

Mathematical Problem-Solving Ability of Junior High School Students in Terms of Self-Efficacy

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Abstract. One of the essential mathematical abilities possessed by students is problem-solving ability. So that students can solve problems effectively, they need self-efficacy to help actualize and optimize their problem-solving ability. This research aims to describe the students' mathematical problem-solving ability based on self-efficacy differences. The method used in this research is qualitative with a phenomenological approach. The subjects were three students in grade VII at one of the junior high schools in Serang City, Banten. The indicator of problem-solving ability used in this research is related to students' success in solving various mathematical problems. The results of this research showed that students with high self-efficacy could solve closed mathematical problems inside and outside the mathematical context and open-ended mathematical problems outside the mathematical context. The student with moderate self-efficacy solved closed mathematical problems inside a mathematical context. The low self-efficacy student could not solve all the mathematical problems given.

Keywords: Mathematical Problem-Solving Ability, Phenomenological, Self-efficacy.

Abstrak. Salah satu kemampuan matematis yang penting dimiliki oleh siswa adalah kemampuan pemecahan masalah. Agar siswa dapat memecahkan masalah secara efektif, mereka memerlukan self-efficacy untuk membantu mengaktualisasikan dan mengoptimalkan kemampuan pemecahan masalah yang dimiliki. Tujuan penelitian ini adalah untuk mendeskripsikan kemampuan pemecahan masalah matematis siswa yang memiliki kategori self-efficacy yang berbeda-beda. Metode penelitian yang digunakan yaitu kualitatif dengan pendekatan fenomenologi. Subjek dalam penelitian ini yaitu siswa kelas VII pada salah satu SMP di Kota Serang, Banten. Indikator kemampuan pemecahan masalah yang digunakan terkait dengan keberhasilan siswa dalam menyelesaikan berbagai jenis masalah matematis. Hasil dari penelitian ini menunjukkan bahwa siswa yang memiliki self-efficacy tinggi mampu memecahkan masalah matematis tertutup dengan konteks di dalam dan di luar matematika dan masalah matematis terbuka dengan konteks di luar matematika. Siswa yang memiliki self-efficacy sedang mampu memecahkan masalah matematis tertutup dengan konteks di dalam matematika. Siswa yang memiliki self-efficacy rendah belum mampu memecahkan semua masalah matematis yang diberikan.

Kata Kunci: Fenomenologi, Kemampuan Pemecahan Masalah Matematis, Self-efficacy.

Introduction

Mathematics is a subject that is believed can help students to solve problems in daily life. However, there are still many students who are not aware of this importance. One of the reasons for students' disinterest in mathematics is because they find it difficult to solve problems given by the teacher. According to Prabawanto (2019), a problem occurs when a person is faced with a situation that must be resolved but does not know how to transform the case toward the desired goal.

Polya (1957) states that problem-solving ability is an attempt to find a way out of difficulties to achieve a goal that cannot be reached immediately. In line with that, Zulkipli & Ansori (2018) state that problem-solving ability is an activity to overcome the difficulties of the problem. The students show this ability in understanding, choosing problem-solving strategies, and completing models to find solutions to the problem (Lubis et al., 2017). In a mathematics context, the problem-solving ability can be interpreted as the ability of the student to solve mathematical problems. A student is said to have the good mathematical problem-solving ability when he can solve any different types of mathematical problems.

The problem-solving ability is a very important ability that students must possess. The students must achieve this ability as one of the goals of mathematics learning. NCTM (2000) suggests that problem-solving ability is one of the mathematical ability standards that students must possess. It can make students accustomed to facing various problems, whether in mathematics, other fields of study, or real-life situations (Effendi, 2012). So that students can be more analytical in making decisions about a problem because, as we know, in daily life, we cannot escape from difficulties (Hasibuan et al., 2019).

The urgency of the problem-solving ability is not in line with the current facts. Based on research results, students' mathematical problem-solving ability is still in the low category (Fitria et al., 2018; Tahir & Kurniawan, 2020; Utami & Wutsqa, 2017; Widiastuti et al., 2018). Most students show low mathematical problem-solving ability, cannot solve problems that are different from the example given by the teacher, cannot solve the application problems, and solve the problems without using problem-solving steps (Zulfah, 2017). Meanwhile, according to Polya (1957), there are four steps to solving a problem: understanding the problem, devising a plan, carrying out the plan, and looking back.

Solving a problem also requires a belief. This belief is called self-efficacy. According to Bandura (1997), self-efficacy is a self-assessment of the ability possessed to get the results that one wants to achieve. Self-efficacy is also interpreted as students' belief in completing the tasks given in certain situations and conditions that can overcome obstacles and achieve goals (Ramlan et al., 2021). So self-efficacy is one of the important factors that can affect a student's academic achievement. Self-efficacy helps students realize their potential to be more optimal, making the results more satisfactory (Rustika, 2012).

Self-efficacy plays an important role for students in solving mathematical problems (Sholihah et al., 2020; Subaidi, 2016). The low self-efficacy of the students can affect their problem-solving ability. This is supported by the results of research from Askar et al. (2016), which state that students who have high self-efficacy can solve problems well. Meanwhile, students who have low self-efficacy have difficulty solving mathematical problems. Related to this, Somawati (2018) argues that self-efficacy significantly influences the results of solving mathematical problems, which means that the higher self-efficacy of students, the easier it will be to solve the mathematical problems.

Based on the description above, problem-solving ability and self-efficacy have a relationship that plays an important role in solving mathematical problems. Furthermore, it can be said that there are differences in the mathematical problem-solving ability for each category of self-efficacy, so researchers are interested in conducting research that aims to provide a comprehensive description of how students' mathematical problem-solving ability for each category of self-efficacy in solving any different types of mathematical problems.

Method

This research used a qualitative research method with a phenomenological approach. The subjects of this research were three students in VII grade at one of the junior high schools in Serang, Banten. The subjects were selected by the results of grouping the student's answers and discussion with the mathematics teacher by selecting one student from each level of self-efficacy.

The research instruments used in this research were the researchers as the main instrument because, in qualitative research, the researchers themselves collect data and are directly involved in the field, a mathematical problem-solving test on integer and fractional operation materials, a self-efficacy scale, and interview guideline. To determine the mathematical problem-solving ability of students in this research using four indicators of problem-solving

ability as stated by Prabawanto (2013). Furthermore, the student's answers for each indicator were analyzed by problem-solving steps, as stated by Polya (1957). The mathematical problem-solving test instrument is presented in the following table.

Table 1. Mathematical Problem-Solving Ability Test Instrument

No	Indicator	Problem
1.	Solving a closed mathematical problem inside a mathematical context	Given the numbers 4, 6, and 9. From these numbers are made numbers containing two numbers behind the comma (example: 4.69) with each number used once. Determine the difference between the largest and smallest numbers.
2.	Solving a closed mathematical problem outside a mathematical context	City A has a population of 60% women. 37% of the women in the city are children. If the population in City A is 90.000 people, how many women are not children?
3.	Solving an open-ended mathematical problem inside a mathematical context	Let A and B be any number. Determine three pairs of numbers (A, B) so that the sum of the numbers is equal to the multiplication result $A + B = A \times B$
4.	Solving an open-ended mathematical problem outside a mathematical context	If in a test there are 100 questions and the assessments use the rules: <ul style="list-style-type: none"> • 4 points for the correct answer • -1 for incorrect answer • 0 for unanswered Determine the four possible numbers of questions with correct, incorrect, and unanswered answers so that the test gets 240 points.

The indicator of self-efficacy scale that was used in this research was adapted from the mathematical self-efficacy scale stated by Prabawanto (2013). According to Budiyono (Ramdhani et al., 2017), the calculations to categorize students' self-efficacy levels can be seen in the following table 2.

Table 2. Students Self-Efficacy Categories

Number	Interval	Category
1.	$x_i > (\bar{x} + 0,5s)$	High
2.	$(\bar{x} - 0,5s) \leq x_i \leq (\bar{x} + 0,5s)$	Moderate
3.	$x_i < (\bar{x} - 0,5s)$	Low

Notes:

x_i = student's self-efficacy score

\bar{x} = an average student's self-efficacy score

s = the standard deviation of a student's self-efficacy score

The interview conducted in this research was semi-structured. This type of interview aims to confirm the results of the mathematical problem-solving ability test and to obtain more information about the mathematical problem-solving ability possessed by students that cannot be known from the student's answer sheet.

Results and Discussion

The results of this research included the data from the student's mathematical problem-solving ability test, the student's self-efficacy scale, and the interview results. The information on the three subjects in this research is presented in the following table.

Table 3. Data of Research Subjects

Number	Initial	Category Self-Efficacy
1.	S1	High
2.	S2	Moderate
3.	S3	Low

The following is the description of the student's problem-solving ability for each level of self-efficacy.

a. Subject S1

	8 14
1.	terbesar = 8,64
	terkecil = 4,69 -
	Selisihnya = 4,95

Figure 1. Test Result of S1 on Indicator 1

Based on figure 1, S1 showed that he gave the correct answer. But in his answer sheet, he just wrote the values of the largest number (9.64), the smallest number (4.69), and the difference between these two numbers (4.95) so that the strategy used by S1 was not entirely obvious. Such as how to get the largest and smallest numbers. The following is an excerpt from the interview between the researcher (R) and S1.

R : Can you explain how you solve this problem? Such as how to get the numbers?

S1 : I compiled the numbers given in the problem, then looked for which number was the largest and which number was the smallest, and last I subtracted the largest number from the smallest number.

R : Are you sure about your answer?

S1 : Yes.

R : Did you double-check your answer? If yes, how do you check it?

S : Yes, I repeat the same steps.

Based on the interview results, S1 feels confident with his answer. S1 can understand the problem well, explain the solution strategy used appropriately, and even recheck his answer. Even though S1 does not write it down in detail, S1 gave the correct answer and can explain it.

The image shows a student's handwritten work on a grid background. The work is as follows:

2.	$60 \times 90.000 = 54.000 \rightarrow \text{Perempuan}$
	100
	$\text{Perempuan dewasa} = \frac{63}{100} \times 54.000 = 34.020$
	$\text{dikurangi } 65\% \text{ dari } 100\% = 35\%$

Figure 2. Test Result of S1 on Indicator 2

Based on figure 2, S1 also gave the correct answer. Similar to the previous problem, S1 only directly wrote the calculation process. Based on the figure, we can find out that the number of women is 54,000, and then the number of adult women is 34,020. The following is an excerpt from the interview between the researcher (R) and S1.

R : Can you explain how you solve this problem?

S1 : First, I find out the number of women in city A by calculating 60% multiplied by 90,000, and the result is 54,000. Because the question asked to determine the number of women who are not children, I subtracted the percentage 100% by the percentage of women who are children, 37%, and then I got 63%. The last 63% multiplied by 54,000 is equal to 34,020.

R : In your answer, I find out that you write about adult women. What does it mean? Because in the question, there is no such sentence.

S1 : Because what is asked is women who were not children, I call them adult women.

R : Are you sure about your answer?

S1 : Yes, sure.

R : Did you double-check your answer? If yes, how do you check it?

S1 : Yes. I repeat the calculations.

On both indicators, the high self-efficacy student can understand problems, solve problems correctly and re-examine the answers. This is in line with the research results by Rahmawati et al. (2021), Wijayanti et al. (2021), which mention that students who have high self-efficacy perform all stages of problem-solving when solving a problem. With high self-efficacy, students can solve problems well (Askar et al., 2016).

3. $A = 2$
 $B = 2$
 $2 + 2 = 2 \times 2$

Figure 3. Test Result of S1 on Indicator 3

Based on figure 3, S1 could not provide the correct answer completely. The question asked to give three pairs of numbers, but S1 only gave one pair of numbers (2 and 2). So, he got $2 + 2 = 4$ and $2 \times 2 = 4$, and they had the same result. The following is an excerpt from the interview between the researcher (R) and S1.

R : *Do you understand this problem?*

S1 : *Yes, but I am confused about determining the answer.*

R : *Ok, it means that you understand the meaning of the question that asked to give three pairs of numbers, but you only know one pair, right?*

S1 : *Yes, miss.*

R : *Can you explain how to get this answer?*

S1 : *I just tried it, and then I found that the sum result was the same as the multiplication result.*

Based on the interview results, S1 already understands the problem but cannot find the other true pairs of numbers. Therefore, the solution strategy used by S1 in solving this problem is trial and error.

4

Kemungkinan 1:
 Benar, 65 soal = 260 Poin
 Salah, 20 soal = 20 Poin
 Tidak dijawab 5 soal = 240 Poin ✓

Kemungkinan 2:
 Benar, 60 soal = 240 Poin
 Salah, 0
 Tidak dijawab, 40 soal = 0 } 240 - 0 = 240 ✓

Kemungkinan 3:
 Benar = 66 soal = 264 Poin
 Salah = 24 soal = 24 Poin
 Tidak dijawab = 10 soal = 240 ✓

Kemungkinan 4:
 Benar = 67 soal = 268 Poin
 Salah = 22 soal = 22 Poin
 Tidak dijawab = 11 soal = 240 ✓

Figure 4. Test Result of S1 on Indicator 4

Based on figure 4, S1 showed that he gave the correct answer completely. Therefore, S1 provided four possible answers as requested on the problem.

Therefore, S1 could determine four possible correct, incorrect, and unanswered answers so that the points obtained are still 240.

R : Can you explain how you solve this problem?

S1 : First, I determine the number of questions with the correct answer. I try 65 questions, so I get 260 points, then I try 20 questions for the number of questions with the incorrect answer, so I get -20 points, last 20 unanswered questions, so I get 0 points. After that, I sum the points 260 minus 20 plus 0, equal to 240.

R : How about the other possibilities?

S1 : I use the same step but differently in determining the number of questions with the correct answer at the beginning.

R : Why do you immediately try the number of questions with correct answers around 60?

S1 : If I substitute the number of questions with correct answers around 50, the points will not reach 240.

Based on the interview result, S1 can understand the problem very well, uses the appropriate solution strategy, and gives the correct answers completely.

During the interview, S1 always feels confident about his answers. Although his answer sheet tends not to write down the things known and asked about the problem, S1 understands the given problem. In addition, S1 does not sound hesitant when describing how the stages of completion are carried out to get the answers. This is in line with the research results conducted by Permana et al. (2017) and the statements about characteristics of someone who has high self-efficacy by Bandura (1997), a person who has high self-efficacy has confidence in the ability that he has will succeed to solve problems and is less likely to give up easily.

b. Subject S2

(1)
 $= 469 = 4,69$
 $= 9,64$ (terbesar)
 $= 4,69$ (ter kecil)
 $= 9,64 - 4,69 = 4,95$ (selisih)

Figure 5. Test Result of S2 on Indicator 1

Based on figure 5, S2 gave the correct answer. S2 wrote down the value of the largest number (9.64), the smallest number (4.69), and the difference between the largest and smallest numbers (4.95). However, it did not show us how to

get the value of both numbers. The following is an excerpt from the interview between the researcher (R) and S2.

R : Can you explain how you solve this problem?

S2 : I compiled it from the numbers in the question.

R : Are you sure about your answer?

S2 : I doubt it.

R : Why?

S2 : I do not know the correct strategy to answer this question. I am just trying to solve it.

Based on the result of the interview, although S2 can understand the problem and solve the problem correctly, S2 does not feel sure when asked whether she understood the problem, and similarly to the answer given, S2 still feels doubt because S2 does not know exactly how to solve this problem correctly.

2) Dik:

- Jumlah Jiwa : 90.000 jiwa
- 60% (Perempuan)
- 37% (anak-anak)

* Penyelesaian:

- = $\frac{60}{100} \times 90.000 = 54.000$
- = $\frac{37}{100} \times 54.000 = 19.980$ jiwa (Perempuan bukan anak)

Figure 6. Test Result of S2 on Indicator 2

Based on figure 6, S2 could not give the correct answer. However, S2 has written down the things needed to solve this question, such as the number of the population is 90,000, 60% of it are women, 37% of the number of women are children, then S2 solved it by starting by multiplying the percentage of women by the number of the population $\frac{60}{100} \times 90,000 = 54,000$, then S2 calculated $\frac{37}{100} \times 54,000 = 19,980$ and wrote that the result is the number of women who are not children. Here the error occurs because the percentage of 37% belongs to women who are children. The following is an excerpt from the interview between the researcher (R) and S2.

R : Can you explain how you solve this problem?

S2 : I changed the form of 60% to fraction form $\frac{60}{100}$ then multiplying $\frac{60}{100}$ by the number of the population of 90,000 so that the result is equal to 54,000. After that, similar to before $\frac{37}{100} \times 54,000 = 19,980$, and that is the answer.

R : Are you sure? Did you recheck it?

S2 : Yes, but I still doubt it.

R : Let's see what you wrote at the beginning. Whose 37% is it?

S2 : Women who are children. Sorry, I am not careful, miss.

Based on the interview result, S2 understands the problem, which showed by the solution strategy applied by S2, leading to the correct answer. But S2 makes a mistake when determining the number of women populations who are not children. This is in line with the results of research conducted by Wijayanti et al. (2021), which mention that students with moderate self-efficacy cannot give the correct answer even though they understand the problem and apply the appropriate solution strategy.

Handwritten work for Indicator 3:

$$\textcircled{3}$$

$$= a + b = a \times b$$

$$= \frac{a}{b} + \frac{b}{a} = a^2 + b^2 = \underline{\underline{ab^2}}$$

Figure 7. Test Result of S2 on Indicator 3

Based on figure 7, there was work done by S2. In the first line, S2 rewrote what is known from the problem, $a + b = a \times b$, but in the next line, S2 wrote something unrelated to the problem and incorrect. The following is an excerpt from the interview between the researcher (R) and S2.

R : Do you understand this problem?

S2 : Not really. This is the most challenging question.

R : Can you explain your answer?

S2 : Is it wrong, miss? I do not know.

R : In this problem, we are asked to find three pairs of numbers whose summation result equals the multiplication result. For example, if we substitute $a = 2$ and $b = 2$, we get $2 + 2 = 4$ and $2 \times 2 = 4$. So the result is the same.

Based on the interview result, S2 does not understand the problem, so the solution strategy and answer are inappropriate.

Handwritten work for Indicator 4:

$\textcircled{4}$		$400 + (-100) + 0$
<input type="checkbox"/>	4 benar = $100 \times 4 = 400$	$= 300 - 240$
<input type="checkbox"/>	-1 salah = $100 \times (-1) = -100$	$= 60$
<input type="checkbox"/>	0 tdk dijawab = 0	

Figure 8. Test Result of S2 on Indicator 4

Based on figure 8, S2 could not give the correct answer. S2 did work, but this work did not show any clear understanding of the problem, so S2 could not apply the appropriate strategy. It is shown by S2, which writes that the question with the correct answer is $100 \times 4 = 400$, and the question with the incorrect answer is $100 \times (-1) = -100$, then 0 for the question unanswered. After that, S2 calculates $400 + (-100) + 0 = 300$, and the last S2 subtracts the result by the number of points earned, $300 - 240 = 60$. The following is an excerpt from the interview between the researcher (R) and S2.

R : Do you understand this problem?

S2 : Yes.

R : Can you explain how to get this answer?

S2 : 4 points for the correct answer is multiplied by the number of questions, $4 \times 100 = 400$, then -1 for the incorrect answer is multiplied by the number of questions $-1 \times 100 = -100$, then 0 for the unanswered question is multiplied by the number of questions $0 \times 100 = 0$. After that $400 + (-100) + 0 = 300$ and last $300 - 240 = 60$. So, I get 60 questions.

R : Are you sure about your answer?

S2 : No, I doubt it.

Based on the interview result, S2 understands the problem and can mention the things that are known and asked about the problem. But S2 is not able to apply the appropriate strategy. Therefore, it makes S2 is not able to give the correct answer.

During the interview, S2 always feels doubtful about her efforts to solve those mathematical problems. Therefore, even though S2 can fulfill the first indicator, S2 still doubts her ability because she is unsure about the correct solution strategy. This is in line with the research results of Mardiana et al. (2018), Nurani et al. (2021), which state that students who have moderate self-efficacy tend to doubt their ability even though they can solve the problem correctly.

c. Subject S3

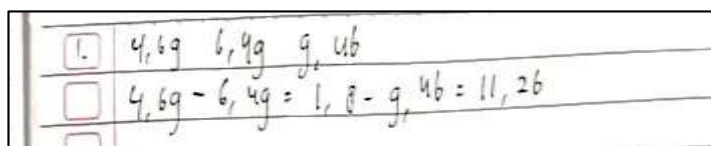


Figure 9. Test Result of S3 on Indicator 1

Based on figure 9, S3 could not give the correct answer. However, S3 showed that there was some understanding of the given problem. S3 tried to find the numbers that could be compiled from the given numbers, such as 4.69, 6.49, and 9.46. But S3 only found three of six possible numbers. S3 did not understand the difference between the largest and smallest numbers because she chose the incorrect number and miscalculated. The following is an excerpt from the interview between the researcher (R) and S3.

R : Do you understand this problem?

S3 : Not really.

R : Which part is difficult to understand?

S3 : The difference between the largest number and smallest number.

R : Can you explain how to get this answer?

- S3 : I compiled the numbers in the question, starting from 4 to 6, and then 9.
 R : Are you sure about your answer?
 S3 : Not at all.
 R : Ok, first, that was the correct strategy. But you only found three possible numbers, and there should be six possible numbers, such as 4.96, then 6.94, and then 9.64."
 S3 : Oh, I understand now.
 R : Do you think this calculation result is correct?
 S3 : I do not know. I cannot calculate that.

Based on the interview result, S3 does not understand the problem entirely and still has a problem with the calculation.

The image shows a handwritten note on lined paper. It contains two calculations, each preceded by a small square box containing a number. The first calculation is '2. 60 x 90.000 = 54.000' with '100' written below the second term. The second calculation is '37 x 54.000 = 19.980' with '100' written below the second term.

Figure 10. Test Result of S3 on Indicator 2

Based on figure 10, S3 could not give the correct answer. The strategy applied by S3 led to the correct answer, but S3 did not complete it. As seen in her answer, S3 tried to find out the number of women in the city and then tried to find the number of women who are children. The following is an excerpt from the interview between the researcher (R) and S3.

- R : Do you understand this problem?
 S3 : Not really.
 R : Can you explain how you solve this problem?
 S3 : First, I try to determine the number of women in the city, $60\% \times 90,000 = 54,000$. After that, I try to determine the number of women who are children $37\% \times 54,000 = 19,980$.
 R : Then what next?
 S3 : I do not know. I am afraid I have given the incorrect answer.

Based on the interview result, S3 did not know what she was doing, so she decided not to continue her answer.

The image shows a handwritten note on lined paper. It contains two calculations, each preceded by a small square box containing a number. The first calculation is '3. (4+4+5.14)' and the second is '(2x1x7)=14'.

Figure 11. Test Result of S3 on Indicator 3

Based on figure 11, S3 also could not give the correct answer. As seen in the figure, S3 wrote $4 + 4 + 5 \cdot 14$ and $2 \times 1 \times 7 = 14$. Not clear the meaning of

these mathematical expressions. The following is an excerpt from the interview between the researcher (R) and S3.

R : Do you understand this problem?

S3 : Not really.

R : Which part is difficult to understand?

S3 : Let A and B be any number.

R : Can you explain how you solve this problem?

S3 : Because $A + B$ is any number, I just use feeling and choose $4 + 4 + 5 = 14$ and then $2 \times 1 \times 7 = 14$. Sorry miss, I wrote it wrong, the dot should be an equal sign. So, the summation result is equal to the multiplication result.

R : Are you sure about your answer?

S3 : Since I read the question, I am unsure I can solve it.

R : Please try to check, $4 + 4 + 5 = 14$. Is it correct?

S3 : Sorry, miss, it should be 13.

Based on the interview result, S3 does not understand the problem and cannot give the correct answer. Besides that, S3 just realized a computational error in her answer.

<input type="checkbox"/>	
<input checked="" type="checkbox"/>	$4 \times 65 = 260 - 20 = 240$
<input type="checkbox"/>	Jawaban benar = 65 soal
<input type="checkbox"/>	tidak dijawab = 15 soal
<input type="checkbox"/>	Salah = 20 soal

Figure 12. Test Result of S3 on Indicator 4

Based on figure 12, S3 did not answer completely. S3 only gave one possible answer. Therefore, the number of questions with the correct answer is 65, the number of questions with the incorrect answer is 20, and the number of unanswered questions is 15. So, when calculating all of the points will get 240 points. The following is an excerpt from the interview between the researcher (R) and S3.

R : Do you understand this problem?

S3 : Not really.

R : Which part is difficult to understand?

S3 : Determine the four possible numbers of questions.

R : Can you explain how to get this answer?

S3 : Yes, I determine the number of questions with correct answers first. I choose 65 questions, then the number of points is 260. After that, I choose the number of questions with the incorrect answer as 20 questions, so the points become $260 - 20 = 240$. Last, there are 20 remaining questions left, so they are for the unanswered questions. So, the number of points is still 240 points.

R : Are you sure?

S3 : No, I do not know the meaning of four possible answers.

Based on the interview result, S3 could not understand the problem that asked her to give four possible answers, so she gave one possible answer.

Based on the research results, the student with low self-efficacy cannot fulfill all indicators of mathematical problem-solving ability. This is because the student who has low self-efficacy tends not to be able to understand the problem. However, low self-efficacy students constantly strive to solve these mathematical problems. This is in line with the result of research conducted by Mardiana et al. (2018), who state students with low self-efficacy cannot understand the problem correctly. But contrary to the research results of Wijayanti et al. (2021), students with low self-efficacy will give up easily when facing mathematical problems. During the interview, the student with low self-efficacy always feels unsure about her mathematical ability to solve the given problem. This is in line with the research results of Permana et al. (2017) and the statements about the characteristics of someone who has low self-efficacy by Bandura (1997).

Conclusion

The student with high self-efficacy always feels confident about his mathematical ability and can fulfill three indicators of mathematical problem-solving ability, namely solving closed mathematical problems inside and outside the mathematical context and solving an open-ended mathematical problem outside the mathematical context. Meanwhile, the student with moderate self-efficacy tends to doubt her mathematical ability and only fulfills one indicator of mathematical problem-solving ability, namely solving a closed mathematical problem inside a mathematical context. On the other hand, the student with low self-efficacy always feels unsure of her mathematical ability and does not fulfill all indicators of mathematical problem-solving ability. Even though the student with low self-efficacy always shows her effort to solve the mathematical problems.

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