



Students Mathematical Understanding of Social Arithmetic in Terms of Student Self-Efficacy

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Abstract. This study examines students' self-efficacy while analyzing their mathematical comprehension of the social arithmetic topic. This study is qualitative in nature. 29 students collected the data sources to examine their self-efficacy and six samples were chosen using the purposive sampling technique based on high, medium, and low self-efficacy levels. In this study, questionnaires, exams, interviews, and documentation were used as data collection methods. According to the study's findings, pupils with high self-efficacy are more adept at solving issues requiring mathematical understanding than those with Medium and low self-efficacy. Students with high levels of self-efficacy have strong mathematics understanding skills, as opposed to students with Medium and low levels of self-efficacy. Contrary to students with low self-efficacy who lack these indicators, students with Medium self-efficacy are quite adept at classifying objects according to specific properties according to the concept, applying concepts algorithmically, and connecting various mathematical concepts.

Keywords: self-efficacy, mathematical understanding ability, and social arithmetic.

1 Introduction

According to Alan and Afriansyah [1], mathematical comprehension refers to students' knowledge of ideas, principles, and methods as well as their aptitude for using strategy to address given issues. Understanding mathematical concepts is essential for understanding principles and theories because without it, understanding them is impossible [2]. Therefore, in order to understand principles and theories, students must first comprehend the concepts that underpin them. In addition to helping students achieve one of the goals of learning mathematics, the capacity for understanding allows them to better comprehend the purpose of learning mathematics as a whole rather than just memorizing formulae [3].

The truth is that people's capacity for understanding mathematics is still quite limited [4]. These indications of students' mathematical comprehension skills, which are

based on the 2013 curriculum, can be examined by looking at the following data [5]: One must be able to: 1) understand the factors that influence a concept; 2) use the capabilities of algorithm concepts; 3) select and employ the right procedures for the given problem; and 4) apply and correlate one concept with another. Lestari and Yudhanegara [6] proposed the following indicators of mathematics understanding ability: Restating previously learned concepts; categorizing items using mathematical principles; applying concepts algorithmically; giving examples or counterexamples of previously studied topics; 5) link various mathematical concepts internally or externally. 6) offer concepts in various formats. According to the description above, the indicators of mathematical comprehension in this study are the following: 1) restate the studied concepts; 2) classify objects according to their concepts' descriptions of certain properties; 3) apply concepts algorithmically; and 4) relate various mathematical concepts.

When replying or doing mathematical problems, students' self-efficacy is required in addition to cognitive components [7]. Self-efficacy is the conviction that an individual can carry out an activity in order to get the desired outcome. In contrast to pupils who are unsure of their abilities, who tend to be more reticent and fearful, students who are confident in their abilities will ask or respond to inquiries more frequently. The teaching and learning process will undoubtedly be impacted by this [8, 9]. The students themselves can have an impact on a learning experience's success. Every learning implementation comes with difficulties that pupils must overcome. Because of this, it takes confidence from each person to overcome these obstacles [10]. If students have a strong desire to learn, or, in other words, if students have the self-assurance known as self-efficacy, then they will understand the subject in question with ease.

The self-efficacy of students in learning mathematics is still comparatively poor. Many students have low self-efficacy [11], which is demonstrated by their propensity to give up when faced with challenges in their academic work or problem-solving. Students typically lack the confidence necessary to understand it or solve problems that are related to it, which makes it impossible for them to succeed in the process of learning mathematics. Self-efficacy is made up of seven indicators, the self-efficacy indicators employed in this study are as follows [12]: Having the ability to solve difficulties, feeling confident in one's ability to succeed, daring to take risks with decisions, facing challenges head-on, knowing one's skills and flaws, and being able to interact with others; and 7) tough.

Findings, people who take ownership of their activities feel free to act in accordance with their wishes and are accountable for their choices [13]. Students need to have this confidence in a variety of mathematical skills, including the capacity to comprehend math in social arithmetic content.

Table 1. Indicator of Mathematical Understanding

| Indicator | Sub-Indicator |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Restate concepts that have been learned | Able to restate the simple interest concept that has been studied |
| | Able to use the simple interest formula that has been studied |
| | Able to solve problems related to daily life |
| Classifying objects according to certain properties in accordance with the concept | Able to understand profit and loss |
| | Able to group profit, loss, or break-even conditions according to certain characteristics in accordance with the concept |
| Applying concepts algorithmically | Able to solve questions regularly according to procedures |
| Linking various mathematical concepts | Able to use various mathematical concepts |

Because mastering social arithmetic necessitates the capacity for conceptual understanding, social arithmetic is a mathematical subject that necessitates mathematical comprehension abilities. Social arithmetic relates to solving challenges in daily life [14]. Students must be able to comprehend social arithmetic material as a basis for learning because it has benefits in both the present and the future. Social arithmetic has three levels of difficulty: 1) understanding the problem; 2) creating mathematical modeling; and 3) the resolution process [15]. Due to their poor comprehension of social arithmetic, practically all pupils are unable to comprehend math problems that are presented as stories [14]. According to this description, it is clear that social arithmetic material is challenging for pupils to comprehend, especially when it comes to their capacity to grasp particular mathematical ideas.

2 Method

This study used qualitative research as its method. The goal of this study was to evaluate students' mathematics understanding skills in terms of their sense of self-efficacy. This study was carried out at one of Junior High School in Garut. The purpose of this study was to assess student self-efficacy among grade VII students, which included 29 students. Six samples were taken using purposive sampling approaches by establishing specific criteria based on high, medium, and low levels of self-efficacy. Additionally, two students from each category were chosen to take a test on their mathematics comprehension skills.

In order to gather the data for this study, self-efficacy surveys, tests of mathematics comprehension, interviews, and documentation were used. In contrast to the mathematics understanding test, which consists of four description questions based on four indicators taken (Table 1), one question per indicator, the self-efficacy questionnaire consists of 28 statements based on seven indicators. In order to complete data on student talents that cannot be collected through other methods, interviews are done. The

study's supporting evidence takes the form of first-semester students' math report cards.

29 research participants participated in this investigation, and six of them were given the results of the following questionnaire:

According to Table 2, subjects A5 and A8 are students with high self-efficacy, subjects A4 and A16 are students with intermediate self-efficacy, and subjects A17 and A31 are students with low self-efficacy.

Data reduction, data presentation, and conclusions were the three main components of the Miles and Hubarman approach that was applied in this study's data analysis [16].

3 Result and Discussion

An analysis of students with high self-efficacy's capacity for mathematical comprehension.

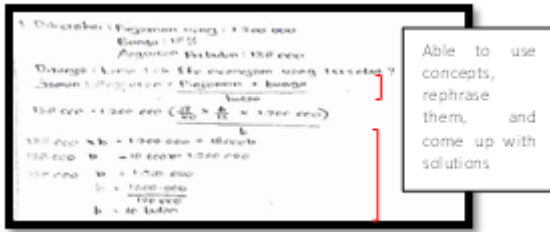


Fig. 1. Students with high levels of self-efficacy (A5) respond to question 1.

Based on Figure 1, it can be shown that students are capable of understanding the indicator of restating previously taught concepts when it comes to a mathematical comprehension difficulty. Students are able to employ formulas, recapitulate previously used ideas, and effectively solve problems. It is clear from the analysis's findings and the interviews' findings that students have demonstrated the ability to correctly restate previously taught ideas.

Table 2. Self-Efficacy Questionnaire Analysis Results

| Subject | Score | Interpretation | Percentage |
|---------|-------|----------------|------------|
| A5 | 104 | High | 74% |
| A8 | 103 | High | 74% |
| A4 | 94 | Moderate | 67% |
| A16 | 91 | Moderate | 65% |
| A17 | 61 | Low | 44% |
| A31 | 58 | Low | 41% |

The interview results for the answer to question number 1 are:

R: Do you understand question number 1?

A5 : Understand ma'am.

R: Did you have difficulty doing question number 1?

A5 : A little difficulty, ma'am.

R: Where is the difficulty?

A5 : When determining the formula, ma'am. because I forgot the formula.

R: Then how do you solve this problem?

A5: After remembering the formula, I entered the installment formula as in the answer sheet, because in this question the initial loan, interest percentage and installments were already known.

R: Are you sure about the answer you wrote?

A5 : Sure, ma'am.

R: Did you ask other people for help in solving question number 1?

A5 : No, ma'am.

Classifying objects according to certain properties according to their concepts (see Figure 2).

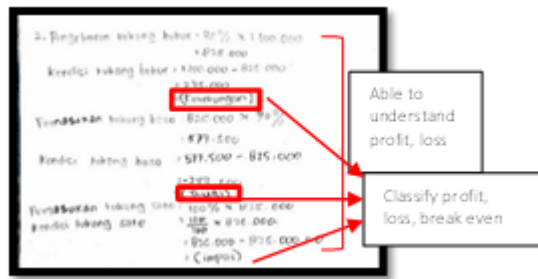


Fig. 2. Students with high levels of self-efficacy (A5) respond to question number 2.

According to Figure 2, pupils are able to comprehend the issue of indicators classifying objects according to specific features in accordance with their notions. The conditions of each trader can be satisfactorily answered by the students without any problems, and they can categorize the profit, loss, and breakeven circumstances based on specific properties using their concepts. It may be inferred from the analysis's findings and the findings of the interviews that it is possible for students to classify objects according to their notions when specific markers are met.

The interview results for subject A5's answers to question number 2 are:

R: Do you understand the meaning of question number 2?

A5 : Understand, ma'am.

R: Did you have difficulty doing question number 2?

A5 : Nothing, ma'am.

R: Have you ever worked on a problem similar to that problem?

A5: Yes, but not like that ma'am.

R: What questions have you worked on?

A5: It doesn't take the form like that.

R: Are you sure about the answer you wrote?

A5 : Sure, ma'am.

R: Did you ask other people for help in solving question number 2?

A5 : No ma'am.

Apply concepts algorithmically (see Figure 3).

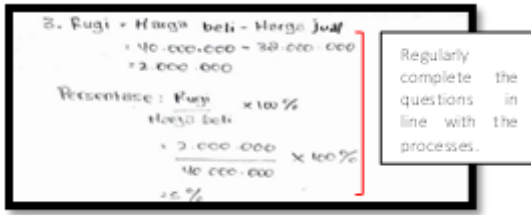


Fig. 3. Students with high levels of self-efficacy (A5) respond to question number 3.

Students can comprehend the issue of mathematical understanding skills on indicators by applying principles algorithmically, as shown in Figure 3. Students routinely and correctly solve problems in accordance with the procedure. It is clear from the analysis's findings and the results of the interviews that students successfully apply topics algorithmically.

The interview results for the answer to question number 3 are:

R: Do you understand question number 3?

A5 : Understand, ma'am.

R: Have you ever done a problem like that before?

A5 : Yes, ma'am.

R: Did you have difficulty doing it?

A5 : No, ma'am.

R: How do you solve question number 3?

A5: By using the formula purchase price minus selling price. Then to find the percentage of loss, divide the loss by the purchase price times 100%.

R: Did you find difficulty in working on question number 3?

A5 : Not really.

R: Did you ask other people for help in solving question number 3?

A5 : No, ma'am.

Linking various mathematical concepts (see Figure 4).

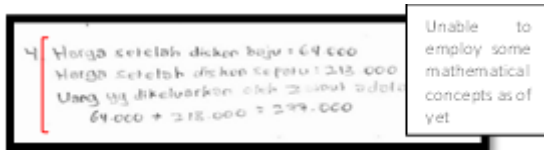


Fig. 4. Responses to question number four from students with high self-efficacy.

Based on Figure 4, it is clear that students do not understand the issue of their lack of mathematical understanding as it relates to various mathematical topics. Students make incorrect calculations in their calculations. Students are able to understand the problem based on the analysis and interview results; however, the mathematical tech-

nique is incorrect. As a result, it can be said that students did not successfully demonstrate their ability to associate different mathematical concepts.

The interview results for the answer to question number 4 are:

R: Do you understand the meaning of question number 4?

A5 : Understand, ma'am.

R: What concept did you use in working on question number 4?

A5: The concept of discounts ma'am. So the original price minus the discount price then the price after the discount for both items is added together.

R: Did you find difficulty in working on question number 4?

A5 : No, ma'am. Thank God it's easy

R: Are you sure about the answer you wrote?

A5 : Sure ma'am

R: I see in your answer that the price of shoes after the discount is IDR 213,000, is that really the result?

A5 : Yes ma'am.

R: Try calculating again, is it true that the price of shoes after the 15% discount is 213,000?

A5 : Oh yes, ma'am, that's not quite right.

R: Why did you make a mistake in your calculations?

A5: Because I was in a hurry, ma'am.

A Study of Students' Mathematical Comprehension Skills Who Have Medium Self-Efficacy. Restate concepts that have been learned (see Figure 5).

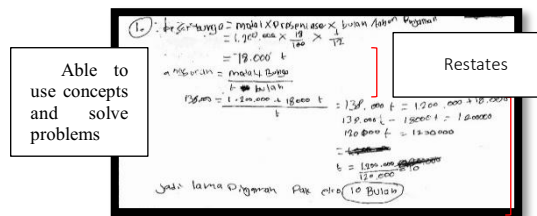


Fig. 5. The student's response to question number 1 on self-efficacy is Medium (A16).

Based on Figure 5, it can be seen that students can comprehend the indicator of restating previously learned concepts in relation to the problem of mathematical comprehension. Students are able to effectively solve issues, employ concepts, and restate concepts. Analysis and interview findings indicate that pupils have no trouble answering these questions. Thus, it can be said that students achieve the indication of restating previously taught topics.

The interview for the answer to question number 1 is:

R: Do you understand question number 1?

A16: Understand ma'am.

R: What is known and asked in question number 1?

A16: What is known is the loan capital, interest and installments. What he asked was how long the loan was, ma'am.

R: How do you solve question number 1?

A16: First, enter it into the interest formula, then enter it into the installment formula.

R: Did you have difficulty solving question number 1?

A16 : A little ma'am. but I can answer it

R: Have you ever worked on a problem similar to question number 1?

A16: Once ma'am, it was conveyed by the teacher.

R: Are you sure about the answer you wrote?

A16 : Sure ma'am.

R: Do you ask for help from other people?

A16 : No ma'am, I do it myself.

Classifying items based on their concepts and specific features (see Figure 6).

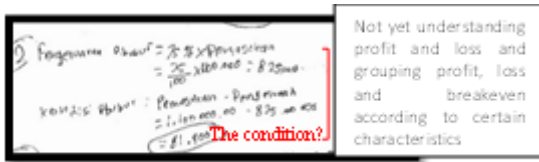


Fig. 6. The student responded to question number 2 regarding medium self-efficacy (A16).

Based on Figure 6, it is clear that students have not been able to comprehend the issue of indicators' ability to identify objects based on specific features in accordance with their concepts. Students are unable to group profits, losses, and break-even points according to certain properties based on their notions because they lack a basic understanding of gains and losses. According to the findings of the analysis and interviews, students are only able to respond to questions on the costs of porridge traders and even then, the traders' conditions are not mentioned. This suggests that they do not understand the aim of the difficulties provided. In light of this, it may be said that students have not demonstrated the ability to classify objects based on specific attributes in accordance with their concepts.

The interview for the answer to question number 2 is:

R: Do you understand the meaning of question number 2?

A16: I understand a little, ma'am.

R: How do you solve question number 2?

A16: To find the porridge trader's expenses 75% times his income ma'am. then income – expenditure

R: Are you sure about the answer you wrote?

A16 : Sure ma'am.

R: Why don't you continue solving question number 2? There are other traders in the matter too!

A16: The understanding only ends there, ma'am. For other traders, they don't understand how to solve it.

R: Why did you write down the result from 1,100,000 – 825,000 as 81,400?

A16: Sorry ma'am, I was in a hurry and wasn't careful in my calculations.

R: Did you ask other people for help to solve the problem?

A16 : No ma'am.

Apply concepts algorithmically (see Figure 7).

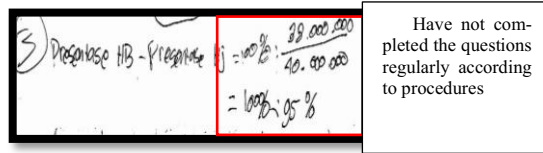


Fig. 7. The student responded to question number 3 regarding medium self-efficacy (A16).

Based on Figure 7, it is clear that students failed to comprehend the issue of their lack of proficiency in applying concepts algorithmically. Students have not consistently been able to respond to questions in accordance with the protocol. Students, however, already have a method in place and have been unable to provide an accurate response. According to the findings of the study and interviews, pupils were given questions that were identical, but he had forgotten the concepts and solutions. Therefore, it may be said that A16 did not successfully implement the notion algorithmically.

The interview for the answer to question number 3 is:

R: Do you understand question no. 3?

A16 : I don't understand ma'am.

R: Where do you not understand?

A16: Formula and how to solve it, ma'am

R: Where do you get the answer to question number 3?

A16 : I'm just guessing the formula.

R: Did you have difficulty solving question number 3?

A16: Yes ma'am, I had difficulty answering question number 3

R: Have you ever seen a question similar to question no. 3?

A16 : I have, ma'am. but forgot how to solve it.

R: Judging from your answer, you could solve question number 3 in that way, but you didn't continue the process. In the process, you just need to subtract the percentage of the purchase price from the percentage of the selling price.

A16 : OK, ma'am.

Linking various mathematical concepts (see Figure 8).

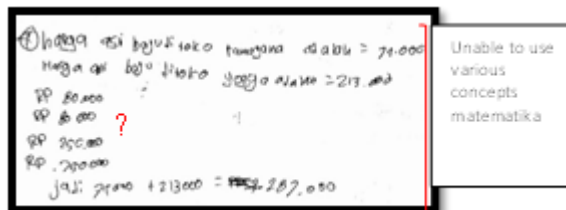


Fig. 8. The student's response to question number 4 relates to medium self-efficacy.

Figure 8 illustrates how poorly pupils have understood the issue of mathematical comprehension in indicators related different mathematical ideas. Students may, however, provide solutions to the supplied problems that are nonetheless incorrect. According to the findings of the analysis and interviews, pupils continue to make mistakes in calculations out of haste. As a result, it can be said that students did not successfully demonstrate their ability to associate different mathematical concepts.

The interview for the answer to question number 4 is:

R: Do you understand the meaning of question number 4?

A16: Understand ma'am.

R: How do you solve question number 4?

A16: Because number 4 is about discounts, so I looked for the discount price then the original price minus the discount price.

R: Are you sure about the answer you wrote?

A16 : Sure ma'am.

R: Where did the 74,000 come from?

A16: From 80,000-16,000 bu

R: Are you sure the result is 74,000? and why don't you write down how?

A16 : Sure ma'am. I wrote it on the photo, ma'am

R: Try calculating again how much is the result from 80,000-16,000?

A16 : Wait a moment ma'am. it should be 64,000 bu

R: Why did you make a mistake in the calculation process?

A16: I was in a hurry, ma'am, so I didn't check the truth again

R: Did you ask for help from other people in solving question no. 4?

A16 : No ma'am.

R: So what is 80,000 and under?

A16 : It's nothing ma'am.

Evaluation of Students' Mathematical Comprehension Skills Who Have Low Self-Efficacy. Summarize the knowledge gained (see Figure 9).

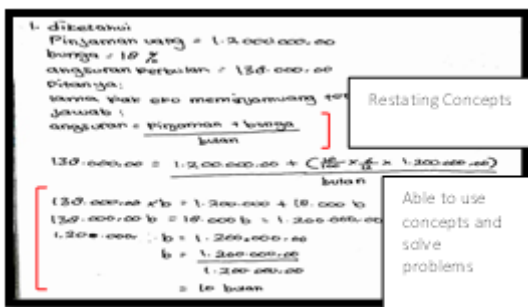


Fig. 9. The responses of students with low self-efficacy (A17) to question one.

Based on Figure 9, it is clear that students may comprehend the indicator of restating previously taught topics when it comes to the problem of mathematical comprehension. Students are able to effectively solve issues, employ concepts, and restate

concepts. According to the findings of the analysis and the interviews that were done, pupils can comprehend these issues without any difficulty. As a result, it can be said that children exhibit the indications of recalling previously learnt topics.

The interview for the answer to question number 1 is:

R: Did you have difficulty solving question no. 1?

A17: Difficulty ma'am.

R: Where is the difficulty?

A17: In the calculations ma'am

R: In your answer, where did the 18,000b come from?

A17: From the interest formula, ma'am.

R: What do you think is the flower formula?

A17: Percent interest times the length of the loan divided by 12 times the loan

R: So what is divided by 12 is b or 6?

A17 : B ma'am.

R: If 1,200,000 is divided by 1,200,000, where does it come from?

A17 : Just a moment ma'am. sorry, it's not 1,200,000 divided by 1,200,000 it should be 1,200,000 divided by 120,000

Classifying objects according to certain properties according to their concepts (see Figure 10).

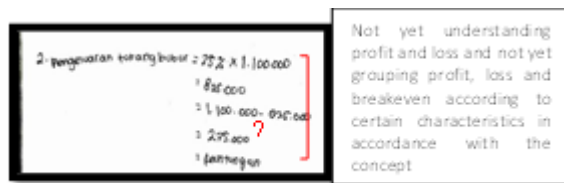


Fig. 10. The responses of students with low self-efficacy on question two.

Figure 10 demonstrates that pupils have not grasped the issue of mathematics comprehension skills in indications identifying objects according to specific attributes according to their conceptions. Students have struggled to comprehend gains and losses as well as classify gains, losses, and breakeven as a whole. Even when the issues are unfinished, pupils are nevertheless able to solve them. According to the analysis and interviews that have been done, students are able to accurately answer just the questions on the conditions of porridge traders and have a good understanding of the aim of the issues that are provided. In light of this, it may be said that students have not demonstrated the ability to classify objects based on specific attributes in accordance with their concepts.

The interview for the answer to question number 2 is:

R: Do you understand the meaning of question number 2?

A17: I understand a little, ma'am.

R: Where does the understanding lie?

A17: Pulverizer expenses.

R: Did you have difficulty solving question no.2?

A17: Difficulty ma'am.

R: Where is the difficulty?

A17 : When looking for other traders.

R: How did you solve question no. 2?

A17 : $75\% \times 1,100,000$ bu.

R: What is meant by $1,100,000 - 825,000$, what are you looking for?

A17: Condition of porridge traders.

R: Why don't you continue answering question no.2?

A17: That's all I understand.

R: Did you ask other people for help to solve question no.2?

A17 : No ma'am.

Apply concepts algorithmically (see Figure 11).

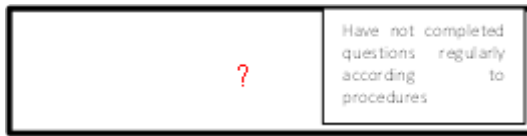


Fig. 11. The responses of students with low self-efficacy (A17) to question three.

Based on Figure 11, it is clear that students failed to comprehend the issue of their lack of proficiency in applying concepts algorithmically. Students don't try to answer the question or provide any answers at all. According to the findings of the study and interviews, pupils have not been able to comprehend the significance of the current issues and do not attempt to speak with the teacher about the challenges they face. Thus, it may be said that students have not demonstrated the indicators of algorithmic application.

The interview for the answer to question number 3 is:

R: Do you understand question no. 3?

A17 : No ma'am.

R: Why didn't you answer question no. 3?

A17 : I don't know how to do it.

R: Have you ever worked on a similar question like question no. 3?

A17: I have, but I still don't understand the formula.

R: When you have difficulty answering a question, what do you do?

A17: I usually skip the question, if I think of the answer then I do it.

R: Why don't you try asking the teacher?

A17: I'm embarrassed ma'am, asking new people.

Linking various mathematical concepts (see Figure 12).

4). $80.000 - 20\%$
 $= 80.000 - 16.000 = 74.000$

$20\% = \frac{20.000}{100} = 0.2$
 $80.000 - 16.000 = 74.000$

Not yet able to use various mathematical concepts

Fig. 12. Responses of pupils with low self-efficacy (A17) to question number 4.

Figure 12 illustrates how poorly pupils have understood the issue of mathematical comprehension in indicators related different mathematical ideas. Different mathematical topics have become inaccessible to students. Students can, however, provide solutions to these issues. Students do not comprehend the significance of the difficulties being presented, according to the findings of the study and interviews that have been done. Students struggle to come up with answers, but they make an effort to respond as best they can. As a result, it can be said that students did not successfully demonstrate their ability to associate different mathematical concepts.

The interview for the answer to question number 4 is:

R: Do you understand the meaning of question number 4?

A17: Don't understand ma'am.

R: Where do you not understand?

A17: When using the formula, ma'am

R: But how can you answer question number 4?

A17: I just look at my friend's work without understanding it ma'am.

R: Do you know where the 16,000 came from?

A17 : From 80,000 - 20% right

R: Are you sure the result of 80,000-20% is 16,000?

A17 : Not sure ma'am, because I saw a friend's work. Because I had difficulty solving this problem.

R: Oh I see. Do you know whether your friend's answer is right or wrong?

A17 : I'm not sure ma'am.

R: If you have difficulty solving a problem, what do you do?

A17: Usually I look at my friends' work if I can't understand how to solve it

Table 3's findings on the general student population's mathematics understanding skills based on self-efficacy levels can be concluded.

According to Table 3, the indication of students' total mathematical understanding has the following proportion of achievement:

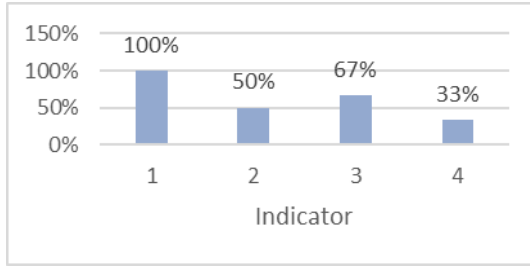


Fig. 13. Results of Student Mathematical Comprehension Tests.

According to Table 3, the indicator that summarizes previously studied concepts is in the high category with a percentage of 100%, the indicator that classifies objects based on the concept's application to particular properties is in the medium category with a percentage of 50%, the indicator that applies concepts algorithmically is in the medium category with a percentage of 67%, and the indicator that associates various mathematical concepts is in the low category with a percentage of 13%.

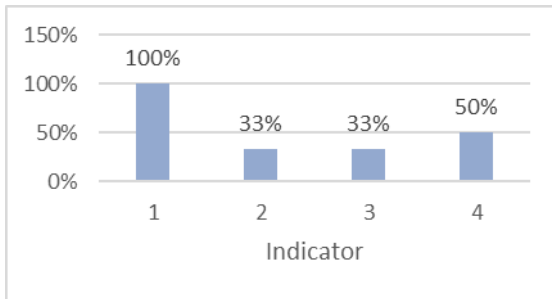


Fig. 14. Results of the Student Understanding Ability Interview.

As seen in Figure 14, the indicator for applying concepts algorithmically is in the low category with a percentage of 33%, the indicator for associating various mathematical concepts is in the medium category with a percentage of 50%, and the indicator for restating previously studied concepts is in the high category with a percentage of 100%. The indicator also classifies objects based on specific properties according to the concept.

Table 3. Classification of Students' Mathematical Comprehension Abilities

| Subject | Indicator | | | |
|------------|-----------|----------------------|----------------------|----------------------|
| | 1 | 2 | 3 | 4 |
| A5 | Capable | Capable | Capable | Has not been able to |
| A8 | Capable | Has not been able to | Capable | Has not been able to |
| A4 | Capable | Has not been able to | Has not been able to | Has not been able to |
| A16 | Capable | Has not been able to | Has not been able to | Has not been able to |
| A17 | Capable | Has not been able to | Has not been able to | Has not been able to |
| A31 | Capable | Has not been able to | Has not been able to | Has not been able to |

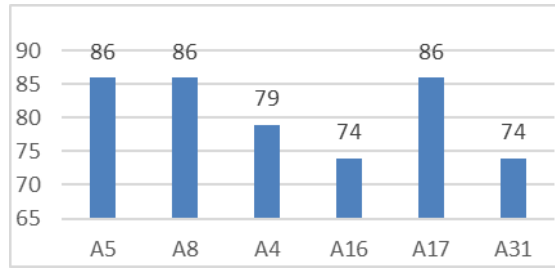


Fig. 15. Student Math Report Card Scores.

According to Figure 15, subjects A5 and A8 receive scores of 86, indicating high levels of comprehension, followed by subjects A4 and A16, who receive scores of 74, indicating low levels of comprehension, subject A17, who receives a score of 86, and subject A31, who receives a score of 74, indicating low levels of comprehension. The relationship between a student's report card grades and their ability to comprehend mathematics is not a direct one.

The topics that have been explored are in the high category on the indicator restate. Students are able to clarify ideas and work through challenges that arise in daily life. This is in line with Oktoviani, Widoyani, and Ferdianto's [17] assertion that students need to have a strong grasp of mathematics in order to accurately respond to indications that reiterate a notion as a whole.

The medium category is indicated on the indicator, which classifies objects based on specific characteristics. Students who have high self-efficacy may successfully tackle the difficulties related to these indicators, in contrast to students who have medium or low self-efficacy. One of the elements contributing to this is that students' perplexity and lack of accuracy in problem understanding leads them to misunderstand the question's format. Inaccuracies in reading the questions can lead to misconceptions or a failure to grasp the concepts being used.

According to the metrics for applying the idea algorithmically, it falls into the medium group. Students with low self-efficacy are able to respond to the indicator of applying concepts algorithmically, however students who do not respond are visible from student answers. This is an interesting distinction between students with medium and low self-efficacy. In contrast to the student interview, in this situation the student asks a buddy to assist him in responding to the indicator. This is the rationale behind why pupils with low self-efficacy struggle and put out little effort when trying to solve issues. According to earlier research [18], students with poor self-efficacy feel uncertain about their capacity to tackle difficulties, and they readily give up on solving challenges that must be faced by themselves, and tend not to do so when faced with difficult math problems.

The indicators of connecting different mathematical ideas are in the low range. Overall, the students have not been able to answer the supplied problem according to this indicator. Only answers containing several errors or inaccuracies in the calculation process and applied concepts are acceptable from students. This is something that students struggle with when associating a number of pre-existing concepts, including

the concepts of profit, loss, and discount, according to Pratiwi's research [4]. As a result, the principles applied are incorrect, and the problems already present have not been adequately treated. If this problem is not corrected, it will have a detrimental effect on how it is applied in daily life.

Based on the discussion that has been described, it is clear that students have generally struggled to provide accurate answers when asked to classify objects according to specific properties according to their concepts, apply concepts algorithmically, and associate various mathematical concepts. This is because students make errors when applying concepts and performing calculations. According to Mulyani, Indah, and Satria's research [19], students struggle to solve problems because they are unable to apply formulas in simple calculations and must perform calculations algorithmically. They also struggle to connect one concept to another and apply previously learned concepts.

In comparison to students with medium and low self-efficacy, students with high self-efficacy perform better when solving problems involving their mathematics comprehension abilities. According to Destiniar et al.'s research [20], students who have a high level of self-efficacy are better able to understand concepts than the typical student who has a Medium level of self-efficacy. Students who have high levels of self-efficacy are more adept at understanding mathematics than students who have medium or low levels of self-efficacy. According to Adni et al. [21], students with high levels of self-efficacy also show high levels of mathematical connection ability, as opposed to students with medium and low levels of self-efficacy, the ability of mathematical connections is also low.

This implies a connection between students' self-efficacy and capacity for mathematics comprehension. This is consistent with the findings of Hammad, et al. [22], who claim that the positive association between self-efficacy and concept knowledge indicates that self-efficacy has an impact on students' capacity to comprehend mathematical concepts. Additionally, Destiniar et al. [20] make clear that student self-efficacy has an impact on how well students learn mathematical ideas. In order to increase students' knowledge of mathematics, it is crucial to focus on developing their intellectual intelligence as well as their sense of self-efficacy during the teaching and learning process.

4 Conclusion

Based on the analysis and discussion's findings, it can be said that students with high self-efficacy are more adept at solving problems involving their mathematical grasp than are those with medium and low self-efficacy. Three indicators—restating previously taught concepts, identifying things based on particular features according to their concepts, and applying concepts algorithmically—show that students with high self-efficacy have high skills. Students that have low and medium levels of self-efficacy, however, have low talents. With the sign of redefining previously taught concepts, students with intermediate self-efficacy are better at problem-solving than students with low self-efficacy. While applying ideas algorithmically, it is sufficient

to use indicators to classify objects according to specific attributes according to their concepts. It is also sufficient for indicators to relate different mathematical concepts. Students have higher self-efficacy and lower scores on these factors.

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