Middle School Mathematics Problem Solving Ability Reviewed From Students' Learning Interests

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Abstract
The reality in the field shows that students' ability to solve problems is still relatively high. This research aims to determine mathematical solving abilities in terms of students' interest in learning social arithmetic material at SMPN 1 Cikajang. The population in this study were middle school/MTs students of the same level, while the sample was selected based on a purposive sampling technique of 3 students. Analysis of the results of this research shows that mathematical problem-solving abilities are viewed from students' learning interests: (1) All three students' interest in learning is classified as high with each student's problem-solving ability varying in the high, very high, and medium categories (2) The level of student interest in learning tends to affect the level of students' problem-solving abilities. First students who have a high category level interest in learning tend to have high mathematical problem-solving abilities. The second student who has a high level of interest in learning tends to have very high mathematical problem-solving abilities and the third student who has a high level of interest in learning tends to have moderate mathematical problem-solving abilities.
Keywords: Solution to problem; Interest to learn; junior high school

Abstrak
Kenyataan di lapangan menunjukkan bahwa kemampuan siswa dalam pemecehan masalah masih tergolong tinggi. Tujuan penelitian ini adalah untuk mengetahui kemampuan pemecahan matematis ditinjau dari minat belajar siswa materi aritmatika sosial di SMPN 1 Cikajang. Populasi dalam penelitian ini adalah siswa SMP/MTs sederajat yang berada, sedangkan sampel dipilih berdasarkan teknik purposive sampling sebanyak 3 orang siswa. Analisis hasil penelitian ini menunjukkan bahwa kemampuan pemecahan masalah matematis ditinjau dari minat belajar siswa: (1) Minat belajar dari ketiga siswa semuanya tergolong tinggi dengan kemampuan pemecahan masalah setiap siswa beragam pada kategori tinggi, sangat tinggi dan sedang (2) Tingkat minat belajar siswa cenderung mempengaruhi tingkat kemampuan pemevahan masalah siswa. Siswa pertama yang memiliki minat belajar tingkat kategori tinggi cenderung memiliki kemampuan pemecahan masalah matematis tinggi. Siswa kedua yang memiliki minat belajar tingkat kategori tinggi cenderung memiliki kemampuan pemecahan masalah matematis sangat tinggi dan Siswa ketiga yang memiliki minat belajar tingkat kategori tinggi cenderung memiliki kemampuan pemecahan masalah matematis sedang
Kata Kunci: Pemecahan Masalah; Minat Belajar; SMP

Introduction

Education is one of the important factors to advance a nation (Utami & Puspitasari, 2022). Through good education, new things are obtained so that they can be used to create quality human resources (Robbani & Sumartini, 2023). A nation if it has quality human resources, of course, is able to build its nation to be more advanced. Therefore, every nation should have good and quality education. Quality education must be able to achieve educational goals. The goals of education are stated in the Republic of Indonesia Law of 2003 concerning the national education system, which states that:

"National education functions to develop abilities and shape the character and civilization of the nation which aims to develop the potential of students to become quality human beings with the characteristics of being faithful and devoted to God Almighty, having noble morals, being healthy, faithful, capable, creative, independent, and becoming democratic and responsible citizens."

Efforts to achieve educational goals are not easy (Pratami, Sundayana, & Sofyan, 2023). There are many obstacles that must be faced by the education system in Indonesia (Admulya, 2023). One of the obstacles is the low quality of education in Indonesia which makes educational goals not yet achieved optimally. One of the facts related to the low quality of education in Indonesia is the reality of the low quality of education.

According to Ruseffendi (Heruman, 2007:1) the definition of Mathematics is the science of logic about the form of the arrangement of quantities and concepts that are interrelated with each other, mathematics can be divided into three fields, namely algebra, analysis and geometry. Mathematics is not a solitary knowledge that can be perfect because of itself, but the existence of mathematics to help social, economic and natural problems. Mathematics is a study material that has an abstract object and is built through a deductive reasoning process, namely the truth of a concept obtained from the logical consequences of the truth of a concept, previously accepted, so that the relationship between concepts in mathematics is very strong and clear (KBK curriculum: 2004:22)

The ability to solve problems is a basic ability that every human being must have (Cahyani & Sritresna, 2023). The reality shows that most of our lives are faced with problems and solving problems is a basic activity for humans. The purpose of education is essentially a continuous process for humans to overcome problems faced throughout life (Hudojo, 2003; Ahdhianto, Marsigit, & Nurfauzi, 2020). The development of science and technology in the world globally and competitively requires a generation that has the ability to obtain, manage, utilize information so that it becomes knowledge and becomes a tool for acting and making the right decisions in every situation. Such abilities will play an effective role if supported by the ability to think logically, systematically, analytically, critically, and creatively. These various thinking abilities can be developed through learning mathematics (Oktavien et al., 2012, p. 157; Pratiwi & Indarini, 2021). Someone who has high problem-solving abilities is expected to be able to face change, survive and make the right

decisions in life in a world that is always developing. Mathematics as a tool for deepening problems and solving problems (problem solving) (Iswara & Sundayana, 2021; Khalid et al., 2020), this can clearly be observed from the presentation of questions in mathematics textbooks, many of which contain questions in the form of descriptions (Puspendik Team, 2012; Lai, Zhang, & Chang, 2020). Thus, problem-solving abilities can be improved through learning mathematics. In addition, problem solving is a very important part of the mathematics curriculum because in the learning and solving process, students are able to gain experience using the knowledge and skills they already have to apply them to solving non-routine problems (Suherman et al., 2001; Öztürk, Akkan, & Kaplan, 2020).

Student interest in learning in participating in learning is something important in the smooth running of the teaching and learning process. Students who have a high interest in learning in the learning process can support the teaching and learning process to be better, likewise, if students' low interest in learning then the quality of learning will decrease and will affect learning outcomes. Slameto (1995: 57) explains that interest is "A high tendency of the heart towards something". Interest is a relatively permanent trait in a person. Interest is a permanent interest or tendency to pay attention to or be involved in something because they realize the importance or value of it.

According to Ahmadi (2009: 148) "Interest is a person's mental attitude including the function of his emotional soul that is directed at something and in that relationship there is a strong element of feeling". Students realize that a lack of interest in learning will affect learning achievement. While interest in learning arises because of a strong will, great curiosity and high participation from within the student to learn, as well as motivational encouragement from parents. The family is the first educational institution responsible for organizing education. In the learning process, students really need full support from the surrounding environment. Both from the community environment, from the school environment, and most importantly because the family environment is the one that most often interacts with children. The family is a place where children develop and grow, both physically and psychologically. According to BKKBN (2011), the family is a unit in society consisting of husband and wife, or husband, wife and child, or father and child, or mother and child.

Metode

This research is qualitative research with descriptive analysis method (Sugiyono, 2008). Sampling was done using purposive sampling technique. This technique is a sampling technique by determining certain criteria. This technique was chosen with certain objectives and reasons based on the research taken, the criteria are grade VII students. At the time of the research, the researcher took research subjects based on the willingness/readiness of the students, namely 3 students who had high, medium, and low

interests. The research was conducted at one of SMPN 1 Cikajang, Cikajang District, Garut Regency. The research subjects were grade VII students.

Researchers categorize samples based on the level of Learning Interest using the grouping formula (Sundayana, 2018), namely as follows:

Table 1. Interpretation of Learning Interest Questionnaire

Total Score (ST)	Interprestation
$S_{min} \leq ST < S_{min} + p$	Very Low
$S_{min} + p \leq ST < S_{min} + 2p$	Low
$S_{min} + 2p \leq ST < S_{min} + 3p$	Moderate
$S_{min} + 3p \leq ST < S_{min} + 4p$	High
$S_{min} + 4p \leq ST < S_{max}$	Very High

Description:

S_{min} : Minimum Score

S_{max} : Maximum Score

p : Class Length

The instruments used in this study were a Learning Interest questionnaire, mathematical problem-solving ability test questions, and interviews to obtain supporting data. The Learning Interest Questionnaire consisted of 20 positive and negative questions while the mathematical connection ability test questions consisted of 4 descriptive questions according to the indicators taken. Theoretically, this instrument has been validated by 2 mathematics teachers who teach at schools in the Garut area. The data analysis technique in this study used three steps, namely data reduction, data presentation, and drawing conclusions.

Result

1) *Student Learning Interest*

The results of this Learning Interest analysis were conducted on 3 respondents by giving a questionnaire containing 20 negative and positive statements. From the results of the data analysis, the results of the questionnaire recapitulation that had been tested on 3 respondents were obtained as follows (see Table 2).

Table 2. Recapitulation Results of Student Learning Interest Questionnaire Test

Respondents	Score	Interpretation	Precentage
S1	77	High	77 %
S2	83	High	83 %
S3	75	High	75 %
Overall Average	78,33	High	78,33 %

Based on Table 2, it can be seen that S2 has the highest interpretation of Learning Interest with a percentage of 83%. S1 is included in the high Learning Interest category with

a percentage result of 77%, and S3 is included in the high category with a percentage of 75%. From Table 2 it can also be seen that the overall average has a score with a percentage result of 78.33%. So it can be concluded that the overall Learning Interest of students is at a high level.

2) Mathematical Solving Ability

Based on the results of the students' mathematical ability test, the results of the students' mathematical solving ability test scores regarding the number pattern material are as follows (see Table 3).

Table 3. Results of the Recapitulation of Mathematical Solving Ability Test

Respondents	Score	Interpretation	Precentage
S1	15	High	75 %
S2	18	Very High	90 %
S3	11	Moderate	55 %
Overall Average	14,67	High	73,33%

Based on Table 3, it can be seen that S1 has a high interpretation of mathematical problem solving ability with a percentage of 75% and obtained a score of 15. S2 is included in the very high category with a percentage of 90% and obtained a score of 18. S3 is included in the Medium category with a percentage of 55% and obtained a score of 11. From Table 3 it can also be seen that the overall average has a score of 14.67 with a percentage of 73.33%. So it can be concluded that the overall Interest in Learning of students is at a high level. In this study, students who have a high Interest in Learning are students 2 (S-2).

The following are the results of solving questions from the S-1 subject: Question Number 1 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.
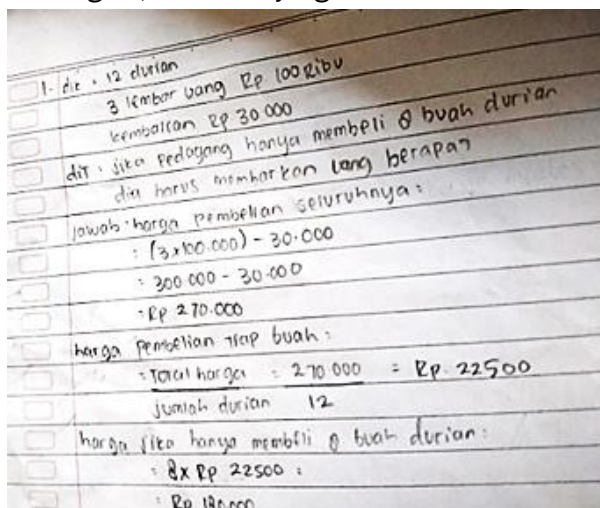

Figure 1. Written Answer S-1 For Question Number 1 The fourth indicator

Based on Figure 1, it can be seen that S-1 can search and understand the problem well where S-1 can write what is known and asked correctly which can support in solving

the given problem but cannot formulate the problem into a picture. then S-1 does not meet the indicators of formulating the problem and verifying the solution. To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-1 with the following results:

P: Do you think this question is easy, moderate, or difficult?
S1: Moderate
P: What is known from the question?
S1: about sales, percentage of profit and loss
P: What are you looking for from the question?
S1: amount and percentage of loss
P: Explain the strategy or steps you took to work on the question?
S1: first read the question, then add, subtract, divide, and multiply the question until you get the right answer
P: Try to explain why you chose this strategy!
S1: because the strategy is easier
P: Can you explain how you solved this question?
S1: because solving this question is 270,000: 12 = 22,500, 22,500 x 8 = 180,000, so filling in this question is related to multiplication and division
P: Is this the answer from your own thoughts?
S1: yes
P: Are there any difficulties in the calculations?
S1: in some questions there are many difficulties that are misleading
P: How do you know the truth of your answer?
S1: by taking a picture first
P: What is the final conclusion of the question
S1: from all the questions it can be concluded that the questions are related to everyday life

The interview results showed that S-1 had not fulfilled the indicator of Using mathematics in other fields of study in everyday life, S-1 wrote the answer seriously but for S1 did not write the final conclusion in working on it so that S-1 was incomplete. From this it can be concluded that S-1 still does not understand and solve the problem in the indicator of verifying the solution with his learning interest.

Question Number 2 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.
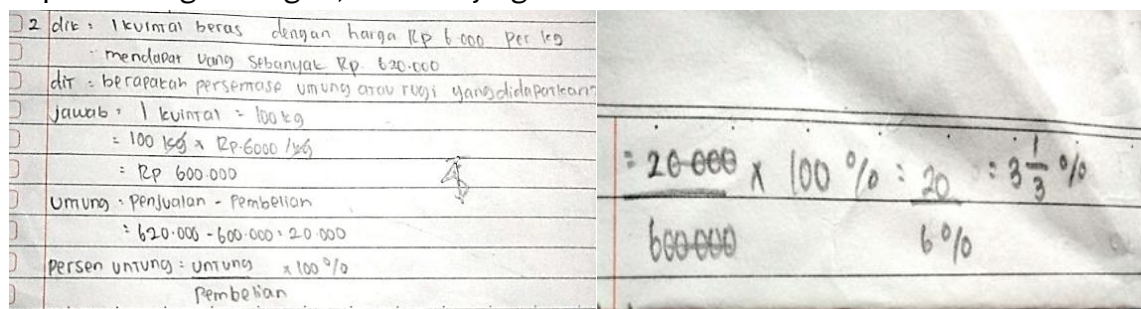

Figure 2. Written Answer S-1 For Question Number 2 The fourth indicator

Based on Figure 2, it can be seen that S-1 can search and understand the problem well where S-1 can write what is known and asked correctly which can support in solving

the given problem but cannot verify the solution. then S-1 does not meet the indicator of verifying the solution. To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-1 with the following results:

P: Do you think this question is easy, moderate, or difficult?
S1: moderate
P: What is known from the question?
S1: percentage of profit and loss
P: What are you looking for from the question?
S1: percentage of profit and loss
P: Explain the strategy or steps you took to work on the question?
S1: multiply first and then get the result, and subtract then there will be a result
P: Try to explain why you chose this strategy!
S1: because it's easier
P: Can you explain how you solved this question?
S1: 1 quintal (100kg) x 6,000 = 600,000, 620,000 – 600,000 = 20,000
P: Is this the answer from your own thoughts?
S1: yes
P: Are there any difficulties in the calculations?
S1: none
P: How do you know the truth of your answer?
S1: by calculating and taking pictures
P: What is the final conclusion of the question
S1: the question is related to kg, and profit percentage

The interview results showed that S-1 had not fulfilled the indicator of Using mathematics in other fields of study in everyday life, S-1 wrote the answer seriously but for S1 did not write the final conclusion in working on it so that S-1 was incomplete. From this it can be concluded that S-1 still does not understand and solve the problem in the indicator of verifying the solution with his learning interest.

Question Number 3 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions

Figure 3. Written Answer S-1 For Question Number 3 The fourth indicator

Based on Figure 3, it can be seen that S-1 cannot find and understand the problem well where S-1 cannot write down what is known and asked correctly which can support in

solving the given problem but cannot verify the solution into a picture. then S-1 does not meet the indicators of identifying problems and formulating problems. To find more accurate information regarding the answers that have been completed, the researcher conducted interviews with S-1 with the following results:

P: Do you think this question is easy, moderate, or difficult?
S1: moderate
P: What is known from the question?
S1: loss and price of the item
P: What are you looking for from the question?
S1: percentage of loss
P: Explain the strategy or steps you took to work on the question?
S1: add then subtract
P: Try to explain why you chose this strategy!
S1: easier
P: Can you explain how you solved this question?
S1: 10,000,000 + 800,000 = 10,800,000, 10,800,000 – 10,500,000 = 3%
P: Is this the answer from your own thoughts?
S1: yes
P: Are there any difficulties in the calculations?
S1: There are some confusing things
P: How do you know the truth of your answer?
S1: By calculating
P: What is the final conclusion of the question
S1: The question is related to the percentage of losses that often occur in everyday life

The interview results showed that S-1 had not met the indicator of Using mathematics in other fields of study in everyday life, S-1 wrote the answer seriously but for S1 did not write known, asked and final conclusions in working on it so that S-1 was incomplete. From this it can be concluded that S-1 still does not understand and solve problems in the indicator of identifying problems and verifying solutions with their learning interests.

Question number 4 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.

Figure 4. Written Answer S-1 For Question Number 4 The fourth indicator

Based on Figure 4, it can be seen that S-1 cannot find problems well where S-1 cannot write what is known and asked correctly which can support in solving the given questions but cannot identify the problem into a picture. then S-1 does not meet the indicators of identifying problems and formulating problems.

To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-1 with the following results:

P: Do you think this question is easy, moderate, or difficult?
S1: moderate
P: What is known from the question?
S1: discount
P: What are you looking for from the question?
S1: price after discount
P: Explain the strategy or steps you took to work on the question?
S1: multiply, divide, subtract
P: Try to explain why you chose this strategy!
S1: because it's easier
P: Can you explain how you solved this question?
S1: 30 x 250.00: 100 = Rp.75.00, 250,000-75,000 = 175,000
P: Is this the answer from your own thoughts?
S1: yes
P: Are there any difficulties in the calculations?
S1: no
P: How do you know the truth of your answer?
S1: take a picture and calculate first
P: What is the final conclusion of the question?
S1: The question discusses discounts in everyday life

The interview results showed that S-1 had not met the indicator of Using mathematics in other fields of study in everyday life, S-1 wrote the answer seriously but for S1 did not write known, stated or in other words did not identify the problem and did not verify the final conclusion solution in working on it so that S-1 was incomplete. From this it can be concluded that S-1 still does not understand and solve the problem on the indicator of identifying problems and verifying solutions with their learning interests

The following are the results of solving questions from subject S-2: Question Number 1 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions
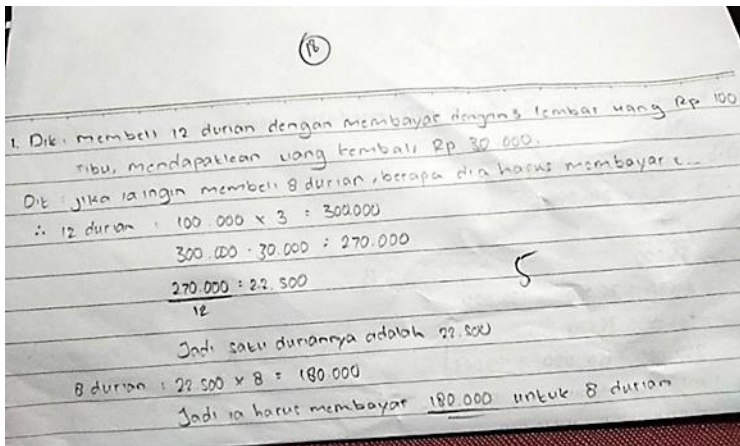
Figure 5. Written Answer S-2 For Question Number 1 The fourth indicator

Based on Figure 5, it can be seen that S-2 can find problems well where S-2 can write what is known and asked correctly which can support in solving the problem but there is no final conclusion. then S-2 does not meet all indicators of mathematical problem solving ability, namely the indicator of verifying solutions. To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-2 with the following results:

P: Do you think this question is easy, medium, or difficult?
S2: Easy
P: What is known from the question?
S2: An iced juice seller buys 12 durians and pays with three Rp. 100 thousand bills, getting Rp. 30,000 (Rp. 270,000) in change
P: What is sought from the question?
S2: If the trader buys 8 durians, how much should he pay?
P: Explain the strategy or steps you took to work on the question?
S2: First multiply (Rp. 100,000 x 3) which results in Rp. 300,000 then subtract Rp. 30,000 which results in Rp. 270,000. This is the result of 12 durians, if the buyer wants to buy 8, we must first know the price of 1 fruit, the method is (270,000: 12 = 22,500) then we multiply it again by 8 (22,500 x 8 = 180,000). This is the result of 8 durians.
P: Try to explain why you chose this strategy!
S2: Because it's easier
P: Can you explain how you solve this problem?
S2: By multiplying, dividing, adding and subtracting
P: Is this the answer from your own thoughts?
S2: yeah
P: Are there any difficulties in the calculation?
S2: A little, when you have to know the price of 1 fruit
P: How do you know the truth of your answer?
S2: By examining and calculating it
P: What is the final conclusion of the problem
S2: I know that if the trader buys 8 durians, he pays Rp. 180,000

The interview results showed that S-2 had not fulfilled the indicator of Using mathematics in other fields of study in everyday life, S-2 wrote the answer seriously but for

S2 did not write the final conclusion in working on it so that S-2 was incomplete. From this it can be concluded that S-2 still does not understand and solve the problem on the indicator of verifying solutions with their learning interests.

The following are the results of solving questions from subject S-2: Question Number 2 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions

Figure 6. Written Answer S-2 For Question Number 2 The fourth indicator

Based on Figure 6, it can be seen that S-2 can find problems well where S-2 can write down what is known and asked correctly which can support in solving the problem. then S-2 meets all indicators of mathematical problem solving ability. To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-2 with the following results.

P: Do you think this question is easy, moderate, or difficult?
S2: Moderate
P: What is known from the question?
S2: Asnawi bought 1 quintal of rice for Rp. 6,000 per kg and again for Rp. 620,000
P: What is sought from the question?
S2: what percentage of profit or loss is obtained
P: Explain the strategy or steps you took to work on the question?
S2: first change 1 quintal into kg (100kg) find the actual price (6000 x 100 = 600,000) if we sell we are looking for profit
P: Try to explain your reasons why you chose this strategy!
S2: because this is all I can think of
P: Can you explain how you solved this question?
S2: profit: purchase price x 100%
P: Is this the answer from your own thoughts?
S2: yeah
P: Is there any difficulty in the calculation?
S2: yes in calculating the loss
P: How do you know the truth of your answer?
S2: By dividing and multiplying the value

P: What is the final conclusion of the question
S2: The loss is 3.33%

The interview results showed that S-2 had not fulfilled the indicator of Using mathematics in other fields of study in everyday life, S-2 wrote the answer seriously but for S2 did not write the final conclusion in working on it so that S-2 was incomplete. From this it can be concluded that S-2 still does not understand and solve the problem on the indicator of verifying solutions with their learning interests.

The following are the results of solving questions from subject S-2: Question Number 3 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions
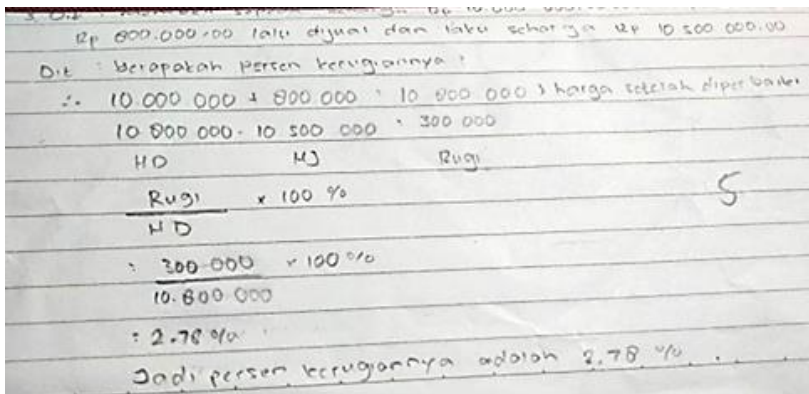

Figure 7. Written Answer S-2 For Question Number 3 The fourth indicator

Based on Figure 7, it can be seen that S-2 can find problems well where S-2 can write what is known and asked correctly which can support in solving the problem. then S-2 meets all indicators of mathematical problem solving ability

To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-2 with the following results:

P: Do you think this question is easy, medium, or difficult?
S2: medium
P: What is known from the question?
S2: Faqih bought a bicycle for Rp. 10,000,000, repaired at a cost of Rp. 800,000 and sold for Rp. 10,500,000
P: What is sought from the question?
S2: What is the percentage of loss?
P: Explain the strategy or steps you took to work on the question?
S2: First calculate the actual price plus the repair price (10,000,000 + 800,000 = 10,800.00) then find the percentage of loss.
P: Try to explain the reason why you chose this strategy!
S2: because it is almost the same as question no. 2
P: Can you explain how you solved this question?
S2: loss: HD x 100%
P: Is this the answer from your own thoughts?

S2: yeah
P: Is there any difficulty in the calculation?
S2: in calculating the loss
P: How do you know the truth of your answer?
S2: analyze the question
P: What is the final conclusion of the question
S2: the loss is 2.78%

The interview results show that S-2 meets the indicator Using mathematics in other fields of study in everyday life, S-2 writes answers seriously From this it can be concluded that S-2 understands and solves problems on the indicator of mathematical problem solving ability with his learning interest.

The following are the results of solving questions from subject S-2: Question Number 4 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.

Figure 8. Written Answer S-2 For Question Number 4 The fourth indicator

Based on Figure 8, it can be seen that S-2 can search and understand the problem well where S-2 can write what is known and asked correctly which can support in solving the given problem but cannot formulate the problem into a picture. then S-2 does not meet the indicator of verifying the solution. To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-2 with the following results:

P: Do you think this question is easy, medium, or difficult?
S2: easy
P: What is known from the question?
S2: Syahla bought a shirt for Rp. 250,000, got a discount and rebate of 30%
P: What are you looking for from the question?
S2: how much should Syahla pay
P: Explain the strategy or steps you took to work on the question?
S2: looking for a discount price and rebate with 30:100 x 250,000 = 75,000, discount = 75,000 rebate = 75,000 so 130,000
P: Try to explain your reasons why you chose this strategy!
S2: looking for a discount price and rebate
P: Can you explain how you solved this question?
S2: reduce Rp 250,000 by Rp 130,000 (discount and rebate)

P: Is this the answer from your own thoughts?
S2: yeah
P: Is there any difficulty in the calculation?
S2: when dividing 30: 100 x 250,000
P: How do you know the truth of your answer?
S2: calculate it
P: What is the final conclusion of the question
S2: syahla pays Rp. 100,000

The interview results showed that S-2 had not fulfilled the indicator of Using mathematics in other fields of study in everyday life, S-2 wrote the answer seriously but for S2 did not write the final conclusion in working on it so that S-2 was incomplete. From this it can be concluded that S-2 still does not understand and solve the problem on the indicator of verifying solutions with their learning interests.

The following are the results of solving questions from subject S-3: Question Number 1 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.
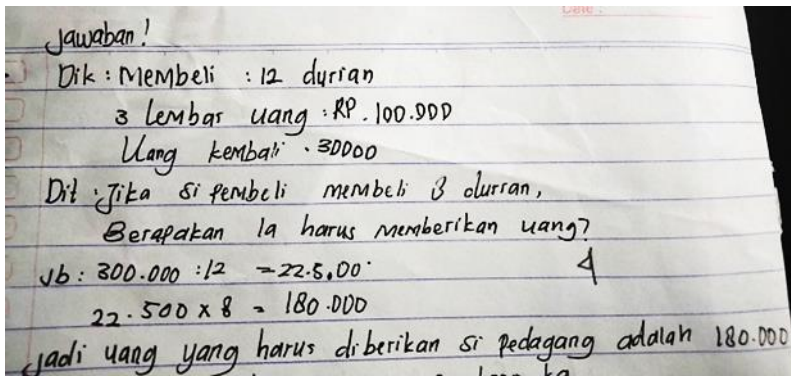

Figure 9. Written Answer S-3 For Question Number 1 The fourth indicator

Based on Figure 9, it can be seen that S-3 can search and understand the problem well where S-3 can write down what is known and asked correctly which can support in solving the given questions but cannot formulate the problem. then S-3 does not meet the indicators of formulating the problem. To find more accurate information regarding the answers that have been completed, the researcher conducted an interview with S-3 with the following results:

P: Do you think this question is easy, medium, or difficult?
S3: medium
P: What is known from the question?
S3: 12 durians = 270,000 and the question asks if we only buy 8 durians
P: What are you looking for in the question?
S3: price and discount
P: Explain the strategy or steps you took to work on the question?
S3: multiply (3 x 100,000), subtract (300,000-30,000), divide (270,000:12), multiply (22,500 x 8)
P: Try to explain why you chose this strategy!

S3: to get the right result, simpler

P: Can you explain how you solved this question?

S3: using a strategy

P: Is this the answer from your own thoughts?

S3: yes

P: Is there any difficulty in the calculation?

S3: not that difficult

P: How do you know the truth of your answer?

S3: repeat the question to be sure

P: What is the final conclusion of the question

S3: the question explains the price of durian if you buy 12 and asks questions if you buy 8 durians

The interview results showed that S-3 had not met the indicator of Using mathematics in other fields of study in everyday life, S-3 wrote the answer seriously but for S3 did not write the final conclusion in working on it so that S-3 was incomplete. From this it can be concluded that S-3 still does not understand and solve the problem in the indicator of formulating problems with their learning interests.

The following are the results of solving questions from subject S-3: Question Number 2 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.
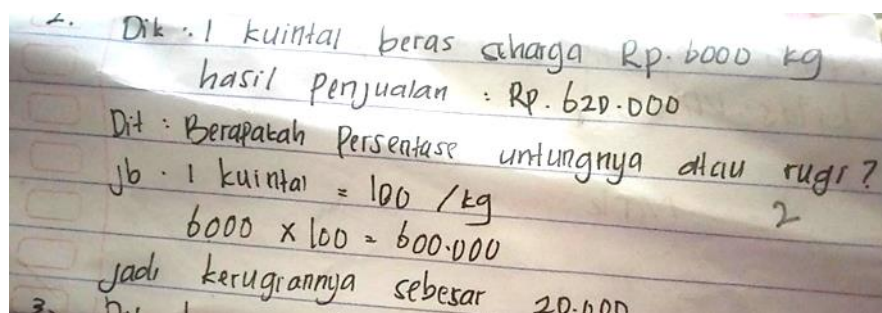

Figure 10. Written Answer S-3 For Question Number 2 The fourth indicator

Based on Figure 10, it can be seen that S-3 can search for and understand problems well where S-3 can write down what is known and asked correctly which can support in solving the given questions but cannot formulate the problem into a picture. So S-3 does not meet the problem formulation indicator. To find more accurate information about the answers that have been completed, the researcher conducted an interview with S-3 with the following results:

P: Do you think this question is easy, medium, or difficult?

S3: difficult

P: What is known from the question?

S3: looking for profit

P: What is sought from the question?

S3: looking for profit/loss

P: Explain the strategy or steps you took to work on the question?

S3: find how many kg in 1 quintal, multiply (100 x Rp.6,000), use the formula (profit: purchase price x 100%)

P: Try to explain why you chose this strategy!
S3: to get the correct result
P: Can you explain how you solved this question?
S3: using the formula
P: Is this the answer from your own thoughts?
S3: yes
P: Are there any difficulties in the calculations?
S3: yes
P: How do you know the truth of your answer?
S3: using formula
P: What is the final conclusion of the question?
S3: finding the percentage of profit/loss experienced by Asnawi

The interview results show that S-3 has not met the indicator of Using mathematics in other fields of study in everyday life, S-3 writes the answer seriously but for S3 does not write the final conclusion in working on it so that S-3 is incomplete. From this it can be concluded that S-3 still does not understand and solve the problem in the indicator of formulating problems with their learning interests. The following are the results of solving questions from subject S-3: Question Number 3 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.

Figure 11. Written Answer S-3 For Question Number 3 The fourth indicator

Based on Figure 11, it can be seen that S-3 can search for and understand problems well where S-3 can write down what is known and asked correctly which can support in solving the given questions but cannot formulate the problem into a picture. then S-3 does not meet the indicators for formulating problems. To find more accurate information regarding the answers that have been completed, the researcher conducted an interview with S-3 with the following results:

P: Do you think this question is easy, moderate, or difficult?
S3: moderate
P: What is known from the question?
S3: looking for losses experienced by faqih
P: What is sought from the question?
S3: losses

P: Explain the strategy or steps you took to work on the question?
S3: using a formula
P: Try to explain why you chose this strategy!
S3: to get the right answer
P: Can you explain how you solved this question?
S3: using a formula
P: Is this the answer from your own thoughts?
S3: yes
P: Are there any difficulties in the calculations?
S3: moderate
P: How do you know the truth of your answer?
S3: using a formula in the book
P: What is the final conclusion of the question
S3: looking for losses

The interview results showed that S-3 had not met the indicator of Using mathematics in other fields of study in everyday life, S-3 wrote the answer seriously but for S3 did not write the final conclusion in working on it so that S-3 was incomplete. From this it can be concluded that S-3 still does not understand and solve the problem in the indicator of formulating problems with his learning interests.

The following are the results of solving questions from subject S-3: Question Number 4 with indicators: identifying problems, formulating problems, implementing strategies, and verifying solutions.

Figure 12. Written Answer S-3 For Question Number 4 The fourth indicator

Based on Figure 12, it can be seen that S-3 can search and understand the problem well where S-3 can write what is known and asked correctly which can support in solving the given questions but cannot formulate the problem into a picture. then S-3 does not meet the problem formulation indicator. To find more accurate information regarding the answers that have been completed, the researcher conducted an interview with S-3 with the following results:

P: Do you think this question is easy, moderate, or difficult?
S3: moderate
P: What is known from the question?

S3: looking for a discount
P: What is sought from the question?
S3: discount on clothes
P: Explain the strategy or steps you took to work on the question?
S3: using a formula
P: Try to explain why you chose this strategy!
S3: easier
P: Can you explain how you solved this question?
S3: using a formula (discount: 100% x price of clothes), minus the price of clothes with the amount of discount obtained
P: Is this the answer from your own thoughts?
S3: yes
P: Are there any difficulties in the calculations?
S3: moderate
P: How do you know the truth of your answer?
S3: confirm the answer and repeat the question
P: What is the final conclusion of the question
S3: what Syahla must pay if the price of the clothes gets a 30% discount

The interview results showed that S-3 had not fulfilled the indicator of using mathematics in other fields of study in everyday life, S-3 wrote the answers seriously but for S3 did not write the final conclusion in working on it so that S-3 was incomplete. From this it can be concluded that S-3 still does not understand and solve the problem in the indicator of formulating problems with his learning interests.

Discussion

Based on the results of the study, the mathematical problem solving ability reviewed from the learning interest of junior high school students in social arithmetic material is at 78.33%. This figure is included in the high category. This shows that students already have quite good mathematical problem solving abilities. This can be seen from the emergence of differences in mathematical problem solving abilities reviewed from the learning interest of high category students, their mathematical problem solving abilities remain high, while in S-2 with high student learning interest, their mathematical problem solving abilities are also high. And in S-3 with high student Beliefs, mathematical problem solving abilities are also high.

Conclusion

Based on the results of the study and discussion, it can be concluded that the mathematical problem solving ability of junior high school students where students who have an interest in learning are students who have high mathematical problem solving abilities. The results of this study are expected to be used as a consideration for educational institutions and other researchers to measure student competence in terms of Cognitive and Affective,

especially seeing the relationship between students' mathematical problem solving abilities. Suggestions for further researchers should be able to use more interactive learning methods in the teaching and learning process and find learning methods that are in accordance with precise indicators to obtain better research results.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, ethical issues, including plagiarism, errors, falsification and/or fabrication of data, multiple publication and/or submission, and redundancy have been fully borne by the authors.

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