learn through hands-on experience and real-world problem-solving, which can facilitate their conceptual understanding and problem-solving abilities. Furthermore, PBL fosters the development of other crucial skills, including collaboration, communication, and self-reflection (Rahmawati et al., 2022).

A number of studies have demonstrated the efficacy of problem-based learning (PBL) in the context of mathematics education. Research conducted by Yuliani et al. (2024) indicates that students who engage in PBL-based learning exhibit a more profound comprehension of mathematical concepts and demonstrate enhanced problem-solving abilities when compared to their counterparts who utilize conventional learning methodologies. Another study by Nurbaya (2021) substantiates the capacity of PBL to enhance students' critical and creative thinking skills in the context of mathematical problem-solving. In accordance with the findings of Brahim, Huda, and Anggereini (2023), there is a correlation between the problem-based learning (PBL) model and students' mathematical problem-solving abilities. Additionally, self-confidence has been identified as a contributing factor to each student's mathematical problem-solving abilities. However, the implementation of PBL in mathematics learning in Indonesia is still confronted with various challenges. One of these challenges is the lack of understanding and skills among teachers in effectively applying this method. Consequently, further research is required to identify the factors that influence the success of PBL implementation and develop strategies that can assist teachers in implementing it.

The objective of this study is to analyze the mathematical problem-solving abilities of junior high school students in solving problems on social arithmetic material using the PBL method. It is anticipated that this research will contribute to the advancement of theory and practice in mathematics education in Indonesia, as well as provide recommendations that can be utilized by teachers and policy makers to enhance the quality of mathematics learning in schools.

METHOD

The research method employed in this study is descriptive qualitative. Its objective is to explore the phenomenon in question in a holistic and detailed manner. The research will entail data collection through direct observation of the mathematical problem-solving process of junior high school students in solving problems on social arithmetic material. These observations will be conducted in a systematic and structured manner, with a focus on understanding how students approach the problem, plan their solution strategies, execute the steps, and evaluate the results. The data collected will be subjected to qualitative analysis in order to identify patterns in the problem-solving strategies employed by students, difficulties encountered, and factors that influence their performance.

Furthermore, interviews will be employed as an additional data collection method. Interviews will be conducted with mathematics teachers who are engaged in the learning process of social

arithmetic through the use of the PBL method. The objective of the interview is to gain a more profound comprehension of the implementation of PBL in mathematics learning, the challenges encountered by teachers in applying this method, and its impact on students' mathematical problem-solving abilities. The data from the interviews will be analyzed descriptively to describe the conditions and factors that influence the implementation of PBL and its impact on junior high school students' mathematical problem-solving skills. By combining data from observations and interviews, this study will provide a comprehensive picture of the analysis of junior high school students' mathematical problem-solving skills in the context of learning social arithmetic using the PBL method.

The subjects of this study are students in class VII-A at SMPN 3 Cisarua. They serve as the primary focus in analyzing their mathematical problem-solving abilities in solving problems on social arithmetic material using the Problem-Based Learning (PBL) method. Through observations and interviews, this research will identify the problem-solving strategies utilized by students, the difficulties they encounter, and the factors that influence their performance in comprehending and applying mathematical concepts to real-world scenarios. The research object was chosen for the following reasons: firstly, to gain insight into the impact of the PBL learning method on students' ability to solve mathematical problems, particularly in the context of social arithmetic material, which has direct relevance to everyday life; and secondly, to identify the problem-solving strategies employed by students, the difficulties they face, and the factors that influence their performance in understanding and applying mathematical concepts to real situations.

RESULTS AND DISCUSSION

Results

The results of interviews with mathematics teachers of SMPN 3 Cisarua grade VII show that the implementation of the Problem-Based Learning (PBL) method in learning social arithmetic has had a significant impact on student involvement and understanding of mathematical concepts as a whole. (Sugiyono, 2017). Teachers reported that students were more active in learning, especially in solving real problems relevant to everyday life. They are also more skillful in connecting math concepts to real-world situations, such as percentage calculations in the context of shopping discounts or sales tax. In addition, teachers also noted an increase in students' critical and analytical thinking skills, which was reflected in their ability to formulate more complex problem-solving strategies.

Initial observations also support that mathematical problem solving skills in social arithmetic are still very low with only about 20% of students able to solve problems correctly and apply mathematical concepts appropriately. Students generally have difficulty in understanding basic concepts such as percentages, discounts, interest, and taxes, and applying them to real situations given. Many students tend to rely on formulas without understanding the context, so their ability to apply mathematical concepts in solving everyday problems is still limited.

In the context of learning social arithmetic with the PBL method, students who show improved problem solving skills are usually those who actively participate in group discussions, ask questions, and try various solution strategies. They also tend to be more open to mistakes and the learning process, so they can make corrections and adjustments in their approach to problems. However, further efforts are still needed to improve participation and understanding of mathematical concepts in most students, especially those who still have difficulties in internalizing these concepts. Thus the results of the interviews and initial observations highlighted the importance of continuing to apply the PBL method with a more structured and in-depth approach in learning social arithmetic. Steps such as providing more intensive

exercises, using more varied case studies, and developing self-reflection activities can be effective strategies in improving students' mathematical problem solving skills and strengthening the connection between mathematical concepts and real life.

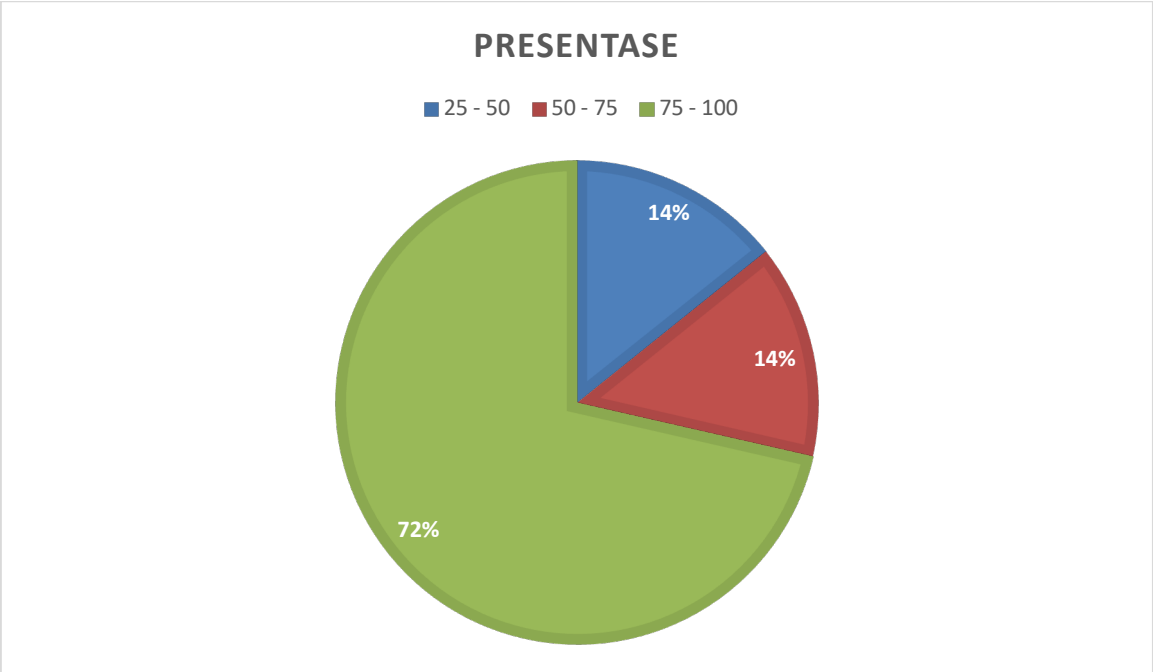

Figure 1. Percentage Of Student Achievement

The significant increase in learning outcomes after the implementation of the Problem-Based Learning (PBL) learning method is a positive indication of the effectiveness of the method in improving students' mathematical problem solving skills. The results showed that as many as 14% of students managed to improve their scores from the 25-50 category to the 50-75 category, while 72% of students managed to reach the 75-100 score category. This indicates that PBL was able to substantially improve students' understanding of mathematical concepts and problem solving skills. The decrease in the number of students in the 25-50 score category before the implementation of PBL to 14% after the implementation of this method indicates that students who previously had limited or low mathematical problem solving skills have experienced significant improvement. PBL provides opportunities for students to actively engage in the learning process, build in-depth understanding of concepts, and develop critical and analytical thinking skills in solving mathematical problems.

The increase in the number of students achieving the 50-75 and 75-100 score categories after the implementation of PBL illustrates that this method is able to create a supportive learning environment in developing understanding of more complex mathematical concepts and encouraging students to achieve higher levels of performance. By focusing on real problem solving and the application of mathematical concepts in the context of everyday life, PBL provides additional motivation for students to actively participate in learning and improve their academic achievement.

The considerable increase in the percentage of students achieving the 75-100 score category suggests that PBL can be an effective learning strategy to improve the quality of student learning outcomes. By combining a problem-based approach, group discussions, and the application of mathematical concepts in real-world situations, this method not only helps students understand concepts theoretically, but also encourages them to develop applicative skills that are relevant and useful in everyday life. Keep in mind that the improved learning

outcomes achieved through PBL do not only depend on the method itself, but are also related to other factors such as teacher competence, institutional support and student motivation. Therefore, to ensure the long-term success of PBL implementation, there needs to be continuous support from all relevant parties, including the development of a supportive curriculum, training for teachers, and fostering students' motivation and interest in learning in the context of mathematics.

This research focuses on analyzing the mathematical problem-solving skills of junior high school students through the application of the Problem-Based Learning (PBL) method in social arithmetic. Based on the results of the study involving observation and interviews with teachers, students showed significant improvement in mathematical problem-solving skills after the application of this method. However, these results need to be further analyzed based on students' responses and work to understand more deeply the abilities and obstacles experienced in each stage of problem solving.

1. Problem Understanding
   The first stage in the problem solving process is understanding the given problem. Based on students' answers, it was found that around 30% of students were unable to understand the problem well, especially in problems involving the concepts of percentage, discount, and tax. Most students at this stage had difficulty identifying relevant information from the problem and tended to rely on formulas without understanding the context of the problem. Analysis of their answers showed that students who failed to understand the problem tended not to proceed to the next stage well. In contrast, students who were active in group discussions and asked questions during the PBL process showed a better understanding of the given problem. They were able to identify key elements in the problem, such as the total amount, discount percentage, or tax value, and developed a more structured solution plan.
2. Planning for Completion
   The second stage is solution planning. In this case, analysis of students' answers showed that about 40% of students were able to plan the solution steps correctly. However, some students were still seen using a trial-and-error approach without a clear strategy. This can be seen in the answers that show students' inability to connect social arithmetic concepts with real-life problems. For example, in the discount calculation problem, some students directly applied the formula without calculating the right sequence of steps, so the final result was inaccurate. Students who were able to plan well generally had a deeper understanding of social arithmetic concepts, especially after group discussions. They were more critical in determining the steps needed to solve the problem, for example by dividing the problem into several parts and solving it systematically.
3. Implement the Completion Plan
   The third stage is the implementation of the plan that has been made. Analysis of students' answers showed that about 50% of students managed to implement the plan well, while the rest still made mistakes in the application of concepts. For example, in the problem related to the calculation of percentage discount, some students had difficulty in converting the percentage value into decimal form and applying it in arithmetic operations. This indicates that although students understand the steps to be taken, they still lack the technical skills to apply them. Students who successfully complete the solution plan usually have better basic calculation skills and show accuracy in applying the concepts they have learned. They are also better able to double-check each step to ensure that the results are as expected.
4. Evaluating Results

The last stage is the evaluation of results. Based on the analysis of the answers, about 25% of students evaluated their results, while most students did not check their answers again after solving the problem. Students who evaluate the results can usually find and correct the mistakes made in the previous stage. In contrast, students who do not evaluate tend not to realize the mistakes they make, such as errors in calculations or application of formulas. Students who demonstrate evaluation ability generally have higher metacognitive awareness, where they realize the importance of reflecting on the process they have done. They are also more open to mistakes and learn from the experience, which is one of the keys to success in the application of the PBL method.

Overall, the application of the PBL method has a positive impact on students' mathematical problem solving skills. However, a deeper analysis shows that there are still variations in students' abilities at each stage of problem solving. Problem understanding and evaluation of results are two areas that require special attention, considering that many students have difficulty in understanding the context of the problem and evaluating the results of their work. This suggests that the application of the PBL method needs to be combined with intensive practice in understanding basic mathematical concepts and the development of self-reflection skills to improve overall mathematical problem solving ability.

Discussions

The application of the Problem-Based Learning (PBL) method in the context of social arithmetic learning for class VII-A students at SMPN 3 Cisarua is a step that has a significant impact on students' mathematical problem solving skills. PBL is a learning approach that places students as active subjects in the learning process, by giving them real problems relevant to everyday life to solve. (Vitaloka et al., 2020).. In social arithmetic learning, PBL provides opportunities for students to engage directly in situations that require them to calculate the percentage of discount, interest, or tax in the context of shopping or daily transactions. One of the positive impacts resulting from the implementation of PBL is the development of students' critical, analytical and applicative thinking skills. In solving real mathematical problems, students are faced with situations where they have to apply learned mathematical concepts to the context of everyday life. For example, students may be asked to calculate a discount percentage when shopping online or calculate sales tax on a transaction. This process not only requires the application of mathematical formulas, but also requires critical thinking in analyzing the situation, formulating a solution strategy, and evaluating the results.

PBL also helps students develop analytical skills in analyzing the information provided in the problem, identifying relevant information, and compiling systematic steps in solving the problem. This ability is very important in everyday life, where students are faced with various situations that require analytical skills to make the right decisions. (Riskyanti et al., 2022).. PBL also encourages students to develop applicative skills in applying mathematical concepts in broader and more meaningful situations. For example, students not only learn to mechanically calculate discount percentages, but also understand the implications of such discounts in purchasing decisions or personal financial management. This helps students see the value and relevance of what they are learning in real life, thus increasing their motivation to learn.

PBL also provides opportunities for students to develop collaboration, communication and leadership skills. In problem-based learning, students often work in groups or teams to find solutions to given problems. This process requires effective communication between team members, collaboration in generating new ideas, and leadership in organizing and leading the discussion. Thus, PBL not only develops students' individual skills but also social and interpersonal skills that are important in various life contexts. (Nisa, 2022). In addition to the

benefits mentioned above, the application of PBL also provides opportunities for students to develop adaptability and problem-solving in complex and diverse situations. In real life, problems do not always have clear and direct solutions. PBL familiarizes students with flexible and creative thinking processes in finding solutions to complex and varied problems. This provides valuable provision for students in facing future challenges and changes. (Zebua, 2022).

Although PBL has many benefits, it also faces several challenges. One of them is the preparation of relevant and challenging materials and problems for students. Teachers also need to have skills in managing the PBL process, providing necessary guidance to students, and evaluating learning outcomes effectively. Therefore, good support from teachers, schools, and other related parties is essential in running PBL successfully. Overall, it can be concluded that the application of the Problem-Based Learning (PBL) method in learning social arithmetic in class VII-A students at SMPN 3 Cisarua has a significant impact on the development of students' mathematical problem solving skills. Through PBL, students not only learn mathematical concepts theoretically, but are also able to apply them in real situations in a more in-depth, critical, and applicable way. With the right support from educators and a conducive learning environment, PBL can be one of the effective learning strategies in improving the quality of education and learning in today's modern era.

The results of this study indicate that the application of the Problem-Based Learning (PBL) method in learning social arithmetic has a significant impact on improving the mathematical problem solving skills of students in class VII-A at SMPN 3 Cisarua. PBL allows students to be directly involved in solving real problems, which encourages the improvement of analytical skills and the application of mathematical concepts in everyday life. Based on observations and interviews, teachers reported improvements in student engagement and concept understanding. Before the implementation of PBL, only 20% of students were able to solve the problem correctly. However, after the implementation of PBL there was a significant increase where 72% of students were able to reach the 75-100 score category. This shows that PBL is effective in improving students' ability to understand and apply mathematical concepts, especially on problems related to percentages, discounts, interest, and taxes in the context of daily transactions.

Students who were active in group discussions, asking questions, and involved in problem solving showed better improvement compared to students who were less involved. This supports the view that active engagement in learning, especially through PBL, contributes significantly to the development of mathematical problem-solving skills. Students who are more open to the learning process also master the concepts taught more quickly. Although most students showed improvement, there were still some students who had difficulty in understanding the basic concepts of social arithmetic, such as percentage and tax. Analysis of students' answers indicated that those who were not familiar with the PBL approach tended to rely on formulas without understanding the context of the problem. Students who experienced this difficulty were generally less involved in group discussions and tended to use a mechanical approach in solving problems. Only about 25% of students evaluated the results of their work. Students who are able to evaluate are generally more critical in assessing their results and are able to find the mistakes they make. This reflective ability is important in the development of problem solving skills, where students not only solve problems, but are also able to evaluate the process they use to reach a solution.

Objects in mathematics learning in junior high school have a significant role in developing students' problem-solving skills. Objects such as textbooks, learning media, mathematical tools and learning environments play an important role in providing interesting, relevant and

supportive learning experiences in developing problem solving skills. Textbooks that are tailored to the curriculum and students' level of understanding can be a good guide in understanding mathematical concepts and provide varied examples of problems to practice. Learning media, such as learning videos or interactive presentations, can also help students understand math concepts in a visual and fun way.

The use of mathematical tools, such as calculators or mathematical software, can help students calculate, model and analyze data more efficiently. The use of technology can also expand students' access to diverse information and learning resources, allowing them to develop a deeper and more critical understanding of mathematical concepts. A conducive learning environment, including adequate facilities and support from teachers and peers, also contributes positively to the development of students' problem-solving skills.

In the context of social arithmetic learning for students of class VII-A SMPN 3 Cisarua, learning objects can be directed to provide a more meaningful and in-depth learning experience in developing students' mathematical problem solving skills. For example, textbooks that present real case examples of calculating discounts, interest or taxes in everyday shopping or transaction situations can be relevant and interesting objects for students. Interactive learning media, such as online shopping simulations or math-based games, can also be effective objects in inviting students to think critically, analyze information, and find solutions to given problems. The use of mathematical tools, such as calculators or spreadsheets, can also be a supportive object in facilitating students' mathematical problem solving. Teachers can direct students to use these tools to find solutions to complex problems or model a given shopping or transaction situation. Thus, learning objects that are carefully selected and adjusted to the needs and interests of students can make a significant contribution in improving the mathematical problem solving skills of students in grade VII of SMPN 3 Cisarua.

The application of PBL method effectively improved students' mathematical problem solving skills, especially in the context of social arithmetic. Students who were actively involved in discussions and participated in the learning process showed more significant improvements in concept understanding and application. However, additional strategies are needed to help students who still have difficulties in understanding basic concepts and are less involved in the learning process. With a more structured approach and support from teachers, PBL can be a very effective learning strategy in improving students' mathematical problem solving skills in a sustainable manner.

CONCLUSION

Based on the overall results of the research and discussion above, it was found that students have varying levels of problem solving skills, where most students showed significant improvement after the application of the Problem-Based Learning (PBL) learning method. This suggests that a learning approach that allows students to be actively involved in solving real problems has a positive impact on the development of their problem-solving skills. Analysis of the factors affecting students' problem-solving ability also provides important insights. Factors such as critical thinking ability, intrinsic motivation, learning environment support, knowledge, and the use of relevant learning objects play an important role in improving students' mathematical problem solving ability. A conducive learning environment and support from teachers, peers, and family also contribute to creating an atmosphere that supports students' exploration and problem solving.

The use of technology in mathematics learning also contributes to improving students' problem-solving skills. The use of math software, mobile applications and online learning platforms can

enrich students' learning experience by providing engaging content, appropriate challenges and instant feedback. Thus, the integration of technology in learning can be an effective tool in helping students develop their mathematical problem solving skills.

In the context of social arithmetic learning, it is important to continue to develop learning strategies that allow students to be actively involved in solving real problems. Learning methods that emphasize student involvement, development of critical, analytical, and applicative thinking skills, as well as the use of technology as a learning support, can be a strong foundation in improving students' mathematical problem solving skills. Thus, it is expected that through a holistic and skill development-oriented learning approach, students of class VII-A SMPN 3 Cisarua can optimize their potential in solving mathematical problems faced in everyday life.

REFERENCES

Agustina, N. (2023). Analisis Kemampuan Pemecahan Masalah Matematis Ditinjau Dari Self Efficacy Materi Aritmatika Sosial SIswa Kelas VII SMP Negeri 4 Gunungsari Tahun Ajaran 2022/2023. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, *08*(03).

Apipah, I., & Novaliyosi. (2023). Systematic Literature Review: Pengaruh Problem-Based Learning (PBL) terhadap High-Order Thingking Skill (HOTS) Matematis Siswa. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *07*(April), 1812–1826.

Brahim, R., Huda, N., & Anggereini, E. (2023). PENGARUH MODEL PROBLEM BASED LEARNING TERHADAP KEMAMPUAN PEMECAHAN MASALAH MATEMATIKA DITINJAU DARI SELF CONFIDENCE SISWA. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *12*(1).

Cahyani, H. D., Hadiyanti, A. H. D., & Saptoro, A. (2021). Peningkatan Sikap Kedisiplinan dan Kemampuan Berpikir Kritis Siswa dengan Penerapan Model Pembelajaran Problem Based Learning. *Edukatif : Jurnal Ilmu Pendidikan*, *3*(3), 919–927.

Fatmala, R. R., Sariningsih, R., & Zanthy, L. S. (2020). Analisis Kemampuan Pemecahan Masalah Matematis Siswa Smp Kelas VII Pada Materi Aritmetika Sosial. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *4*(1), 227–236. https://doi.org/10.31004/cendekia.v4i1.192

Habibah, S. R., & Rosyana, T. (2023). Dalam Menyelesaikan Soal Cerita Materi Aritmetika Sosial Berdasarkan Polya ' S Steps. *Jurnal Pembelajaran Matematika Inovatif*, *6*(6), 2207–2220. https://doi.org/10.22460/jpmi.v6i6.20871

Hendriana, H., & Soemarmo, U. (2014). Penilaian pembelajaran matematika. *Bandung: Refika Aditama*.

Ismawati, I., Arjudin, A., Lu'luilmaknun, U., & Subarinah, S. (2023). Analisis Kemampuan Pemecahan Masalah Matematika Berdasarkan Taksonomi SOLO Materi Aritmatika Sosial. *Jurnal Ilmiah Profesi Pendidikan*, *8*(1b), 569–580. https://doi.org/10.29303/jipp.v8i1b.1257

Lailiyah, N., Prayito, M., & Happy, N. (2021). Analisis Kemampuan Berpikir Kreatif Matematis Siswa ditinjau dari Kemampuan Pemecahan Masalah Aritmatika Sosial.

Seminar Nasioanal Matematika Dan Pendidikan Matematika (6th Senatik) Program Studi Pendidikan Matematika FPMIPATI-Universitas PGRI Semarang, 253–258.

Mahendrawan, E., Solihat, I., & Yanuarti, M. (2022). Efektivitas Penggunaan LKS Problem Based Learning (PBL) Materi Aritmatika Ditinjau dari Kemampuan Berpikir Kreatif Matematika. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *6*(1), 338–347. https://doi.org/10.31004/cendekia.v6i1.1119

Mitasari, D., & Murtiyasa, B. (2023). Analisis Kemampuan Pemecahan Masalah Matematis Siswa dalam Menyelesaikan Soal Cerita pada Materi Aritmatika Sosial Berdasarkan Langkah Polya. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, *7*(2), 1759–1772. https://doi.org/10.31004/cendekia.v7i2.2399

Nisa, K. (2022). Analisis Kemampuan Berpikir Kritis Siswa Dalam Menyelesaikan Masalah Matematika Melalui Model Pembelajaran PBL. *Jurnal Ilmiah Multi Disiplin Indonesia*, *1*(6), 759–764.

Nugraha, D. I. D., & Hakim, D. L. (2022). Kemampuan Pemecahan Masalah Matematis Siswa Kelas VIII Pada Materi Aritmatika Sosial. *Jurnal Educatio FKIP UNMA*, *8*(1), 320–327. https://doi.org/10.31949/educatio.v8i1.1994

Nurbaya, S. (2021). Peningkatan Kemampuan Berpikir Kritis dan Penyelesaian Masalah melalui Model Problem Based Learning (PBL) pada Pembelajaran Tematik Kelas VI SDN 19 Cakranegara. *Pendagogia: Jurnal Pendidikan Dasar*, *1*(2), 106–113.

Rahmawati, L., Juandi, D., & Nurlaelah, E. (2022). IMPLEMENTASI STEM DALAM MENINGKATKAN KEMAMPUAN Universitas Pendidikan Indonesia , Bandung , Indonesia E-mail : Abstrak PENDAHULUAN Berkembangnya ilmu pengeta- huan dan teknologi yang semakin pesat , sebagai akibat dari perkembangan zaman modern saat ini ,. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *11*(3), 2002–2014.

Riskyanti, D., Hamid, H., & Jalal, A. (2022). Analisis Kemampuan Pemecahan Masalah Matematis siswa Kelas VII-1 SMP Negeri 14 Halmahera Selatan pada Materi Aritmetika Sosial. *Jurnal Pendidikan Guru Matematika*, *1*(1), 41–56. https://doi.org/10.33387/jpgm.v1i1.2656

Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.

Vitaloka, W. P., Habibi, M., Putri, R., & Putra, A. (2020). Analisis kemampuan pemecahan masalah dalam menyelesaikan soal cerita matematika materi aritmatika sosial berdasarkan prosedur Newman. *Delta-Pi: Jurnal Matematika Dan Pendidikan Matematika*, *9*(2), 152–164. https://doi.org/10.33387/dpi.v9i2.2294

Yuliani, A., Nugraha, Y., & Samura, A. O. (2024). Pengaruh Penggunaan Pembelajaran Berbasis Proyek terhadap Kemampuan Pemecahan Masalah Matematika pada Siswa Sekolah Menengah Atas. *Ulul Albab: Majalah Universitas Muhammadiyah Mataram*, *28*(1), 15–19.

Zebua, F. J. (2022). Analisis Kemampuan Pemecahan Masalah Matematika Siswa Pada Materi Aritmetika Sosial Kelas VII SMP Negeri 2 Toma Tahun Pembelajaran 2020/2021. *Jurnal Pendidikan Matematika*, *1*(1).