Jurnal Pembelajaran Matematika Inovatif
Volume 9, No. 2, Maret 2026

ISSN 2614-221X (print)
ISSN 2614-2155 (online)

DOI 10.22460/jpmi.v9i2.30059

PROBLEM-SOLVING ABILITY OF STUDENTS THROUGH PROBLEM POSING IN THE CONTEXT OF THE INDONESIAN TIN MUSEUM

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ARTICLE INFO

Article History
Received Nov 24, 2025
Revised Jan 29, 2026
Accepted Feb 28, 2026

Keywords:
Problem-solving skills;
Flat-sided spatial structures;
Problem posing;
Tourism context

ABSTRACT

Problem-solving ability is an essential skill in mathematics learning, but in fact, this skill is still low among Indonesian students. This study aims to describe the problem-solving ability of eighth-grade students in the material of flat-sided solid shapes through the application of the Problem Posing learning model in the context of the Indonesian Tin Museum tour. A descriptive qualitative approach was used, with research subjects categorized into high, medium, and low-ability levels. Data were collected through problem-solving tests and semi-structured interviews. The results showed that there were variations in problem-solving ability among students: high-ability students were able to understand problems, plan, implement, and review the results systematically; medium-ability students were able to understand and plan logically but often experienced technical calculation errors; while low-ability students were still limited in understanding the problem in depth and were weak in implementation and review procedures. The use of the tour context was shown to positively contribute to student enthusiasm and engagement, although its effectiveness in eliciting problem-solving abilities was highly dependent on teacher guidance.

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Kemampuan pemecahan masalah merupakan keterampilan esensial dalam pembelajaran matematika. Penelitian ini bertujuan untuk mendeskripsikan kemampuan pemecahan masalah siswa kelas VIII pada materi bangun ruang sisi datar melalui penerapan model pembelajaran Problem Posing dengan konteks wisata Museum Timah Indonesia. Pendekatan kualitatif deskriptif digunakan dengan subjek penelitian yang dikategorikan ke dalam tingkat kemampuan tinggi, sedang, dan rendah. Data dikumpulkan melalui tes pemecahan masalah dan wawancara semi-terstruktur. Hasil penelitian menunjukkan terdapat variasi kemampuan pemecahan masalah: siswa berkemampuan tinggi mampu memahami masalah, merencanakan, melaksanakan, dan memeriksa kembali hasil secara sistematis; siswa berkemampuan sedang mampu memahami dan merencanakan dengan logis namun sering mengalami kesalahan perhitungan teknis; sementara siswa berkemampuan rendah terbatas dalam memahami masalah secara mendalam dan lemah dalam prosedur pelaksanaan serta pemeriksaan kembali. Penerapan konteks wisata terbukti memberikan kontribusi positif terhadap antusiasme dan keterlibatan siswa, meskipun efektivitasnya dalam memunculkan kemampuan pemecahan masalah sangat bergantung pada bimbingan guru.

How to cite:

Andriyani, F., & Zulkardi, Z. (2026). Problem-solving ability of students through problem posing in the context of the Indonesian Tin museum. *JPMI – Jurnal Pembelajaran Matematika Inovatif, 9*(2), 229-242.

INTRODUCTION

Mathematics is a subject that is always related to problems (Desanti et al., 2023). Mathematical problems serve as a means to support the development of students' basic skills, especially in solving mathematical questions or problems closely related to everyday life. In the 21st century today, the goal of mathematics learning is for students to have the 4C characteristics, namely: Communication, Collaboration, Critical Thinking and Problem Solving, Creativity, and Innovation (Septikasari et al., 2018). In line with this, the National Council of Teachers of Mathematics (NCTM, 2000) identifies the abilities students need to achieve mathematics learning goals, including problem solving, reasoning, communication, relationships or connections, and representation.

One of the skills targeted in school mathematics learning is problem-solving ability (Latifah et al., 2020). Problem-solving ability is a mathematical skill that students must have (Nasution et al., 2023). Problem solving is a process in which someone tries to utilize all knowledge, skills, and understanding they possess to find solutions to the problems they face (Annizar et al., 2020). Problem solving is the foundation of all mathematics and the process of discovering new knowledge (Peranginangin et al., 2019). This ability plays a significant role not only in academics but also in daily activities, where students often face situations requiring analysis and correct decision-making. Thus, this ability is an important aspect that students need to develop to support their thinking and solve various problems effectively.

Although problem-solving skills are very important, available data show that these skills remain low among Indonesian students (Damianti et al., 2022). Classroom learning tends to focus on delivering conceptual knowledge with little time for students to explore understanding, resulting in poor problem-solving ability and frequent errors (Jatisunda & Nahdi, 2019). Specifically, junior high students demonstrate a very low ability to solve flat-sided geometric shape problems due to difficulties in mastering concepts and forming mathematical patterns (Nuraini et al., 2019). Moreover, students in grade VIII often struggle with checking their solutions thoroughly and neglect units of length, area, and volume (Kurniawan et al., 2019). This proves that students' problem-solving ability is still lacking.

Low problem-solving ability partially causes low academic achievement in junior high schools. This is because teaching methods often lack effective strategies that engage students actively, making it hard for them to develop problem-solving skills (Unonongo et al., 2021). Indonesian math teachers commonly conduct teacher-centered or direct instruction, which reduces students' active involvement and interpretation of problems (Ramadhani et al., 2024). Problem-solving ability not only requires students to solve a problem as the teacher presents it, but it also involves interpreting their own abilities. This causes students to be less active in learning. As a result, students' problem-solving abilities have not developed optimally, as they tend to rely on teachers' solutions and are less accustomed to solving problems independently.

In mathematics learning, the application of real-world contexts plays a very important role in enhancing students' understanding and engagement(Fauziyah et al., 2024). Mathematics problems are designed with diverse contexts that require students to analyze, reason, and communicate mathematical ideas effectively in various everyday life situations (Dewantara, 2018). One context that is interesting and relevant to students is tourism. Tourism can create authentic experiences, enabling students to connect mathematical concepts with their daily lives (Balqis et al., 2024). The cultural diversity and tourist destinations in Indonesia can provide a learning approach as a context to support learning.

One effort to improve students' problem-solving skills is by training them to solve problems related to everyday life. Especially in the material of flat-sided solids, where this material is related to everyday life, thus helping students to better understand the content of the given problems(Unonongo et al., 2021). One place that can be used as a learning venue is the Indonesian Tin Museum located in Pangkalpinang City. Choosing the museum as a learning context aims to present a more interesting learning experience for students. The Indonesian Tin Museum is very suitable as teaching material because it provides rich and contextual learning experiences through diverse collections and exhibitions (Apriani & Agustine, 2019). In a learning context close to real life, students are expected to more easily understand concepts and develop problem-solving skills in the mathematics learning process.

Besides that, to overcome students' low problem-solving ability, a learning model is needed that requires students to be more involved in the learning process and can develop their problem-solving skills. One learning model that can be used to improve students' problem-solving abilities is Problem Posing (Septian et al., 2021). The Problem Posing learning model invites students to formulate their own questions or break down a complex question into simpler ones, aiming to solve problems based on an initial given situation(Nuridayanti et al., 2023). The Problem Posing model can be applied to make students more active in learning mathematics(Agustina et al., 2020). This model is considered suitable for improving mathematics learning outcomes because it allows students to be more active in processing information, asking questions, and finding solutions (Maulida et al., 2025). By combining the tourism context and Problem Posing, students are trained to connect mathematics with real phenomena, increase their involvement and learning responsibility, and more deeply develop problem-solving abilities.

Previous research has extensively studied the effectiveness of the Problem Posing learning model in improving students' problem-solving abilities. Research conducted by Septian et al. (2021) shows that Problem Posing and the Edmodo learning media are proven effective in enhancing students' problem-solving skills. Agustina et al. (2020) also researched the effectiveness of Problem Posing on the problem-solving abilities of junior high school students. Furthermore, problem-solving ability in the tourism context questions(Ardiansyah et al., 2022). However, several previous studies have shown a lack of research on problem-solving skills through the application of problem posing in tourism contexts. Therefore, this study is expected to make a theoretical contribution to the study of real-world mathematics learning, as well as a practical reference for teachers in developing more engaging and meaningful learning experiences to improve students' problem-solving skills.

METHOD

This type of research is qualitatively descriptive, aimed at describing the problem-solving abilities of eighth-grade students in flat-sided spatial geometry material through Problem Posing, with the context of the Indonesian Tin Museum tourism. The research was conducted at SMP Negeri 1 Pulau Besar, targeting class VIII. A group consisting of 29 students. The research instruments used were teaching modules, lesson plans (RPP), student worksheets (LKPD), Problem-Solving Ability Test Questions, Observation Sheets, and Interview Guides. Before being tested on students, the research instruments were first validated by recommended validators.

After the revisions, an observation was conducted in the classroom to assess the learning atmosphere. After that, learning was carried out using student worksheets (LKPD) through

Problem Posing. The observation involved examining students' activities to identify indicators of problem-solving abilities and their use of Problem Posing learning. After the learning activity, the students worked on math test questions that contained indicators of their problem-solving abilities. The indicators of students' problem-solving abilities are as follows.

Table 1. Problem-Solving Ability Indicators

Problem Solving Ability Indicator	Descriptor
Understand the problem	Students are able to identify components of a problem including what is known and what is asked.
Planning problem solving	Students can develop problem-solving plans based on the facts provided with clear procedures.
Carry out a problem solving plan	Students can implement problem-solving plans/strategies that have been prepared to solve problems.
Check the results of the answers obtained properly	Students are able to check or verify the accuracy of the results they have obtained and draw conclusions.

The results of the students' problem-solving ability test were analyzed based on Polya's problem-solving stages: understanding the problem, planning a solution, implementing the plan, and reviewing the results. The test data were then classified according to the students' problem-solving ability. Furthermore, the data were analyzed descriptively to identify errors and difficulties students experienced in each problem-solving ability indicator. To strengthen data validity, triangulation techniques were used by comparing test results, observations, and documentation throughout the learning process.

RESULTS AND DISCUSSION

Results

In this study, students were asked to solve 3 problems with the context of the Indonesian Tin Museum on the topic of flat-sided spatial geometry. The problems consist of 2 parts in questions 1 and 2, and 1 part in question 3. These problems contain indicators of problem-solving abilities that have been validated by experts. The problems that students will work on are as follows**.**

1. Sebuah tempat penyimpanan berbentuk kubus berisi timah 486 liter. Jika timah tersebut memenuhi $\frac{2}{3}$ bagian tempat penyimpanan, tentukan:
   a. Tinggi tempat penyimpanan
   b. Tinggi timah dalam tempat penyimpanan

A storage container shaped like a cube contains 486 liters of tin. If the tin fills the storage container completely, determine:
a. The height of the storage container
b. The height of the tin in the storage container

Figure 1. Test Question Number 1 parts a and b

Figure 1 shows a problem with measuring the height of a tin storage container and the height of the tin inside it. This problem is designed to assess students' ability to understand problems and determine appropriate mathematical concepts for solving contextual problems. Through this problem, students are expected to apply the concept of flat-sided geometric shapes in everyday situations.

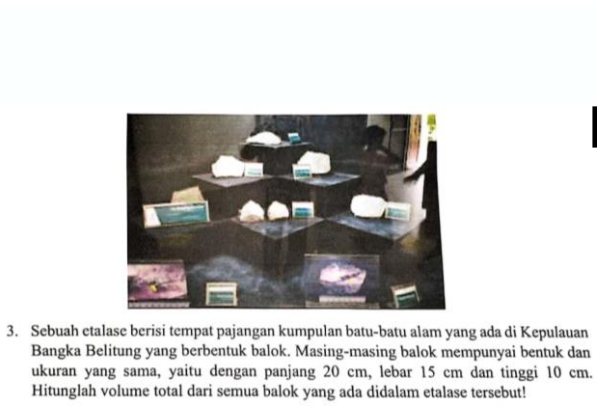
2. Sebuah aquarium yang berisi miniatur kapal keruk berbentuk balok dengan panjang sisinya 50 cm, lebar 15 cm dan tinggi 10 cm.
   a. Jika Museum ingin mengganti kaca aquarium tersebut dan setiap meter persegi kaca seharga Rp320.000, berapa total biaya yang diperlukan untuk mengganti seluruh kaca aquarium?
   b. Jika museum ingin membeli aquarium baru dengan ukuran dua kali panjang dan lebar serta satu setengah kali lebih tinggi dari aquarium lama, berapakah luas aquarium baru tersebut?

An aquarium containing a miniature dredger ship is shaped like a rectangular block with side lengths of 50 cm, width of 15 cm, and height of 10 cm.

a. If the museum wants to replace the aquarium glass and each square meter of glass costs Rp320,000, what is the total cost required to replace all the aquarium glass?

Figure 2. Test Question Number 2 parts a and b

Figure 2 presents a problem that asks students to calculate the total cost of replacing a geometric figure in a museum and determine its surface area. This problem aims to measure students' ability to plan and implement problem-solving strategies using the formula for flat-sided geometric figures accurately. Furthermore, the context used helps students connect mathematical concepts to real-world situations.



3. Sebuah etalase berisi tempat pajangan kumpulan batu-batu alam yang ada di Kepulauan Bangka Belitung yang berbentuk balok. Masing-masing balok mempunyai bentuk dan ukuran yang sama, yaitu dengan panjang 20 cm, lebar 15 cm dan tinggi 10 cm. Hitunglah volume total dari semua balok yang ada didalam etalase tersebut!

A display case contains a collection of natural stones from the Bangka Belitung Islands, shaped like rectangular blocks. Each block has the same shape and size, with a length of 20 cm, a width of 15 cm, and a height of 10 cm. Calculate the total volume of all the blocks inside the display case!

Figure 3. Test Question Number 3

Figure 3 contains a problem about calculating the total volume of all geometric shapes in a museum. This problem aims to analyze students' ability to solve problems systematically and double-check their answers. Through this problem, students are expected to integrate several geometric concepts into a single solution. The three students selected as research subjects are detailed further in the indicator achievement table below.

Table 2. Emergence of Student Problem-Solving Ability Indicators

Problem-Solving Indicator	Subject														
	LS					MS					SA				
	Question														
	1		2		3	1		2		3	1		2		3
	a	b	A	b		a	B	a	b		a	b	a	b	
Understand the problem	-	-	✓	-	✓	✓	✓	✓	✓	-	✓	✓	-	-	-
Planning problem solving	✓	✓	✓	-	✓	✓	✓	✓	-	-	✓	✓	-	-	-
Carry out a problem solving plan	✓	✓	✓	-	✓	✓	✓	✓	-	-	✓	✓	-	-	-
Check the results of the answers obtained properly	✓	✓	✓	-	-	✓	✓	-	-	-	✓	-	-	-	-

Based on the problem-solving ability indicator achievement table, each research subject achieved a different level. Subjects with high ability met all problem-solving indicators, from understanding the problem to reviewing answers. Meanwhile, subjects with medium and low ability still experienced difficulties in several indicators, especially in planning solutions and reviewing answers. This difference indicates that students' problem-solving abilities are influenced by their ability to understand and apply mathematical concepts systematically.

Discussion

Based on test, observation, and interview results, students' problem-solving abilities show distinct characteristics across the three ability categories: high, medium, and low. These differences are seen in students' abilities to understand problems, develop problem-solving strategies, implement solutions, and re-check the answers obtained. To obtain a more in-depth picture of students' problem-solving abilities in each category, the following discussion presents the results of analyzing three research subjects representing the high (LS), medium (MS), and low (SA) ability categories based on test and interview responses.

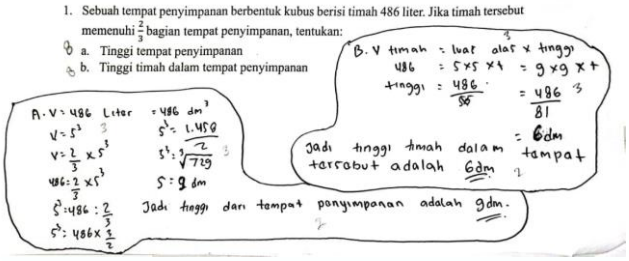


Figure 4. Answer to LS Number 1 parts a and b

Based on the answers to the test questions, subject LS is categorized as a student with high problem-solving abilities. During the classroom learning activities, subject LS was observed to be active and enthusiastic in discussing the provided worksheets. Furthermore, the test results show that subject LS's work was systematic, thorough, and meticulous, and the student was able to complete the answers well. Subject LS also met almost all indicators of problem-solving ability across all three test questions.

The following is an excerpt from the interview conducted by the researcher with subject LS.

P : Have you ever encountered questions like this before?
LS : Once
P : Where?
LS : In elementary school
P : Do you think the questions are more difficult or easier?
LS : Difficult
P : What is known and asked in the question?
LS : He knew and asked that it was not written down
P : It's not written, but do you know what is known and asked in the question?
LS : The cube contains 486 liters of tin, the tin fills 2/3 of the storage area, what is asked is the height of the storage area
P : What strategy is used to answer the questions?
LS : Volume of the cube
P : Can you explain the steps?
LS : the volume of a cube of 486 liters is converted to dm^3. 2/3 multiplied by the volume of the cube, so s^3 is equal to 486 divided by 2/3, so 486 multiplied by 3/2 is equal to 1,458 divided by two is equal to 729. 729 divided by 3 is 9 dm.
P : In your opinion, are questions a and b related?
LS : Related, because the answer to question a is to answer question b, namely the height, which is the side of the cube

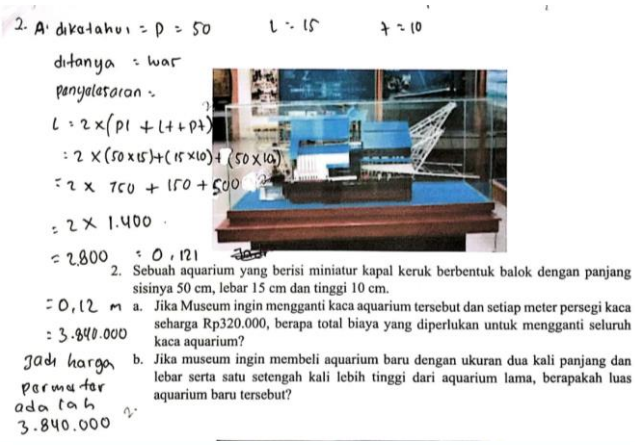


Figure 5. Answer to LS Number 2 parts a and b

Based on the answers to the test questions, subject LS was able to solve the problem coherently and completely. Subject LS also provided logical arguments despite a calculation error. Subject LS also provided logical arguments despite still having calculation errors. The arguments provided were supported by complete data, such as the inclusion of visual images in the problem. This indicates that the subject understood the available information and connected it to the problem-solving process. This finding aligns with Polya's view that understanding a problem is an important initial stage in the problem-solving process. Furthermore, the results of this study are supported by Annizar et al. (2020), who found that students who can identify information in a problem tend to develop systematic problem-solving strategies more easily.

The following is an excerpt from the interview conducted by the researcher with subject LS.

P : What is the information from the question?
LS : Given the length, width, and height of the aquarium and asked for the area
P : What strategies are used?

LS : The area of a cuboid, because the image is in the shape of a cuboid
P : What are the steps to do it?
LS : The area of the cuboid is $2 \times (pl + lt + pt)$ *equals* $2 \times (50 \times 15) + (15 \times 10) + (50 \times 10)$ *equals* $2 \times 750 + 150 + 500$ *equals 2,800 to 0.12 meters. So, the price per meter is 3,840,000*

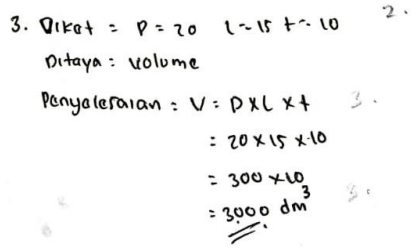
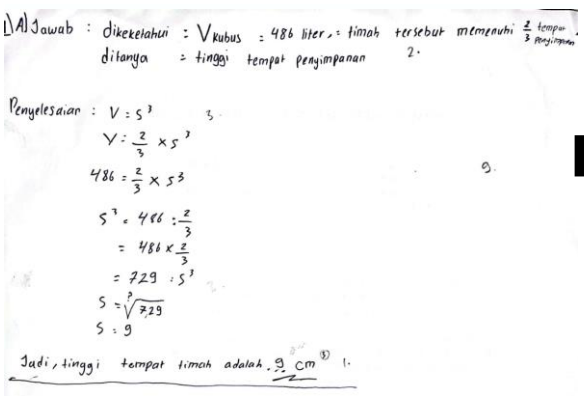


Figure 6. Answer to LS Number 3

Based on the answer to question 3, the subject was able to write down the known information and determine that the desired volume was the volume of a geometric figure. The subject also correctly used the formula for the volume of a rectangular prism. Although there were errors in the calculation steps, the answer showed that the subject understood the problem and could determine an appropriate solution strategy.
The following is an excerpt from the interview conducted by the researcher with subject LS.
P : What is the information from the question?
LS : Given the length, width, and height of the cuboid. What is being asked is the volume.
P : What strategy do you use?
LS : The volume of the cuboid is according to the instructions in the question.
P : Are you sure about your answer?
LS : Sure ma'am
Based on the interview excerpt above, subject LS can understand the information in the questions and can use strategies and solutions clearly, even though they are incomplete.



Given: V of cube: 486 liters

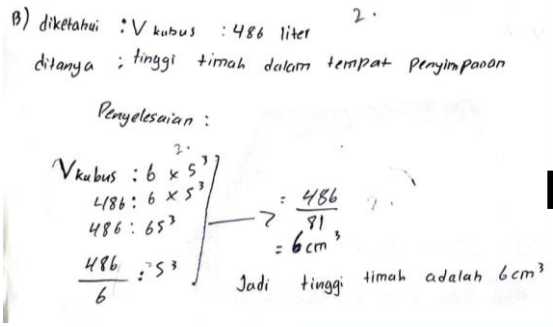
The tin fills 2/3 of the storage space

Question: storage tin

So, the height of the storage area is 9 cm^3

Figure 7. MS Answer Number 1 part a

Based on the answers to the questions, subject MS was able to write down known information and determine the question being asked. However, errors persisted in the solution process, leading to an inaccurate final result. This indicates that the subject understood the problem but still had difficulty implementing the solution. This finding is supported by Hidayat & Sariningsih (2018), who stated that students can understand the problem but still experience errors in the solution process.



Given: V of cube: 486 liters

Question: Height of tin in storage container

So, the height of the storage area is 6 cm^3

Figure 8. MS Answer Number 1 part b

Based on the answers to the test questions, the subject MS is categorized as having moderate ability. In classroom observations, the subject MS is fairly active, but during discussions, is less involved in completing the group worksheets. Subject MS also answered several test questions correctly, although there were still errors in the solution process. Subject MS adequately met the problem-solving ability indicators on all three test questions. This indicates that the subject understood the problem and developed a solution strategy, but still experienced difficulties with calculating accuracy and implementing the solution steps. This finding aligns with Polya's theory, which states that the stage of implementing a solution plan requires accuracy in applying mathematical concepts and procedures. Furthermore, research by Nasution et al. (2023) showed that students with average problem-solving ability generally understood the problem but still made errors in the solution process and in rechecking answers.

The following is an excerpt from the interview conducted by the researcher with subject MS.

P : Have you ever encountered a problem like this?
MS : Was in elementary school
P : Is this question easier or more difficult?
MS : This one is harder
P : Is the information in the question written in the answer or not?
MS : Written known and asked
P : Can you explain what strategy you used?
MS : The formula for the volume of a cube is that the volume is equal to s^3
P : Why use this formula?
MS : Because the image in the question is in the form of a cube
P : Are the strategies and steps correct?
MS : Not yet, the steps for forming the roots are not written down, the units are still wrong, it should be dm^3

Based on the interview excerpt above, the subject MS has seen questions with the same form but at different difficulty levels. Subject MS was also able to identify information in the problem. Furthermore, the subject MS was able to determine a clear solution strategy and provide logical reasons for it. This indicates that the subject has fulfilled the indicators of understanding the problem and planning a solution in the problem-solving stage according to Polya. This finding is supported by Annizar et al. (2020),who state that the ability to identify information and determine a solution strategy is a crucial part of the mathematical problem-solving process.The subject MS implements the strategy to find the solution to the given problem, but there are some errors which they can explain.

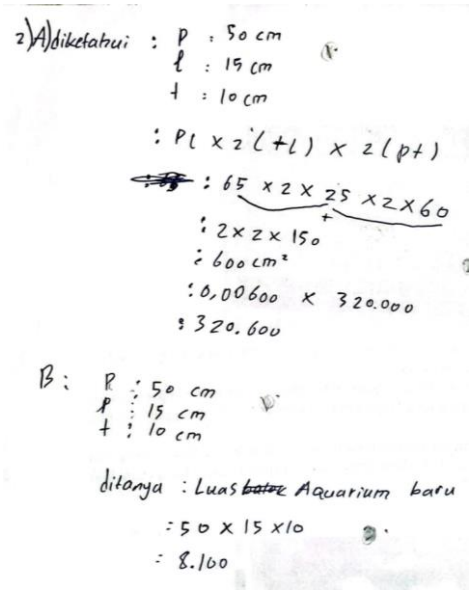


Figure 9. MS Answer Number 2 parts a and b

Based on the answers above, subject MS was able to identify the information in the questions but still lacked a clear understanding of the problem, leading to errors in solving them. However, the subject MS clearly explained the errors made. This indicates that the subject can understand the problem but is not yet optimal in implementing the solution, according to Polya's theory. This finding is also consistent with research by Nasution et al. (2023), which found that students often make errors in the problem-solving process even when they understand the information in the questions.

The following is an excerpt from the interview conducted by the researcher with subject MS.

P : What strategies are used?
MS : Block area formula
P : Where does 0.00600 come from?
MS : from cm changed to m but the units are not written
P : Then multiply it by 320,000, why multiply it?
MS : Don't know
P : Are the strategies and steps correct?
MS : Not yet, the formula is wrong so the steps are also wrong
P : Have you checked the answer again?
MS : Yes, three times already

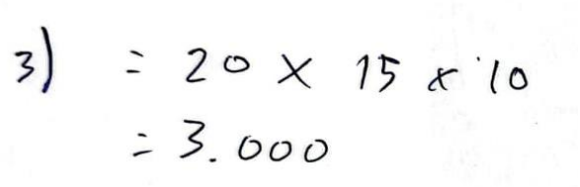


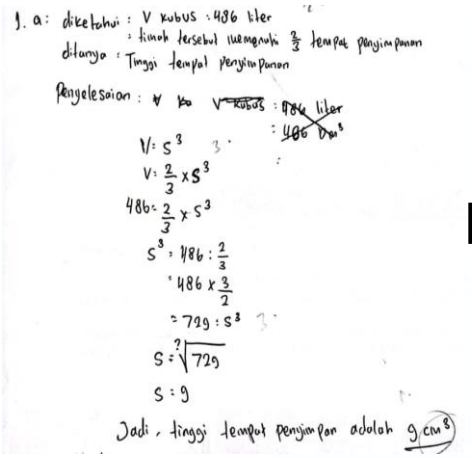
Figure 10. MS Answer Number 3

Based on the answers above, subject MS experienced confusion in answering question number 3 due to a lack of understanding of the problem. This resulted in the subject being unable to determine an appropriate solution strategy and using only one multiplication operation to solve

the problem. This finding is consistent with Polya's theory, which states that understanding the problem is a crucial step in determining a solution strategy. Furthermore, research by Hidayat & Sariningsih (2018) also showed that students who lack a clear understanding of the problem tend to have difficulty determining appropriate strategies and steps for solving mathematical problems.

The following is an excerpt from the interview conducted by the researcher with subject MS.

P : How do you answer question number 3?
MS : Multiply everything immediately
P : Why?
MS : Because time is running out
P : Checked again didn't count it?
MS : No
P : Do you think this calculation is correct?
MS : Don't know



Given: V of cube: 486 liters

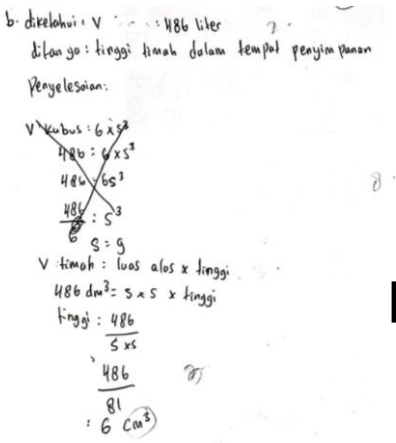
The tin fills 2/3 of the storage space

Question: storage tin

So, the height of the storage area is 9 cm^3

Figure 11. Answer to SA Number 1 part a

Based on the answers to the questions, subject SA was able to write down the known information and determine what was being asked. The subject also attempted to use the appropriate formula, but still encountered errors in the solution steps and calculations, resulting in inaccurate answers. This indicates that the subject has met the indicator for understanding the problem, but still has difficulty determining a solution strategy. This finding is in line with research by Peranginangin et al. (2019), which found that students with low problem-solving abilities tend to have difficulty determining solution strategies.



Given: V: 486 liters

Question: Height of tin in storage container

V of Tin: base area x height

Figure 12. Answer to SA Number 1 part b

Based on the answers to the completed test questions, subject SA was categorized as having low ability. During classroom observations, subject SA appeared less active and less enthusiastic in group discussions. The test results indicated that subject SA understood some of the information in the questions but was able to solve only some parts of them. Subject SA met several indicators of problem-solving ability, but still made errors in the solution process. This finding is consistent with Polya's theory, which states that students who are not optimal at the stages of understanding the problem and planning a solution will experience difficulties in the next stage of solving. In addition, research by Nasution et al. (2023) showed that students with low problem-solving ability are generally only able to fulfill some of the problem-solving indicators and still experience difficulties in solving the problem completely. The following is an excerpt from an interview conducted by the researcher with subject SA.

P : Have you ever encountered a question like this?
SA : Not yet
P : What information is in the question?
SA : It is known that the volume of the cube is 486 liters, the tin fills 2/3 of the storage space, the question is the height of the storage space
P : What strategies are used?
SA : V is equal to s^3
P : What is V?
SA : Volume
P : Why did you use that strategy?
SA : Because it's easier
P : What are the steps to solve it?
SA : The volume of 486 is equal to 2/3 multiplied by s^3*, so* s^3 *is equal to 486 divided by 2/3, which becomes 486 multiplied by 3/2 which is equal to 1,458 divided by two which is equal to 72. So, s is equal to the square root of 729, which is 9.*
P : What's the unit?
SA : cubic centimeter
P : Why cubic centimeters?
SA : Don't know
P : Are the work steps correct?
SA : Maybe right

Based on the interview excerpt above, subject SA experienced confusion in interpreting the problem in the question. Subject SA identified the information in the question but still struggled to explain the strategy used, resulting in an inaccurate solution. This finding aligns with Polya's theory, which states that understanding the problem and planning a solution are important stages in the problem-solving process. Furthermore, Peranginangin et al. (2019) stated that students who are unable to fully understand the problem tend to have difficulty determining a solution strategy and connecting the information in the question.

CONCLUSION

Based on the researcher's findings, the students' problem-solving ability indicators emerged after completing the test questions in the context of the Museum Timah Indonesia tourism. The indicator that frequently appears is understanding the problem. Students are generally able to analyze the information in the questions accurately. However, some students are confused when analyzing the facts presented in the questions. The indicator that rarely appears, according to the research, is thoroughly checking the obtained answers. This indicator is crucial for ensuring

accuracy and precision in solving problems. The study shows that students often lack carefulness and tend to rush, which results in not reviewing their answers and mistakes during problem-solving. Consequently, careful review of answers is an important but underemphasized indicator in this research. As a result, students often only write the final answers. Furthermore, learning through Problem Posing feels more relevant, and the tourism context of Museum Timah Indonesia enriches knowledge while serving as a platform to enhance students' problem-solving skills. The shortcomings of this research include students' unfamiliarity with context-based questions, which is due to the relative complexity of the problems and limited lesson time. This means some students require more time to fully understand the material. Based on these limitations, further research is recommended to develop context-based learning for other mathematics materials, incorporating different tourism or cultural contexts. Furthermore, further research could be conducted with longer learning periods to provide students with optimal opportunities to understand contextual problems and develop greater problem-solving skills.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to the Nacome committee of Sriwijaya University and the participants in this study, including the 8th-grade A students and their mathematics teacher. We also thank the reviewers for their valuable input and suggestions to improve this article.

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