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Analysis of Students' Mathematical Problem-Solving in Translating Story Problems into Mathematical Models

Putri Nurjanah[1], Lilis Marina Angraini[2*]
[1,2,]Universitas Islam Riau, Pekanbaru, Indonesia

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ABSTRACT

This study is driven by student's limited proficiency in converting narrative problems into mathematical representations. Additionally, a crucial facet of students' problem-solving skills involves their capacity to resolve mathematical issues. The primary objective of this research is to assess students' proficiency in solving mathematical problems by translating narrative scenarios related to linear equations of one variable into mathematical models. The study employed a descriptive qualitative approach. The participants comprised twenty-five eighth-grade students from a junior high school in Pekanbaru during the academic year 2023/2024. Data collection methods encompassed test-based techniques employing mathematical problem-solving assessments and non-test methodologies involving interviews and documentation. The analysis involved data reduction, presentation, drawing conclusions, and verifying findings. The study findings showed that the students' proficiency in mathematical problem-solving yielded positive outcomes, averaging 77.6%. Students' mathematical problem-solving ability in translating story problems into mathematical models with high ability has good mathematical solving ability characterized by students being able to master four or three problem-solving indicators. Students with medium ability have medium mathematical problem-solving ability, which is characterised by students' ability to master three or two problem-solving indicators. At the same time, students with low ability have a low mathematical problem-solving ability, characterised by students being able to understand two or more mathematical solving indicator.

Penulis Koresponden:

Lilis Marina Angraini
Universitas Islam Riau
Pekanbaru, Riau, Indonesia
lilismarina@edu.uir.ac.id

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INTRODUCTION

We learn many kinds of education, one of which is learning mathematics. In every educational curriculum in Indonesia, mathematics is always taught at every level of education

(Zetriuslita et al., 2016). Mathematics is called the queen of science. Mathematical science is a solid educational foundation because no branch of science does not involve mathematics. Mathematics is a science taught since we were still in elementary school, middle school, and even college. It is stated that mathematics is deeply embedded in our daily lives. Mathematics is a basic science taught at all levels of education (Yolanda & Stephani, 2021). Mathematics supports various fields of knowledge and aspects of human life (Cahyani & Sutriyono, 2018). This shows the importance of the math lessons given to students. A successful acquisition of mathematical knowledge relies on a structured process. Effective learning processes are achieved through meticulous and appropriate planning.

Learning can be concluded as a teaching and learning activity that requires the role of all related parties, namely teachers and students, who are equipped with existing facilities to support the teaching and learning process. Learning allows students to understand the material, basic concepts and long-term theories (Alzaber et al., 2021). Learning mathematics will be easier if we know the characteristics and properties of mathematics itself. Learning will involve mental. In learning mathematics, the thinking process occurs because someone thinks that the person is doing mental activities, and people who learn mathematics need to do mental activities (Abrar, 2018). Learning mathematics affects students because mathematics is considered difficult (Andrian et al., 2020). Learning mathematics is a lesson arranged systematically and requires logical thinking, so it involves student preparation from the environment and within itself. So, if these two factors are not supported in learning mathematics, it will cause difficulties (Lestari, 2015).

As per Suryani et al. (2020), proficiency in problem-solving is a fundamental skill for students throughout their learning journey. The significance of problem-solving capabilities lies in enabling students to tackle current challenges and acquire experiential learning, applying their knowledge and skills in their daily lives, as Elita et al. (2019) highlighted. Solving mathematical problems is essential for students (Ulvah & Afriansyah, 2016). According to Harahap & Surya (2017), mathematical problem-solving ability is a complex cognitive activity where processes and solutions to solve the problems faced require various problem strategies. Meanwhile, according to Layali and Masri (2020), mathematical problem-solving is a more complex thinking process.

From the perspectives shared by the experts above, it is evident that problem-solving proficiency is a fundamental skill imperative for learners, representing a cognitive activity embedded within a more intricate thinking process. Learning how to solve problems during the learning process allows students to think more critically when solving problems, thus making it easier for students to solve problems. Students can apply these mathematical problem-solving skills to learning math, other academic problem-solving, and problem-solving in everyday life. Arends (in Sumartini, 2018) suggests that problem-based learning aims to foster students' cognitive abilities, particularly in critical thinking, problem-solving, and intellectual skills. The advantages of employing problem-solving approaches in education lie in enhancing the overall appeal and engagement of the learning process. According to Djahiri (in Meliansyah, 2017), problem-solving provides several benefits, including developing students' thinking skills and assuming that thinking skills improve with knowledge. Through inquiry or problem-solving skills, thinking of situations or conditions that are genuinely understood and address students' interests and different alternatives; Fostering the development of emotional attitudes (curiosity further) and patterns of objective, independent, crisis thinking, analysis both individually and in groups.

In mathematics education, a crucial aspect lies in the teacher's role in facilitating opportunities for students to engage in problem-solving activities, thereby cultivating a problem-solving framework. Within mathematics instruction, problems are crafted to meet specific criteria conducive to problem-solving. These questions yield diverse outcomes in students' responses, reflecting their problem-solving aptitude, which correlates closely with their developmental stage. Variations in students' problem-solving approaches within the classroom context can lead to errors in solving mathematical problems. Hence, understanding students' problem-solving processes becomes imperative to foster their problem-solving abilities. This knowledge empowers teachers to assist students encountering challenges in problem-solving during the learning process.

In mathematics education, students must possess problem-solving skills as a fundamental competency (Sari et al., 2018). Typically, mathematical challenges encountered in school settings are presented in narrative-based problems (Winarti et al., 2017). Math story problems are a form of assignment that aims to determine students' ability to solve problems (Pradini, 2021). Math story problems are made to facilitate students in applying mathematical concepts (Salemeh & Etchells, 2016), operations and mathematical skills that students have that will be used in everyday life (Pongsakdi et al., 2020). According to Adams (Johar & Lubis, 2018), math story problems are problems in the form of stories with a context or situation in real life.

Math story problems are a form of math problems that include aspects of reading skills, reasoning, analysis, and solution skills. For this reason, students must be able to gain the ability to solve these math story problems. Reading skills are used to translate problems. In contrast, logic is used to know the purpose of a particular problem and the ability to analyse solution steps and apply mathematical concepts to solve the problem (Lestari & Raya, 2019). Math story problems play an important role in everyday life because they show real problems in students' daily lives (Tunu et al., 2022). Math story problems are problems related to everyday life where to find solutions to use mathematical sentences, which include numbers, calculation operations, and relations ($=, <, >, \leq, \geq$) (Suryani et al., 2020). Story problems can be given in two ways, namely orally and in writing. About the story in the form of writing is a sentence that explains daily life activities (Wahyuddin & Ihsan, 2016). In the process of solving narrative math problems, students are required to progress through several essential stages, namely (1) comprehending the problem, (2) devising a plan, (3) executing the plan, and (4) reviewing the outcomes (Kaprinaputri, 2013).

Proficiency in resolving mathematical story problems is a crucial skill among students. This competency holds various advantages, such as enabling students to discern the practical applications of the learned subject matter and enhancing their decision-making abilities, among other benefits derived from adeptness in solving narrative problems. When addressing narrative problems, an essential step involves transforming the story problem into a mathematical model. This process entails converting the problem into a mathematical statement, creating a structured representation of the issue. The translation of mathematical ideas from real problems produced is a mathematical model. Symbols in mathematics that can be used to facilitate the process of solving a problem are called mathematical models.

Mathematical modelling is essential to presenting problem-solving in a structured manner and symbolically or verbally (Bahir & Mampouw, 2020)—the number of symbols used in everyday life (Andriani, 2019). In mathematics learning, mathematical modelling is constructive for students in critical and logical thinking, one of which is providing story problems in solving mathematical problems (Bahir & Mampouw, 2020). In solving problems, students are often less able to solve story problems. This is because in solving story problems, students not

only complete one step, but they must take several steps to solve students' mathematical problem-solving story problems (Gunawan, 2018). Proficiency in solving mathematical problems involves several key components: identifying known elements, defining the requested aspects, formulating mathematical models, solving these models comprehensively, and providing accurate responses. These components are essential to attaining favourable learning outcomes and fulfilling the learning process's objectives (Wahyuddin & Ihsan, 2016). Students' ability levels differ; some students have low-category abilities, medium categories and high categories. This can be used as a reference in teaching and learning (Linola et al., 2017).

Student success in the learning process can be influenced by various factors (Herlina & Dahlia, 2018). The factors that affect students' ability to translate math story problems, according to Handayani Z (2017), are (1) Experience, (2) Motivation, (3) Ability to Understand Problems, and (4) Skills. Several studies that have discussed the analysis of students' abilities in translating math problems were conducted by Hidayati (2012). The objective was to assess the proficiency of eighth-grade junior high school students in converting narrative problems related to cubes and blocks into mathematical models and subsequently finding solutions. Data were collected through test methods, interview methods and documentation methods. This research procedure goes through three preparatory studies: an exploratory general survey and a specific exploratory study. At the same time, Dyah et al. (2019) researched seventh-grade junior high school students with the subject of linear equations of one variable. The subjects used for research amounted to six students with high category ability, medium category, and low category. The study revealed that students did not adhere to Polya's problem-solving steps, which included understanding the problem, translating problems into mathematical models, executing the solution steps, and reviewing the solutions.

This research aims to evaluate the mathematical problem-solving abilities of eighth-grade students in terms of translating story problems related to linear equations of one variable into mathematical models. The study will be conducted at a junior high school in Pekanbaru and will involve 25 students categorised into high (2 students), medium (2 students), and low (2 students) proficiency levels. Additionally, interviews will be conducted with six students representing these proficiency categories. The research will be assessed based on four key indicators: problem comprehension, devising a problem-solving strategy, executing the plan, and reviewing the obtained results.

METHOD

The participants in this study consist of eighth-grade students from a state junior high school in Pekanbaru for the academic year 2023/2024. The selection of classes employed purposive sampling, a technique frequently utilised in qualitative research, as highlighted by Sugiyono (2021). This sampling method was based on discussions between researchers and mathematics teachers teaching eighth grade in the mentioned school. A total of 25 students will participate in the test assessing their mathematical problem-solving skills in translating story problems into mathematical models, categorised as high, medium, and low abilities. Additionally, six students were chosen from each ability category for the interview phase based on the test results.

This study utilises primary and secondary data sources. Primary data sources involve information provided directly to data collectors, while secondary sources encompass information not directly accessible to these collectors, as described by Sugiyono (2021). Primary data in this study comprise written test results from students and interview findings obtained from the

researched students. Secondary data include documentation, such as photos of research activities, books, articles, websites, or other supporting sources. The data collection techniques employed here are crucial as they are the cornerstone for achieving the study's objectives. Without these techniques, researchers could not acquire data aligned with the predetermined standards (Hardani et al., 2020). The techniques used encompass test-based methods involving written tests and non-test methods involving interviews and documentation.

According to Lestari & Yudhanegara (2018), research instruments are tools used to collect data in research. Before conducting research, researchers validated questions first, which were assessed by two experts consisting of 2 lecturers using instrument validation sheets. This validation questionnaire sheet contains questions that validators will observe to determine the questions' validity level. Furthermore, the researcher calculated the validity using the Aiken formula. After knowing the value of Aiken V, the researcher decides whether or not the tested item is valid. If not, then the researcher will revise the invalid item. Still, if it is valid, the next step is to test students starting from the test questions: validity, reliability, difficulty, and differentiating power. After doing the calculations, the researchers researched the class using validated instruments and student trials.

The data analysis encompasses several vital steps, including data reduction, presentation, and drawing conclusions or verification. During the data reduction phase, tasks involve rectifying the outcomes of the students' mathematical problem-solving ability tests to identify research subjects. Raw data from these tests are transcribed into notes, forming the basis for interview materials. Subsequently, the interview outcomes are streamlined into a coherent and comprehensible structure, transforming them into usable data. Following data reduction, the subsequent step involves data presentation. At this juncture, the researcher organises compiled data intocategories or groups. This presented data summarises the results from students' mathematical problem-solving ability tests, interview outcomes, and data analysis findings depicted through tables and descriptive narratives. Finally, the conclusion-drawing phase entails deriving new findings unique to qualitative research. These conclusions might entail explanations or descriptions elucidating previously ambiguous aspects, enhancing post-research understanding.

RESULT AND DISCUSSION

The objective of this study is to assess the proficiency of students in solving mathematical problems. Translating story problems into eighth-grade mathematical models, especially in linear equations of one variable material. Before this study was conducted, researchers gave trial test questions to eighth-grade students, as many as 25 students, to prove the validity of the questions to be calculated using the product moment correlation formula; this calculation was carried out using the SPSS application, the following can be illustrated results in estimating the validity for students' mathematical problem-solving skills in a table below:

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Table 1. Validity of trial Instruments

	Total Score
Question 1	0.680
Question 2	0.660
Question 3	0,703
Question 4	0,621

Based on Table 1, the r-table with a significance level of 5% is 0.396. For question number 1, r-calculated = 0.680 > r-tabel = 0.396, question number 1 is valid. For question number 2, r-calculated = 0.660 > r-tabel = 0.396, question number 2 is valid. For question number 3, r-calculated = 0.703 > r-tabel = 0.396, question number 3 is valid. For question number 4, r-calculated = 0.621 > r-tabel = 0.396, question number 4 is valid. Based on the analysis above, it can be concluded that the four questions are valid because they are r-calculated > r-table. Furthermore, the reliability of the test instrument will be calculated for students' mathematical problem-solving ability tests calculated by SPSS, along with results in estimating the reliability of mathematical problem-solving ability questions.

Table 2. Reliability of Instrument Test Results

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
572	.585	4

Based on Table 2, the results of r-calculated = 0.585 > r-table = 0.396, so it can be stated that the research instrument in the form of a test of students' mathematical problem solving by presenting four questions and tested on 25 testers is reliable with a moderate correlation level and the quality of interpretation reliability is entirely fixed/quite good. Then, the calculation of the difficulty level of each question item is carried out using the Anates application to produce the data below:

Table 3. Difficulty Level of Instrument Test Results

Problem	Difficulty Level (%)	Interpretation
1	68.57	Medium
2	67.14	Medium
3	55.71	Medium
4	64.29	Medium

Based on table 3 shows that the results of the analysis of the difficulty level of each question item show that the four question items have a medium category. To assess students' proficiency in solving mathematical problems by translating linear equations of one variable subject matter story problem into mathematical models, researchers gave a final test to eight grades of as many as 25 subjects after calculating the validity of the questions the results:

Table 4. Student Mathematical Problem-Solving Ability Test Results

	Amount	Average	Percentage (%)
Question 1	551	22.04	88.16
Question 2	553	22.12	88.48
Question 3	519	20.76	83.04
Question 4	317	12.68	50,72
Total score	1940	77.6	310,4

Table 6 shows that the test results above show that the average results on the research test on students' mathematical problem-solving are 77.6%. Three questions have a high average,

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and one question item has a low average with a percentage value of question number 1, 88.16%; question number 2 is 88.48%; question number 3 is 83.04%; and question number 4 is, 50.72%. The test results show that question number 2 has a high percentage of the four questions. Following the results of the preceding mathematical comprehension test, the researcher selected six students to gather information on their mathematical problem-solving capabilities, consisting of two students from each of the high, medium, and low categories. Subsequently, the averages for students in the high, medium, and low categories are provided as follows:

Table 5. Average Problem-solving Ability Test Questions by Category

	High	Medium	Low
Question 1	48	38	40
Question 2	48	50	40
Question 3	50	46	32
Question 4	48	36	0
Average	48,5	42,5	28

According to Table 8, the average scores for students' mathematical problem-solving abilities across categories reveal an average score of 48.5 for the high category, 42.5 for the medium category, and 28 for the low category. After assessing students' mathematical problem-solving abilities through testing, the subsequent phase involves conducting interviews. The forthcoming analysis focuses on evaluating students' mathematical problem-solving skills within the high category.

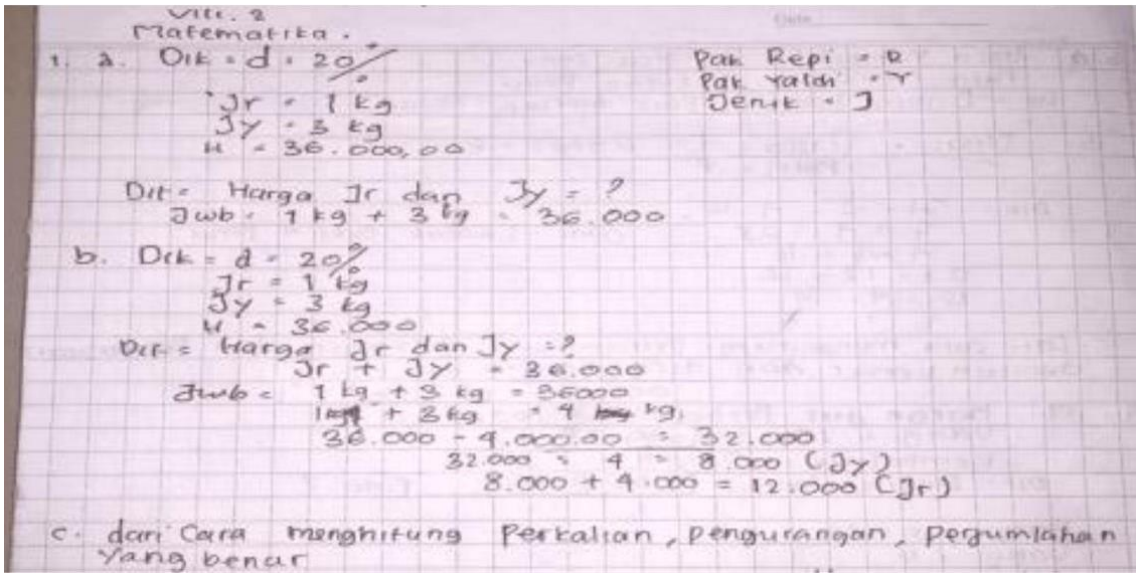

Figure 1. Answer Sheet Subject S-3 Question Number 1

Based on the student's answers to the questions, a number 1 student can analyse the steps of solving the questions given so that they are correct in solving the problem. Still, students do not apply the linear equation of one variable concept at the stage of implementing the plan because they do not understand the idea, and students do not make conclusions. It is also reinforced by the results of the researchers' interviews with students who do not understand the

concept of linear equations of one variable. Still, students mention the steps in completion in total, so it can be concluded that students are less able to use mathematical problem-solving concepts.

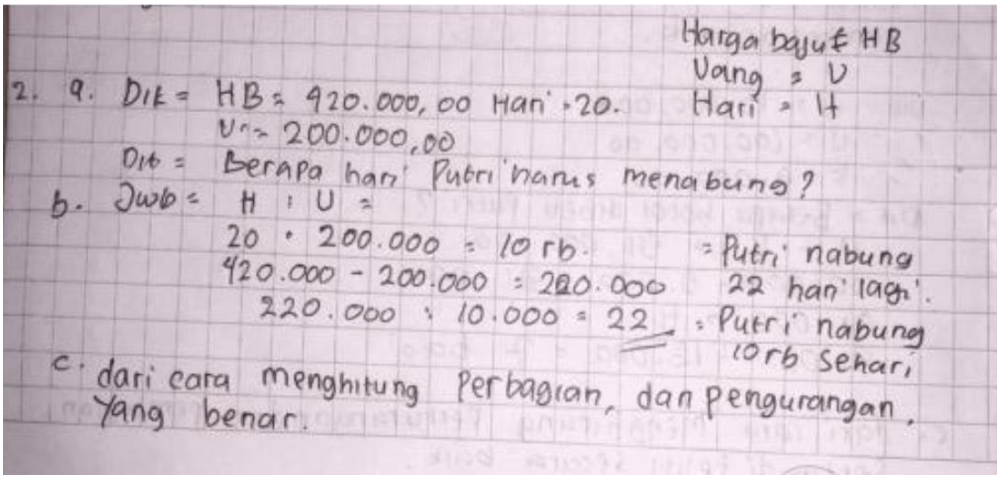

Figure 2. Answer Sheet Subject S-3 Question Number 2

In question number 2, students can analyse the steps of solving given questions so that they are correct in solving the problem. Still, students do not apply the linear equation of one variable concept at the stage of implementing the plan because they do not understand the idea. It is also reinforced by a result of the researchers' interviews with students who do not understand the concept of the linear equation of one variable; St students mention the steps in completion in total, so it can be concluded that students are less able to use mathematical problem-solving concepts.

A triangulation approach is applied to authenticate the data regarding students' mathematical problem-solving skills, cross-referencing the outcomes from the problem-solving ability test with the results obtained from interviews. Subsequently, conclusions are drawn. Below is an excerpt from the researcher's interview with the S-3 subject:

R: Have you read the questions that must be solved?
S-3: Already
R: Are you able to explain what you know and what you ask?
R: After knowing the information about what was asked in the question, then what will you do to solve the problem?
S-3: By way of answering the first formula, continue the way of calculation ofthe exact result
R: We look at all your answer sheets; why don't you use the PLSV concept when solving the problem?
S-3: What does it mean, ma'am?
R: Have you made an example of the question that has been answered, butwhy don't you include that example when solving the problem?
S-3: oh, that's ma'am, because I prefer to do it with that method, mom
R: Well, are you sure your answer is correct? Why?
S-3: After calculating it again, I believe the answer is correct
R: What do you think about the shape of the story?
S-3: For example, for story problems, I like the story because it is clearer; for story problems, it is easier.

Based on the interview above findings, it can be deduced that inquestions 1, 2, and 4, students display proficiency in following the steps of mathematicalproblem-solving. However, there's a deficiency in implementing plans for applying concepts, which is corroborated by the outcomes of student interviews conducted by researchers. According to NCTM, the mathematics

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learning process encompasses five criteria, including applying mathematical concepts and skills to resolve problems. Rizka et al. (2014) note that students have yet to meet the learning objectives aligned with content standards. Similarly, as outlined in Number 22 of 2016, the Ministry of Education and Culture emphasises students' lack of comprehension regarding the purpose of learning mathematics. Sanjaya (in Effendi, 2017) contends that students' struggle in grasping concepts stems from their inability to apply these concepts within their cognitive structure effectively. Students' mastery of concepts tends to improve when they can use these concepts effectively (Pitedjeng, 2015). These rules governing concepts are interrelated, as Waluyo et al. (2019) highlighted. Next, let's analyse the mathematical problem-solving abilities of students falling within the medium category.

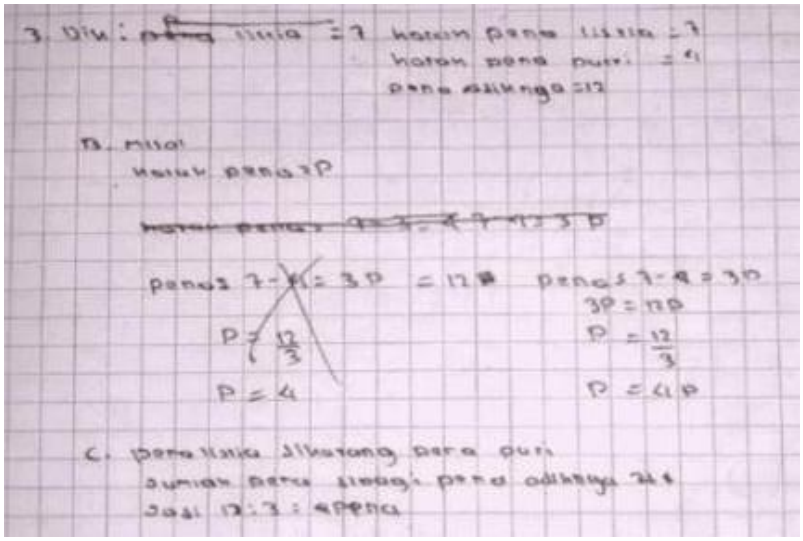

Figure 3. Answer Sheet Subject S-23 Question Number 3

In question number 3, students exhibit proficiency in analysing the steps required to solve the given problem. However, they falter in the execution phase, displaying errors in the problem-solving process, which indicates a deficiency in grasping algebraic concepts. This inadequacy in understanding algebraic concepts is further supported by insights gathered from researcher interviews with the students. Hence, it is evident that students lack a comprehensive understanding of algebraicconcepts.

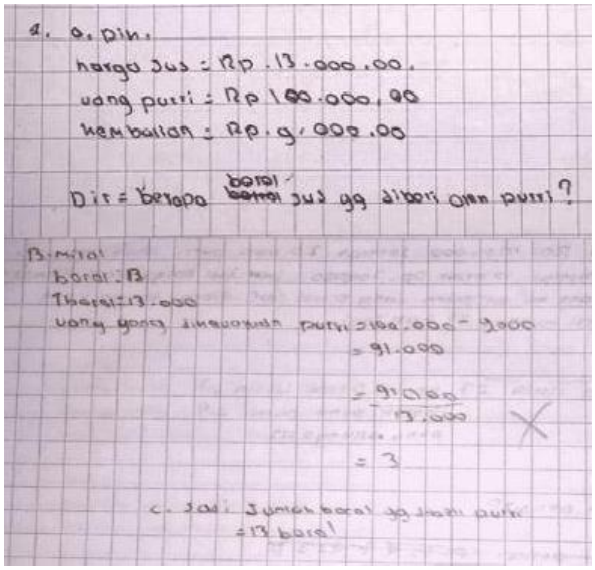

Figure 4. Answer Sheet Subject S-23 Question Number 4

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In question number 4, students are less able to use algebra, so it produces incorrect final results. This is also reinforced by the results of the researchers' interviews with students who are less able to operate algebra on division to make the final wrong answer, so it can be concluded that students are less capable of the operation of algebra. A triangulation approach is applied to authenticate the data regarding students' mathematical problem-solving abilities, cross-referencing the outcomes from the problem-solving ability test with the results obtained from interviews. Subsequently, conclusions are drawn. Below is an excerpt from the researcher's interview with Subject S-23:

R: Have you read the questions that must be solved?
S-23: Already ma'am
R: Are you able to explain what you know and what you ask?
S-23: Capable ma'am
R: After knowing the information about what was asked in the question, then what will you do to solve the problem?
S-23: Working on it, ma'am
R: Try to see in your answer paper, here you write 3p = 12p. Can this equation be solved?
S-23: I think it can be
ma'am
R: Why?
S-23: Therefore, two equations are the same, so that it can be done
R: Then, are you sure your division results are correct?
S-23: Rp100,000-Rp9,000=Rp91,000, then,91,000-13,000. = 3, so the bottle of juice that Princess 3 bought
R: Are you sure your answer is correct?
S-23: Sure ma'am
R: Why don't you use the PLSV concept to solve the problem?
S-23: What is the PLSV concept?
R: We insert the variable into the constraint that we have created
S-23: I forgot to apply it, ma'am because the time is in a hurry
R: All right then

Based on the statement above, we can conclude that in questions 1 and 2, students can identify and justify solving mathematical problems. In question number 3, students misunderstand the concept of algebra. In question number 4, students cannot use algebra in division operations to produce the wrong final results. The results of student interviews with researchers also reinforce this. One of the materials taught in junior high school is algebraic operations (Febriana & Masjudin, 2019). In solving story problems, students must be able to calculate and solve problems with the right formula and write the correct answers (Ratnamutia & Pujiastuti, 2020). According to Kholilah (2019), students are unable to use the concepts of algebraic operations and substitution correctly, so they cannot find the final solution to the problem appropriately. Errors in working on problems given at one stage can cause errors in the final answer (Halawa & Heksa, 2021). In line with the opinion of Damayanti et al. (2017), a student's learning difficulties in solving problems can be

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found from errors in solving problems. Then, an analysis of the mathematical problem-solving skills of low-category students will be conducted.

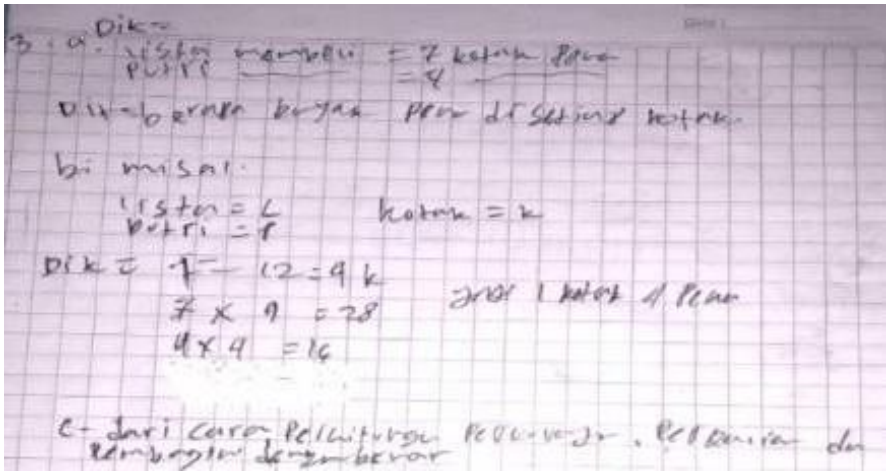

Figure 5. Answer Sheet Subject S-16 Question Number 3

In question number 3, students struggle to execute the steps necessary to solve the problems, resulting in incorrect outcomes. Additionally, students fail to apply relevant concepts during the problem-solving process. This observation is further supported by insights from the researchers' student interviews. Hence, it can be inferred that students face challenges in identifying and justifying the solutions to mathematical problems.

Figure 6. Answer Sheet Subject S-16 Question Number 4

In question number 4, students encounter difficulties in executing the instructions provided within the questions. This is corroborated by interview findings indicating that students struggle to comprehend the given questions. Additionally, students perceive the story-based questions as challenging due to their length, resultingin a lack of interest in reading them. Consequently, it can be inferred that students face challenges in identifying and justifying solutions to mathematical problems. To authenticate the data concerning students' mathematical problem-solving abilities, a triangulation method combines the problem-solving ability test results with interview outcomes, followed by drawing conclusions. The subsequent excerpt presents the researcher's interview with Subject S-16:

R: Have you read the questions that must be solved?
S-16: Already
R: Are you able to explain what you know and what you ask?S-
16: Capable
R: After knowing the information about what was asked in the question, then what will you do to solve the problem?
S-16: Answer it ma'am
R: After knowing what is known and asked, what is the next step?

S-16: Done mom, e.g. listia l, daughter p, box k. then 7 = 12 = 4k, then 7 x 4 = 28,then 4 x 4 = 16, only until there I did it ma'am
R: 7 and 4 are what?
S-16: 7 have many Listia pen boxes, and 4 have pen boxes. Princess ma'am
R: Why does 7=12=4k mean?
S-16: I saw my friend, ma'am, so I don't know
R: Why don't you do it all the way?
S-16: I don't understand ma'am
R: What do you think about question number 4? Do you know, and are you asking?
S-16: Lack of understanding about it because I didn't make it
R: That means you don't know how to solve question number 4?
S-16: Yes
R: Why don't you know?
S-16: Because I think question number 4 is complex, ma'am, and challenging tounderstand
R: All right

Based on the statement above, we can conclude that in questions 1 and 2, students can identify and justify solving mathematical problems. In question number 3, students cannot complete the steps for solving a given question and do not use concepts. In question number 4, students cannot make the commands given and think the story is complex, which causes a lack of student interest in reading. The results of interviews also reinforce this. The use of learning media has a good impact on understanding the problems given (Harefa & La'ia, 2021). Learning media is a tool to convey messages to students to achieve learning objectives (Widodo & Wahyudin, 2018). Learningmedia is one of the most critical factors in learning (Riskawati, 2020). Learning media is growing with technological advances (Syamsudin et al., 2021). The development of learning media and technology needs to be supported by teachers as professionals and media in delivering mathematical concepts (Nuraeni L et al., 2021). Proper implementation can foster student interest in learning (Firmadani, 2020). Then, according to Iriantara (in Syekhnurjati, 2018), the meaning of text has been expanded to include text at the visual, audiovisual, and computer levels. Various senses can facilitate learning (Angraini et al., 2022). Audiovisuals in mathematics learning can increase student interest in mathematics learning (Hariati, 2022). In addition, research conducted by Wahyuni et al. (2015) showed that audiovisual-based learning media can improve student learning outcomes.

As per Aida et al. (2017), proficiency in comprehending concepts and solving mathematical problems is crucial for addressing real-life challenges. Based on these assertions, it can be inferred that students' proficiency in understanding concepts and problem-solving plays a pivotal role. Adept students can tackle problems and attain desired objectives by following problem-solving procedures. Polya (in Astutiani et al., 2017) outlines four critical stages in solving mathematical problems. Comprehension

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of the problem involves identifying the given information and understanding what is known and asked about the problem. Planning: Students should translate the narrative problem into mathematical equations, discerning the operations required to solve it. Execution of the plan: Students implement the formulated plan to solve the issues. Verification: To ensure accuracy, students must review the steps taken, including algebraic operations and concepts.

The study delves into students' mathematical problem-solving skills within story-based scenarios. The average student capability score in translating story problems into mathematical models was 77.6%. Of the total, 24% of students achieved high scores, 64% secured medium grades, and 12% attained low grades. Although students demonstrated moderate proficiency in answering questions, their performance varied across different questions: question 1 had an average success rate of 88.16%, question 2 had 88.48%, question 3 had 83.04%, and question 5 had 50.72%. While students effectively tackled questions 1, 2, and 3, they faced challenges solving question 4. This difficulty was confirmed through interviews with students, who found question 4 challenging and encountered time constraints while attempting it. Students required more time to comprehend and solve these questions adequately. The subsequent findings focus on students' mathematical problem-solving abilities, categorised into high, medium, and low levels and evaluated by the researchers.

a) The problem-solving proficiency among students categorised as high achievers in mathematics.

   S-3 students effectively resolved problems 1, 2, and 4, yet faced challenges in employing the linear equation of one variable method or comprehending related concepts. Sanjaya (in Effendi, 2017) suggests that students struggle with conceptual understanding arises from difficulty applying these concepts within their cognitive framework. Mastery of an idea is enhanced when students can effectively use it (Pitedjeng, 2015). Consequently, it can be inferred that S-3 students encounter difficulties applying mathematical concepts, specifically in solving problems related to linearequations of one variable. Conversely, S-15 students adeptly navigated all problem-solving steps across the given questions. This aligns with Polya's theory (in Astutiani et al., 2017), which outlines four stages in problem-solving: understanding the problem, planning, executing the plan, and verifying the solution. As per Polya's theory, it can be concluded that S-15 students exhibit proficiency and skill in problem-solving.

b) The problem-solving capability within the group of students classified asmedium achievers in mathematics.

   S-22 participants exhibit limited problem-solving proficiency, as evidenced by the researchers' assessments. While these students identified and rationalised solutions for questions 2 and 3, they encountered challenges in comprehending the problem in question 1. They struggled to formulate and execute plans in alignment with the concepts of linear equations with one variable. Additionally, for question 4, they faced difficulty executing plans based on the linear equation concept. Wijaya & Masriyah (2013) highlight various indicators of misconceptions related to the subject matter. Consequently, it can be inferred that S-22 participants misconceived aspects such as problem understanding, conceptualisation of variables for mathematical models, and translating problems into mathematical representations. Likewise, S-23 participants also displayed limited problem-

solving abilities. While they successfully identified and justified solutions for questions 1 and 2, they faltered in understanding algebraic concepts in question 3. Furthermore, in question 4, they struggled with algebraic operations, particularly division. Aligning with Kholilah's research (2019), it can be inferred that these students faced challenges in correctly applying algebraic operations and substitutions, leading to inaccurate problem-solvingoutcomes.

c) The problem-solving skills among students categorised as having low proficiency in mathematics.

S-16 participants demonstrated limited proficiency in resolving mathematical problems, as indicated by their performance in the problem-solving ability test. Specifically, in question 3, these students struggled to execute the steps necessary for solving the given problems and failed to applythe concept of linear equations with one variable. Additionally, in question 4, S-16 participants encountered difficulties interpreting instructions and findingthe story challenging, contributing to their lack of engagement in reading. Learning media serves as a tool to convey educational messages to students and aid in achieving learning objectives (Widodo & Wahyudin, 2018). Research by Wahyuni et al. (2015) highlighted the positive impact of audiovisual-based learning media in enhancing student learning outcomes. Similarly, S-12 participants exhibited limited proficiency in solving mathematical problems, evident in their problem-solving test performance. In question number 3, students faced challenges in executing algebraic operations, while in question number 4, they struggled to follow the given instructions. These students encountered difficulty associating different concepts with algebraic forms, which hindered their problem-solving abilities (Kurniawan et al., 2017).

Therefore, based on the conducted tests and interviews, the following descriptions can be outlined:

1. Understand the problem

   Based on the researchers' findings, students exhibit varying proficiency levels in comprehending problems. Higher and moderate-ability students excel in identifying given problems compared to those with lower abilities. Lower-ability students struggle to articulate the elements required in the question, often influenced by their lack of interest in reading, particularly with lengthy narrative questions. Lubis et al. (2022) emphasised that utilising audiovisual aids in learning promotes interest and encourages students to remain attentive during lessons. Therefore, incorporating audiovisual aids in presenting problem-solving questions could help mitigate students' reading comprehension challenges.

2. Make a plan

   According to the research conducted by the researchers, variations exist in problem-solving abilities among students based on their performance. Students with higher scores in problem-solving exhibit detailed planning and articulation when solving given problems. Those with moderate scores can solve mathematical problems and draft plans, often showing a tendency to mimic question structures. Conversely, low-scoring students exhibit basic skills and cannot articulate plans and steps during interviews.

3. Implement the plan

   The execution of plans by students showcases distinct differences. Those with high proficiency in mathematical problem-solving exhibit accurate problem-solving abilities and a firm grasp of concepts. On the other hand, students with moderate proficiency tend to make errors during problem-solving, as highlighted in researcher interviews, indicating persistent

mistakes in executing plans. Meanwhile, students with low mathematical problem-solving abilities frequently make mistakes during problem-solving, merely restating known information during the plan execution phase.

4. Checking back

   Student adept in problem-solving articulate comprehensive conclusions detailing their final findings. Conversely, others omit writing conclusions and solely note the ultimate result. During interviews, high-problem-solving students confidently verify the accuracy of their answers, having checked them multiple times. However, those with moderate or low mathematical problem-solving abilities typically deviate from this pattern. This is evident in the results: while students with moderate abilities effectively execute plan steps, those with lower abilities seldom include conclusive statements.

CONCLUSION

The analysis of data concerning students' mathematical problem-solving skills in converting story problems into mathematical models led to the classification of three distinct categories: high, medium, and low. Students in the high category effectively executed the various stages of problem-solving, whereas those in the medium and low categories encountered challenges primarily during the implementation of solution plans and rechecking completed answers. The researchers observed distinct problem- solving approaches among students, delineated into high, medium, and low categories. High-category students successfully completed 4 or 3 steps of problem-solving, medium-category students managed 3 or 2 steps, while low-category students were limited to completing only 2 or 1 step in the problem-solving process.

REFERENCES

Abrar, A. I. P. (2018). Jenis-Jenis Belajar Matematika. Al-Khwarizmi: Jurnal Pendidikan Matematika Dan Ilmu Pengetahuan Alam, 3(1), 51–62. https://doi.org/10.24256/jpmipa.v3i1.218

Aida, N., Kusaeri, K., & Hamdani, S. (2017). Karakteristik Instrumen Penilaian Hasil Belajar Matematika Ranah Kognitif yang Dikembangkan Mengacu pada Model PISA. Suska Journal of Mathematics Education, 3(2), 130. https://doi.org/10.24014/sjme.v3i2.3897

Alzaber, A., Suripah, S., & Susanti, W. D. (2021). Pengembangan Buku Ajar Untuk Memfasilitasi Perkuliahan Dasar Dan Proses Pembelajaran Matematika (Dppm). Aksioma: Jurnal Program Studi Pendidikan Matematika, 10(4), 2291. https://doi.org/10.24127/ajpm.v10i4.4131

Andriani, L. (2019). Analisis Kesalahan Mahasiswa Dalam Meyelesaikan Soal Himpunan di Program Studi Pendidikan Matematika UIN Suska Riau. Jurnal Cendekia : Jurnal Pendidikan Matematika, 3(2), 550–562. https://doi.org/10.31004/cendekia.v3i2.146

Angraini, L. M., Arcat, A., & Sohibun, S. (2022). Pengaruh Bahan Ajar Berbasis Multimedia Interaktif terhadap Kemampuan Computational Thinking Matematis Mahasiswa.

JNPM (Jurnal Nasional Pendidikan Matematika), 6(2), 370. https://doi.org/10.33603/jnpm.v6i2.6937

Angraini, L. M., Kania, N., & Gürbüz, F. (2024). Students' Proficiency in Computational Thinking Through Constructivist Learning Theory. International Journal of Mathematics and Mathematics Education, 2(1), 45–59. https://doi.org/10.56855/ijmme.v2i1.963

Angraini, L. M., Larsari, V. N., Muhammad, I., & Kania, N. (2023). Generalizations and analogical reasoning of junior high school viewed from Bruner's learning theory.Infinity, 12(2), 291-306

As'ari, A. R. (2014). Mengupayakan Pembelajaran yang Sesuai Tuntutan Kurikulum 2013. Makalah disajikan dalam Seminar Pendidikan, Kerjasama Dinas Pendidikan Kota Waringin Barat dan Universitas Palangkaraya, Pangkalan Bun, Kalimantan Tengah, 27 September.

Astutiani, R., Isnarto, & Hidayah, I. (2017). Analisis Kemampuan Siswa Dalam Menyelesaikan Soal Cerita Berdasarkan Langkah Pemecahan Masalah Polya. Mathematics Education Journal, 1(1), 54. https://doi.org/10.22219/mej.v1i1.4550

Andrian D., et al. (2020). Pengaruh Pembelajaran Kooperatif Tipe STAD Terhadap Peningkatan Hasil Belajar, Sikap Sosial, dan Motivasi Belajar. Inomatika, 2(1), 65–75. https://doi.org/10.35438/inomatika.v2i1.163

Bahir, R. A., & Mampouw, H. L. (2020). Identifikasi Kesalahan Siswa SMA dalam Membuat Pemodelan Matematika dan Penyebabnya. Jurnal Cendekia : Jurnal Pendidikan Matematika, 4(1), 72–81. https://doi.org/10.31004/cendekia.v4i1.161

Budiman, M. A. (2023). Optimalisasi Hasil Pembelajaran: Penerapan Model Pembelajaran Jigsaw dalam Pendidikan Sejarah untuk Menganalisis Perjuangan Kemerdekaan Indonesia. Progressive of Cognitive and Ability, 2(4), 369–377. https://doi.org/10.56855/jpr.v1i4.745

Cahyani, C. A., & Sutriyono, S. (2018). Analisis Kesalahan Siswa Dalam Menyelesaikan Soal Pada Materi Operasi Penjumlahan dan Pengurangan Bentuk Aljabar Bagi Siswa Kelas VII SMP Kristen 2 Salatiga. JTAM | Jurnal Teori Dan Aplikasi Matematika, 2(1), 26. https://doi.org/10.31764/jtam.v2i1.257

Damayanti, N. W., Mayangsari, S. N., & Mahardika, L. T. (2017). Analisis Kesalahan Siswa Dalam Pemahaman Konsep Operasi Hitung Pada Pecahan. Edutic - Scientific Journal of Informatics Education, 4(1), 1–7. https://doi.org/10.21107/edutic.v4i1.3389

Dubinsky, E., & Harel, G. (1992). The Nature of The Process Conception of Function. Dalam G. Harel & E. Dubinsky (Eds.), The Concept of Function: Aspects of Epistemology and Pedagogy (hlm. 85- 106).Washington, DC: Mathematical Association of America.

Dyah, F., Sholikhah, A., Studi, P., Matematika, P., Keguruan, F., Ilmu, D. A. N., & Surakarta, U. M. (2019). Menerjemahkan Soal Cerita Kedalam Model Matematika dan Penyelesaiannya (Pokok Bahasan PLSV Kelas VII SMP Negeri 2 Banyudono). Universitas Muhammadiyah Surakarta.

Effendi, K. N. S. (2017). Pemahaman Konsep Siswa Kelas Viii Pada Materi Kubus Dan Balok. Symmetry: Pasundan Journal of Research in Mathematics Learning and Education, 2(4), 87–94. https://doi.org/10.23969/symmetry.v2i2.552

Elita, G. S., Habibi, M., Putra, A., & Ulandari, N. (2019). Pengaruh Pembelajaran Problem Based Learning dengan Pendekatan Metakognisi terhadap Kemampuan Pemecahan Masalah Matematis. Mosharafa: Jurnal Pendidikan Matematika, 8(3), 447–458. https://doi.org/10.31980/mosharafa.v8i3.517

Fitriana, W.D. (2015). Pemisahan dan Identifikasi Antioksidan dari Daun Kelor. Tesis tidak diterbitkan. Surabaya: Pascasarjana Institut Teknologi Sepuluh Nopember.

Febriana, B. L. S., & Masjudin, M. (2019). Analisis Kesulitan Siswa Dalam Menyelesaikan Soal Operasi Bentuk Aljabar Kelas VIII MTs. Media Pendidikan Matematika, 7(2), 25. https://doi.org/10.33394/mpm.v7i2.2192

Firmadani, F. (2020). Media Pembelajaran Berbasis Teknologi Sebagai Inovasi Pembelajaran Era Revolusi Industri 4.0. Prosiding Konferensi Pendidikan Nasional, 2(1), 93–97. http://ejurnal.mercubuana-yogya.ac.id/index.php/Prosiding_KoPeN/article/view/1084/660

Gunawan, A. (2018). Analisis Kesalahan Dalam Menyelesaikan Soal Cerita Pada Mata Pelajaran Matematika Siswa Kelas V Sdn 59 Kota Bengkulu. Jurnal PGSD, 9(2), 216–225. https://doi.org/10.33369/pgsd.9.2.216-225

Halawa, J. S., & Heksa, D. (2021). Analisis Kesalahan Siswa Menyelesaikan Soal Pemahaman Konsep pada Materi Relasi dan Fungsi. Primatika : Jurnal Pendidikan Matematika, 10(1), 11–18. https://doi.org/10.30872/primatika.v10i1.369

Handayani Z, K. (2017). Analisis Faktor – Faktor Yang Mempengaruhi Kemampuan Pemecahan Masalah Soal Cerita Matematika. Seminar Nasional Matematika: Peran Alumni Matematika dalam Membangun Jejaring, 325–330.

Harahap, E. R., & Surya, E. (2017). Kemampuan Pemecahan Masalah Matematis Siswa Kelas VII Dalam Menyelesaikan Persamaan Linear Satu Variabel. Edumatica, 07(01), 44–54. Hardani dkk. (2020). Buku Metode Penelitian Kualitatif dan Kualitatif. In Repository.Uinsu.Ac.Id (Issue April).

Harefa, D., & La'ia, H. T. (2021). Media Pembelajaran Audio Video Terhadap Kemampuan Pemecahan Masalah Matematika Siswa. Aksara: Jurnal Ilmu Pendidikan Nonformal, 7(2), 327. https://doi.org/10.37905/aksara.7.2.327- 338.2021

Hariati, I. N. (2022). Pengembangan Media Pembelajaran Audio Visual untuk Meningkatkan Kemampuan Siswa Dalam Pemecahan Masalah Matematika Pada Siswa Sd Berbasis E-Learning. Jurnal Riset Pembelajaran Matematika, 4(2), 49–54. https://doi.org/10.55719/jrpm.v4i2.522

Herlina, S., & Dahlia, A. (2018). Mahasiswa Calon Guru Ditinjau Dari Cognitive Style Berdasarkan Field Independent Dan Field Dependent. AdMathEdu: Mathematics Education, 8(1), 35–48. https://core.ac.uk/download/pdf/295346900.pdf

Hidayati. (2012). Analisis Kemampuan Siswa Smp Dalam Menerjemahkan Soal Cerita Ke Dalam Model Matematika Dan Penyelesaiannya. Materials Science and Engineering A, 27(1), 1–14.

Jacob, B., Lager, C., & Moon, K. (2009). Covariation and Function: Developing Mathematical Knowledge for Teaching in Pre-service Secondary Teachers. Center for Mathematical Inquiry Current Research, (Online), (http://math.ucsb.edu/department/cmi/CovariationFunctionPaper.pdf, diakses 27 juni 2013).

Johar, R., & Lubis, K. R. (2018). The analysis of students' mathematical representation errors in solving word problem related to graph. Jurnal Riset Pendidikan Matematika, 5(1), 96–107. https://doi.org/10.21831/jrpm.v5i1.17277

Kania, N., Dadang Juandi, & Fitriyani, D. (2022). Implementasi Teori Pemecahan Masalah Polya dalam Pembelajaran Matematika. Progressive of Cognitive and Ability, 1(1), 42–49. https://doi.org/10.56855/jpr.v1i1.5

Kaprinaputri, A. P. (2013). Kemampuan Menyelesaikan Soal Cerita Matematika. Jiv, 8(1), 10–15. https://doi.org/10.21009/jiv.0801.2

Kemendikbud. (2013). Peraturan Menteri Pendidikan dan Kebudayaan No 65 Tahun 2013 tentang Standar Proses. Jakarta: Kementerian Pendidikan dan Kebudayaan.

Kholilah, A. (2019). Analisis kemampuan pemahaman konsep matematis pada materi fungsi ditinjau dari multiple intelligences sesuai teori gardner siswa kelas X SMAN 1 Kendal tahun pelajaran 2018/2019. Skripsi. http://eprints.walisongo.ac.id/10402/

Kurniawan, E., Mulyati, S., & Rahardjo, S. (2017). Proses Asimilasi Dan Akomodasi Dalam Memecahkan Masalah Matematika Berdasarkan Kecerdasan Emosional. Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan, 2(5), 592–598. http://journal.um.ac.id/index.php/jptpp/

Layali, N. K., & Masri. (2020). Kemampuan Pemecahan Masalah Matematis Melalui Model Model Treffinger di SMA N 6 Kota Bengkulu. Jurnal Pendidikan Matematika Raflesia, 05(02), 122–129.

Lestari, D., & Raya, D. P. (2019). Analisis kemampuan siswa SMP dalam menerjemahkan soal cerita kedalam model matematika dan penyelesaiannya. Jurnal Akademik Pendidikan Matematika FKIP Unidayan, 5(1), 49–54.

Lestari, I. (2015). Pengaruh Waktu Belajar dan Minat Belajar terhadap Hasil Belajar Matematika. Formatif: Jurnal Ilmiah Pendidikan MIPA, 3(2), 115–125. https://doi.org/10.30998/formatif.v3i2.118

Linola, D. M., Marsitin, R., & Wulandari, T. C. (2017). Analisis Kemampuan Penalaran Matematis Peserta Didik dalam Menyelesaikan Soal Cerita di SMAN 6 Malang. Pi: Mathematics Education Journal, 1(1), 27–33. https://doi.org/10.21067/pmej.v1i1.2003

Lubis, N., Ruhiyat, Y., & Rusdiyani, I. (2022). Pengembangan Video Pembelajaran IPA Dalam Upaya Meningkatkan Pemahaman Pergerakan Tata Surya Siswa Kelas VI SDN

Cibeber. Mendidik: Jurnal Kajian Pendidikan Dan Pengajaran, 8(1), 41–50. https://doi.org/10.30653/003.202281.205

Meliansyah. (2017). Penggunaan Metode Problem Solving Untuk Meningkatkan Hasil Belajar Silswa Pada Konsep Bakteri. Http://Repository.Unpas.Ac.Id/, 11–56.

Nuraeni L, E., Muharram, M. R. W., & Fajrin, B. S. (2021). Desain Game Edukasi Sifat-Sifat Bangun Datar Segiempat Menggunakan Aplikasi Scratch. Attadib: Journal of Elementary Education, 5(2), 140. https://doi.org/10.32507/attadib.v5i2.962

Pitedjeng. (2015). Peningkatan pemahaman Konsep Matematika. Nhk, 151(449), 2–5.

Pongsakdi, N., Kajamies, A., Veermans, K., Lertola, K., Vauras, M., & Lehtinen, E. (2020). What makes mathematical word problem solving challenging? Exploring the roles of word problem characteristics, text comprehension, and arithmetic skills. ZDM - Mathematics Education, 52(1), 33–44. https://doi.org/10.1007/s11858-019-01118-9

Pradini, W. (2021). Analisis Kesalahan Siswa Dalam Menyelesaikan Soal Sistem Persamaan Linear Dua Variabel. Jurnal Amal Pendidikan, 2(2), 130. https://doi.org/10.36709/japend.v2i2.19563

Panusuk, R. M. & Horton, L. B. (2012). Integrating History of Mathematics into Curriculum: What are the Chances and Constrain?. International Electronic Journal of Mathematics Education., 7 (1), (Online), (http://www.iejme.com, diakses 3 Agustus 2013).

Ratnamutia, S. A., & Pujiastuti, H. (2020). Analisis Kesulitan Siswa SMP dalam Mengidentifikasi dan Menyelesaikan Soal Cerita Persamaan Linear Satu Variabel. Didaktis: Jurnal Pendidikan Dan Ilmu Pengetahuan, 20(2), 189–199. https://doi.org/10.30651/didaktis.v20i2.4785

Riskawati. (2020). Problematika Penggunaan Media Audiovisual Dalam Pembelajaran Seni Budaya Di Kelas VIII SMP Negeri 26 Makassar. Skripsi, 1–25.

Rizka, N., Syarifuddin, H., & Suherman. (2014). pengaruh penerapan strategi REACT terhadap kemampuan pemahaman konsep matematika siswa kelas 10 SMAN 2 Payakumbuh. 3(2), 44–48.

Salemeh, Z., & Etchells, M. J. (2016). Issue: Special Issue. Electronic International Journal of Education, Arts, and Science, 2(Special Issue), 149–163. http://www.eijeas.comhttp//www.eijeas.com

Sari, L. N. I., Ferdiani, R. D., & Yuwono, T. (2018). Analisis Kesalahan Dalam Menyelesaikan Soal Cerita Berdasarkan Teori Newman. Kependidikan Dasar Islam Berbasis Sains, 1(1).

Sumartini, T. S. (2018). Peningkatan Kemampuan Pemecahan Masalah Matematis Siswa melalui Pembelajaran Berbasis Masalah. Mosharafa: Jurnal Pendidikan Matematika, 5(2), 148–158. https://doi.org/10.31980/mosharafa.v5i2.270

Suryani, M., Jufri, L. H., & Putri, T. A. (2020). Analisis Kemampuan Pemecahan Masalah Siswa Berdasarkan Kemampuan Awal Matematika. Mosharafa: Jurnal Pendidikan Matematika, 9(1), 119–130. https://doi.org/10.31980/mosharafa.v9i1.605

Syamsudin, A., Mufti, R., Habibie, M. I., Wijaya, I. K., & Sofiastuti, N. (2021). Pengembangan Game Edukasi Berbasis Web Pada Materi Bangun Ruang Dengan Construct 2. Journal Focus Action of Research Mathematic (Factor M), 4(1), 63–76. https://doi.org/10.30762/factor_m.v4i1.3355

Syekhnurjati. (2018). Hubungan Gerakan Literasi dengan minat baca siswa kelas VII di SMP Negeri Kota cirebon. 8–22. Tunu, D. J. I., Daniel, F., & Gella, N. J. M. (2022). Analisis Kemampuan Menyelesaikan Soal Cerita Matematika Siswa ditinjau dari Gender. Jurnal Cendekia : Jurnal Pendidikan Matematika, 6(2), 1499–1510. https://doi.org/10.31004/cendekia.v6i2.1366

Ulvah, S., & Afriansyah, E. A. (2016). Kemampuan Pemecahan Masalah Matematis Siswa ditinjau melalui Model Pembelajaran SAVI dan Konvensional. Jurnal Riset Pendidikan, 2(2), 142–153. http://hikmahuniversity.ac.id/lppm/jurnal/2016/text07.pdf

Wahyuddin, W., & Ihsan, M. (2016). Analisis Kemampuan Menyelesaikan Soal Cerita Matematika Ditinjau Dari Kemampuan Verbal Pada Siswa Kelas Vii SMP Muhammadiyah Se-Kota Makassar. Suska Journal of Mathematics Education, 2(2), 111. https://doi.org/10.24014/sjme.v2i2.2213

Wahyuni, T., Widiyatmoko, A., & Akhlis, I. (2015). Efektivitas Penggunaan Media Audiovisual Pada Pembelajaran Energi Dalam Sistem Kehidupan Pada Siswa Smp. Unnes Science Education Journal, 4(3), hal 1000.

Waluyo, E. M., Muchyidin, A., & Kusmanto, H. (2019). Analysis of Students Misconception in Completing Mathematical Questions Using Certainty of Response Index (CRI). Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah, 4(1), 27–39. https://doi.org/10.24042/tadris.v4i1.2988

Widodo, S. A., & Wahyudin. (2018). Selection of Learning Media Mathematics for Junior School Students. Turkish Online Journal of Educational Technology - TOJET, 17(1), 154–160. https://eric.ed.gov/?id=EJ1165728

Wijaya, A. A., & Masriyah. (2013). Analsis Kesalahan Siswa dalam Menyelesaikan Soal Cerita pada Materi Sistem Linear Dua Variabel. MATHEdunesa, 2(1), 1–7.

Winarti, D., Jamiah, Y., & Suratman, D. (2017). Kemampuan Pemecahan Masalah Siswa dalam Menyelesaikan Soal Cerita Berdasarkan Gaya Belajar pada Materi Pecahan di SMP. Jurnal Pendidikan Dan Pembelajaran Khatulistiwa, 6(6), 1–9.

Yolanda, F., & Sthephani, A. (2021). Analisis Kesalahan Mahasiswa Pendidikan Matematika UIR pada Penyelesaian Analisis Kompleks. SJME (Supremum Journal of Mathematics Education), 5(1), 32–42. https://doi.org/10.35706/sjme.v5i1.4393

Zetriuslita, Z., Ariawan, R., & Nufus, H. (2016). Analisis Kemampuan Berpikir Kritis Matematis Mahasiswa Dalam Menyelesaikan Soal Uraian Kalkulus Integral

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BIOGRAFI PENULIS

	Putri Nurjanah is a student in the Mathematics Education Department of Universitas Islam Riau.
	**Dr. Lilis Marina Angraini, M.Pd,** Born in Terantang, March 21, 1989. Lecturer of Mathematics Education at Universitas Islam Riau. Bachelor of Mathematics Education at Syarif Hidayatullah State Islamic University, Jakarta, graduated in 2010; Master of Mathematics Education at Universitas Pendidikan Indonesia, Bandung, graduated in 2013; and S3 Mathematics Education at Universitas Pendidikan Indonesia, Bandung, graduated in 2018. The author has obtained several national competitive grants as the head of the PDP Grant, Basic Grant, Applied Grant, and LPDP Scientific Research Grant, which resulted in the output of reference books and scientific articles published in reputable international journals.