

---

## THE DIFFICULTY OF CONTEXTUAL PROBLEM SOLVING ON FLAT BUILDINGS MATERIAL BASED ON GENDER IN FIFTH GRADE STUDENTS

Fadhilah Rimma Bestari<sup>1\*</sup>, Sukartono<sup>2</sup>

<sup>1,2</sup>Universitas Muhammadiyah Surakarta

<sup>1</sup>a510200005@student.ums.ac.id

---

### *Abstract*

Problem solving difficulty is one of the difficulties experienced by students when choosing the correct strategy to obtain an answer. In general, problem solving problems are contextual in nature that are based on student reality. The difficulty of solving contextual problems, especially in flat building material, causes math subjects to be unpopular with students. In solving contextual problem solving problems, the ability of each student will be different which can be seen from gender differences, namely men and women. The goal of this study is to characterize the disparities in fifth-grade students at Gondang 1 State Elementary School as well as the challenges that male and female students face when attempting to solve contextual problems with flat shapes. Descriptive qualitative research is employed in this kind of study. Teachers and students in the fifth grade served as the research subjects. Semi-structured interviews, documentation, and observation were the methods of data collecting that were employed. Technique and source triangulation were employed in data validity methodologies. Data reduction, data visualization, and conclusion drafting are examples of data analysis approaches. The results showed that male students had difficulty developing a problem solving plan, difficulty counting, especially multiplication and division, difficulty checking or looking back at the results of the work and they were not accustomed to writing conclusions to the problems asked in the problem. Meanwhile, female students have difficulty operating multiplication and division, are less careful in checking back the results of work and are not accustomed to writing conclusions to the problems asked in the problem. The difference in the difficulty of solving contextual problems of flat building material between male and female students lies in the second stage, namely developing a problem-solving plan and the fourth stage, namely checking or looking back.

**Keywords:** *Problem solving difficulties; contextual; flat shapes; gender*

---

### **Abstrak**

Kesulitan pemecahan masalah merupakan salah satu kesulitan yang dialami siswa ketika memilih strategi yang benar untuk memperoleh jawaban. Secara umum, soal pemecahan masalah bersifat kontekstual yang didasarkan berdasarkan kenyataan siswa. Kesulitan pemecahan masalah kontekstual terutama pada materi bangun datar menyebabkan mata pelajaran matematika tidak digemari siswa. Penelitian ini bertujuan untuk menjelaskan kesulitan dan perbedaan siswa laki-laki dan perempuan dalam menyelesaikan soal pemecahan masalah kontekstual materi bangun datar di kelas V SD Negeri Gondang 1. Penelitian kualitatif deskriptif adalah metodologi yang digunakan dalam penelitian ini. Fokus penelitian adalah guru dan siswa kelas V. Wawancara semi terstruktur, dokumentasi, dan observasi digunakan untuk mengumpulkan data. Keabsahan data didasarkan pada triangulasi sumber dan teknik. Analisis data mencakup reduksi, penyajian, dan penarikan kesimpulan. Hasil penelitian menunjukkan siswa laki-laki mengalami kesulitan untuk menyusun rencana pemecahan masalah, kesulitan berhitung terutama perkalian dan pembagian, kesulitan mengecek atau melihat kembali hasil pekerjaan dan mereka tidak terbiasa menuliskan kesimpulan terhadap permasalahan yang ditanyakan pada soal. Sedangkan untuk siswa perempuan mengalami kesulitan pengoperasian perkalian dan pembagian, kurang teliti dalam mengecek kembali hasil pekerjaan dan tidak terbiasa menuliskan kesimpulan terhadap permasalahan yang ditanyakan pada soal. Perbedaan kesulitan pemecahan masalah kontekstual materi bangun datar antara siswa laki-laki dengan perempuan terletak pada tahap kedua yaitu menyusun rencana pemecahan masalah dan tahap keempat yaitu mengecek atau melihat kembali.

**Kata Kunci:** Kesulitan pemecahan masalah; kontekstual; bangun datar; gender

---

Received : 2024-01-20  
Revised : 2024-04-10

Approved : 2024-04-13  
Published : 2024-04-30



Jurnal Cakrawala Pendas is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

## Introduction

In life, humans need education to develop potential in themselves with a learning process that is well accepted by society. This is in line with the opinion (Rangkuti & Sukmawarti, 2022) which explains that education is important in human life and has a role as a forum for developing abilities and potential in humans. Every student in the world of education is required to think critically and actively so that the existing abilities and potential can be developed to the fullest. One of the things that can be done in developing student potential is through learning mathematics.

Mathematics is one of the main subjects and must be taught to students at school. Most of the activities that students do in everyday life are closely related to mathematics, even mathematics is dubbed the queen in science (Pratiwi & Budiarto, 2014). However, if observed from ancient times until now, many students think that math is difficult, complicated, scary, and boring. As a result, the learning objectives of mathematics are not achieved optimally. One of the math materials taught by teachers at school is flat shapes. Flat shape is one of the two dimensional shapes that only has a length and width that is limited by straight and curved lines as a form of real picture so that what is discussed is inseparable from symbols (Jumiati et al., 2024). The symbols on flat shapes are often monotonous so that students find it difficult to understand flat building material. Students who experience learning difficulties can be caused by several factors, namely students not understanding well the content of the material and the lack of motivation to learn students who are lazy to learn math. Based on interviews with fifth grade students of Gondang 1 State Elementary School, some of them do not like math lessons, because they think math lessons are difficult to solve, this is due to the structured nature of mathematics subjects that require students to better master previous knowledge in order to be able to understand new ideas that arise.

Difficulty solving math problems, especially flat building material, causes math subjects to be unpopular with students, often ignored, and finally a student avoids math lesson because math is difficult for students to learn and understand (Salsabilah et al., 2023). The problem of students' dislike of learning mathematics can have an impact on low enthusiasm and motivation to learn and not mastering the material which causes a decrease in learning scores and student achievement. With this, a teacher is tasked with helping students who have difficulty in solving problems and teachers are required to be able to develop positive attitudes in students regarding learning mathematics.

Problem solving ability is an ability that students can use when understanding, choosing strategies in solving problems, and choosing a model for solving problems. So that when students are solving problems, their reasoning skills will be increasingly honed (Bernard et al., 2018). If a student can comprehend, select the appropriate approach, and then use it to solve the problem, then that student is considered to be able to solve arithmetic problems. This is in accordance with Polya's steps that researchers will use in this study. Polya's steps include understanding the problem, determining the strategy plan to be used, completing the problem solving strategy, and checking and drawing conclusions from the problem solving answer (Anugraheni, 2020). In general, problem solving problems are presented with story problems

that have contextual properties, namely problems that are in accordance with everyday life based on student reality. This is in accordance with the opinion of Anggraeni & Herdiman (2018) which states that contextual math problems are problems whose contexts and situations are experienced by students in real life and phenomena related to the mathematical concepts just discussed. This is because reality and life close to humans are much easier to understand. By giving story problems, it can train students' ability to solve math problems.

Contextual problem solving abilities among students are still comparatively weak. This is corroborated by an OECD report from 2014, which details how Indonesia performed poorly in the PISA research in 2012, scoring 375 out of 65 countries, and placing the country 64th out of 65 and can only do simple problems and 0.1% of students can solve math problems with thinking and problem solving skills (Fauzi & Arisetyawan, 2020). According to TIMSS 2015, mathematical problem solving skills in Indonesia are ranked the lowest, students' skills at the "knowing" and "applying" levels, as well as "reasoning" skills are still relatively low. This is proven by previous research if students in Indonesia excel at levels 1 to 4, with them still struggling at levels 5 to 6 (Hadi et al., 2018). In addition, based on preliminary observations made by researchers at Gondang 1 State Elementary School, there are some students who experience difficulties and errors in working on story problems given by the teacher.

When students are given a problem and cannot solve the problem correctly, Contextual problem solving is tough for these pupils. Noviyanti et al. (2021) elucidated that students' challenges with contextual issue solving stem from their inability to comprehend the problem, formulate a plan for solving it, describe it, and make connections to previous knowledge. Many students easily give up when facing math problems that are different from the examples given by the teacher and a little more complicated. In this case, the role of the teacher is very important for students. A math teacher must be able to develop knowledge, understanding, and interesting learning strategies so that students can easily absorb math material correctly. Math difficulties will have an impact on mathematical problem solving, so that directly students will have difficulty in solving contextual problems. According to Purnomo & Mawarsari (2014) states that problem solving skills should be given, trained, and familiarized to students as early as possible, so that a teacher can provide easy and interesting ways of solving problems so that students understand the problems given and can find solutions to problems from each problem.

The abilities and difficulties that each student has in solving problems will vary, which can be seen from gender differences, namely men and women. Male and female students have differences in achieving math achievement. With this, a teacher must be able to pay attention to each gender that has different characteristics. The basis of male students' ability lies in reasoning and female students lie in accuracy and accuracy in solving problem solving problems. This is in accordance with research conducted (Annisa et al., 2021) which states that female students are superior in terms of accuracy, accuracy, and thoroughness in solving problems while male students are more likely to be less careful, rushed, and tend to conclude statements and apply logic in problem solving briefly. In the learning process, female students are more active in asking questions if they do not understand the problems given compared to male students who are more silent. Both male and female students have their own ways of solving problems.

Several studies on contextual problem solving difficulties have been conducted by several researchers. First, research conducted by Khoirunnisa et al. (2020) explained that Students struggle with formula application, comprehending ideas and meanings, and correctly completing calculations. Second, research conducted by Sesanti & Bere (2020) stated that there were five difficulties experienced by students in solving problems, namely difficulty reading

31.25%, difficulty understanding 33.33%, difficulty transforming 50%, difficulty processing skills 50%, and difficulty writing answers 70.66%. Third, research conducted by Latifah & Afriansyah (2021) suggested that students had difficulty at the transformation stage in determining the formula 60% while not understanding the meaning of the question 73.3%, the skill stage in applying the strategy 60%, and the coding stage in making conclusions 53.3%. From this description, the relevance of this research is to discuss and examine the difficulties experienced by students in solving contextual problems which are then analyzed so as to produce a new statement based on facts. The difference lies in the focus of research, the place of research, and the stages of solving problems. In the previous study, researchers only focused on the difficulties experienced by students when solving contextual problems, in this case student difficulties were not differentiated between the difficulties of male and female students. Meanwhile, for this study, researchers focused more on the difficulty of solving contextual problems in male and female students and the differences in fifth grade Gondang 1 State Elementary School. In addition, in solving contextual problems, researchers used Polya's steps which consisted of four steps based on predetermined indicators.

Based on the description of the problem and previous research, the researcher feels it is important to examine how the difficulty of solving contextual problems of flat building material in male and female students and the differences in difficulty in fifth grade Gondang 1 State Elementary School. Thus the purpose of this study is to describe the difficulty of solving contextual problems of flat building material in male and female students and their differences in fifth grade Gondang 1 State Elementary School. With this research, it is hoped that educational practitioners will know the difficulty of solving contextual problems according to Polya's steps which can be seen in terms of gender in fifth grade Gondang 1 State Elementary School.

### **Research Methods**

This research uses qualitative research because the research data is based on existing facts. In addition, this research has an analysis that must be explained. According to Nurani & Nugraha (2022) states that studying and comprehending meaning in a variety of individuals or groups of individuals with social problems is known as qualitative research. The research design used is a descriptive approach because descriptive research is research that is useful in collecting information on the status of symptoms. The descriptive approach does not aim to test a hypothesis, but only to describe the situation as it is at the time of the research (Sucipto & Mauliddin, 2016).

This research was conducted for 5 months, namely from August to December 2023 at Gondang 1 State Elementary School which is located at Jl. Raharjo No.2, Badran, Gondang, Sragen. The research subjects consisted of fifth grade teachers and fifth grade students in Gondang 1 State Elementary School. As for the object of research, namely student difficulties in solving contextual problems of flat building material.

Data collection techniques in this study were observation, semi-structured interviews and documentation. In the observation stage, researchers came directly to the school to observe the ongoing learning process and when students worked on contextual problem solving problems. Observations were made 5 times with a duration of 35 minutes per observation. At the semistructured interview stage, researchers interviewed fifth grade teachers and fifth grade students on the topic of contextual problem solving difficulties. In addition, researchers completed documentation regarding the state of the school, activity report books, photos of learning implementation, photos of student answers to story problems, and photos of the results

of recapitulation of student learning outcomes to strengthen the data collected. To obtain primary data sources, researchers conducted observations of the learning process and when students worked on flat building story problems and semi-structured interviews with fifth grade teachers and fifth grade students of Gondang 1 State Elementary School. Meanwhile, to obtain secondary data sources, researchers conducted documentation analysis studies such as school conditions, activity report books and recapitulation of student grades.

The research instrument used was an observation sheet of the learning process of flat building material and when students worked on flat building story problems and semi-structured interview sheets regarding the difficulty of solving contextual problems using Polya's steps. To obtain valid data, the data validity check uses triangulation techniques. The triangulation techniques used in this study are source triangulation and technique triangulation. Source triangulation is using the same technique with different sources, with this source chosen, namely fifth grade teachers and fifth grade students. Triangulation technique is using the same source with different techniques, in this study the techniques used are observation techniques, semistructured interviews, and documentation.

The data analysis technique in this research uses the Miles and Huberman model analysis technique which uses three paths, data reduction, data presentation, and conclusion. (Sri Annisa & Mailani, 2023). Data reduction is conducting research at school by observing the learning process about flat shapes and observing male and female students when working on story problems about flat shapes. Conducting in-depth interviews with fifth grade teachers and fifth grade students of Gondang 1 State Elementary School. Presentation of data is that the data obtained has been categorised and then presented in the form of a narrative which aims to interpret the data systematically. Then make conclusions based on the data collected from schools that have gone through the reduction stage.

## Results and Discussion

Based on the results of research conducted by researchers, each student has different contextual problem solving difficulties. This is due to gender which makes a student experience different difficulties because the way of thinking and solving problems that exist in male and female students is different. To find out the difficulties experienced by male and female students, researchers observed the learning process regarding flat shapes and observed male and female students when working on story problems on flat shapes given by the teacher, then researchers analysed the answers of male and female students according to Polya's indicators of contextual problem solving difficulties. After that, male students and female students were interviewed by researchers on the difficulties experienced when working on story problems using Polya's contextual problem solving steps.

**Table 1.**

**Stages and Indicators of Contextual Problem Solving Difficulties**

| <b>Stages</b>             | <b>Difficulty Indicator</b>                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Understanding the problem | <p>Learners are not able to write what they know and what the problem asks.</p> <p>Even when students can write what they know and what is expected, mistakes can nonetheless occur.</p> <p>Pupils are able to write what they know and what is still needed, but not fully.</p> <p>Learners are able to accurately and fully write what they already know and what is asked in the issue.</p> |

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Develop a problem-solving plan        | Students are unable to create a mathematical model that answers the problem's known and requested information.<br>Although there are still mistakes, students are able to create a mathematical model based on the information provided in the problem and what is known.<br>Although it is still incomplete, students can create a mathematical model based on what is understood and requested in the challenge.<br>Learners can create a mathematical model based on what they know and can answer questions accurately and fully. |
| Implementing the problem solving plan | The solution to problems is not recorded by the students.<br>Although they can write down their solutions to problems, students nevertheless make mistakes.<br>Learners who are still working on their problems can write them down.<br>Learners can accurately and fully put down solutions to problems.                                                                                                                                                                                                                             |
| Rechecking the answer                 | Students are not able to recheck the answer.<br>Students are able to do back checking but there are still errors.<br>Students can do back checking correctly and completely.                                                                                                                                                                                                                                                                                                                                                          |

### Male Students' Contextual Problem Solving Difficulties in Flat Building Materials

The results of male students' work on contextual problem solving of flat building materials can be seen in the picture below.

1. Diket  
 - kel. Figura 1 = 120 cm  
 - kel. Figura 2 = 100 cm  
 Ditanya  
 Selisih Figura 1 dan Figura 2  
 Figura 1 :  $\frac{120}{4} = 22$   
 Figura 2 :  $\frac{100}{4} = 20$   
 $= 22 - 20 = 2 \text{ cm}$

Figure 1. Answer Number 1

2. Diket  
 - P = 30 m  
 - L :  $\frac{P}{2} = 15$   
 Ditanya  
 Bambu yang dibutuhkan  
 $30 \times 15 = 427 \text{ cm}$

Figure 2. Answer Number 2

Based on figures 1 and 2 above, there are indicators of difficulty in solving contextual problems that are fulfilled which can be seen in table 2 below.

Table 2.  
Contextual Problem Solving Activities of Male Students

| Stages                | Fulfilled Indicators                                                                                     |                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|                       | Questions Number 1                                                                                       | Questions Number 2                                                                                       |
| Understanding problem | Male students are able to write what is asked and what is known in the problem correctly and completely. | Male students are able to write what is asked and what is known in the problem correctly and completely. |

|                                       |                                                                                                                                                  |                                                                                                                                                            |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Develop a problem-solving plan        | Male students are not able to make mathematical models according to what is known and what is asked in the problem.                              | Male students cannot make mathematical formulas according to what is known and asked in the problem.                                                       |
| Implementing the problem solving plan | At this stage, male students are able to write problem solving but there are still errors in counting.                                           | At this stage, male students are able to write problem solving but there are still errors.                                                                 |
| Rechecking the answer                 | Male students do not recheck every step of problem solving. In addition, male students do not write the conclusion of the problem in the problem | Male students do not check back at each step of problem solving. In addition, male students do not write conclusions to the problems asked in the problem. |

According to the figure and table above, in the first stage, namely the stage of understanding the problem, many male students were able to write what was asked and what was known correctly and completely according to the problem. At this stage, they were able to understand the problem presented well. In problem number 1, many male students wrote the known component in the form of the perimeter of the first figura of 120 cm and the perimeter of the second figura of 100 cm and the questioned component in the form of the difference in the length of the sides of the first figura and the second figura. As for problem number 2, many male students were able to write the known elements in the form of a rectangular garden length of 30 m and the width of the garden is half the length of the garden which is 15 m and the questioned component is how many meters of bamboo are needed to make a fence. They wrote these components briefly, clearly, and concisely. Although some of them almost had problems understanding the problem, they were eventually able to write the known and questionable components in the problem. They read the story problem repeatedly in order to understand the problem so that they can find out what is known and asked in the problem. Repeated reading is one of the important things to understand mathematical problems because when they re-read, they think and process the information obtained to understand the problem correctly (Ikram et al., 2021). Male students believe what they write about what is known and asked is correct. Writing down the information that is already known and the questions posed by the challenge facilitates their ability to formulate a solution by outlining the formula that will be applied.

The second stage, the stage of developing a problem solving plan, many male students were unable to make mathematical models or formulas according to what was known and what was asked in the problem. After they wrote down what was known and asked on the answer sheet, they immediately operated the calculation without writing down what problem solving plan or formula would be used. They remembered that they had worked on similar story problems, but this did not help them because they did not remember the concept of the problem to solve the given problem. When researchers interviewed them, they said that they had difficulty memorizing or remembering formulas. In addition, they were also confused about whether to use the area or perimeter formula for squares and rectangles. This difficulty occurred because the problem presented did not directly instruct them to find the area or perimeter of squares and rectangles. Therefore, because they were confused and did not memorize or remember the formula, they immediately operated the calculations on the problem. This is in line with Wulandari & Setiawan's opinion (2021) that in solving problems, male students still have difficulty understanding the formulas. This difficulty is related to their low level of memory in remembering each formula for the area or perimeter of flat buildings. According to Fitriyani et al. (2020) stated that the reason they have difficulty memorizing formulas is because they are lazy to learn formulas and memorize formulas which causes them to easily forget the material

that has just been given by the teacher. In addition to being lazy to learn formulas, some of them are bored to learn mathematics, dislike math lessons, lack the courage to express opinions, and lack enthusiasm when working on story problems using contextual problem solving steps

The third stage, implementing the problem solving plan. At this stage, many male students wrote down the problem solving but there were still errors. In problem number 1, many male students immediately operated division with 120 divided by 4 as the first figurine side and 100 divided by 4 as the second figurine side. Then the result of the length of the first figurine side was subtracted from the length of the second figurine side. At this stage, they made mistakes in calculating the division which caused the final result of the answer to be wrong. When asked by the researcher, they answered that the number 4 was obtained because there were 4 sides of the figura-shaped square, therefore they divided 120 and 100 by 4. They understood the meaning of problem number 1, but they had difficulty applying it to the formula for the perimeter of a square. In problem number 2, many male students immediately multiplied 30 by 15 with the final result having an error. They carelessly operated the numbers in the problem without first understanding what the numbers meant in the problem. Based on the results of the interview, they said that they forgot about the formula for the perimeter of a rectangle so they carelessly multiplied the numbers listed in the problem. According to Rahayu's opinion (2021) that male students in flat building material will have difficulty in calculating area and perimeter which lies in the operation because they do not understand multiplication and division. They have not memorized multiplication and division, especially in large numbers and do not understand division using *porogapit* which causes the final answer to have an error. This is in line with the opinion from Lestari et al. (2018) which states that errors in the calculation process cause errors in the final result. In grade four and grade five, a teacher has given a way to operate multiplication and division on small or large numbers, but most of them forget and have difficulty operating the multiplication and division numbers.

In the fourth stage, the checking or looking back stage, many male students did not recheck the problem solving steps they had done. In addition, they also did not write the conclusion of the problem in the problem. Based on the results of the interview, they said that they were in a hurry to do the problem because they wanted to talk to their classmates. This is in accordance with the opinion from Sari & Aripin (2018) which explains that male students are usually always in a hurry to solve problems in problems. They believe that the answer they get is correct. This is in line with Espinoza & Taut's opinion (2020) which says that male students tend to be more confident about the results of the math work they have obtained. This is also reinforced by the results of researcher observations when they finished working on the problem, they immediately played with their classmates without checking the problem solving steps they had done. Most male students do not use the time as well as possible to work on problems, if they have finished working on the problem and there is still a lot of time left, they will joke with their classmates without checking the work they have done.

### Contextual Problem Solving Difficulties of Flat Building Materials for Female Students

The results of female students' answers regarding contextual problem solving of flat building materials can be seen in the figure below.

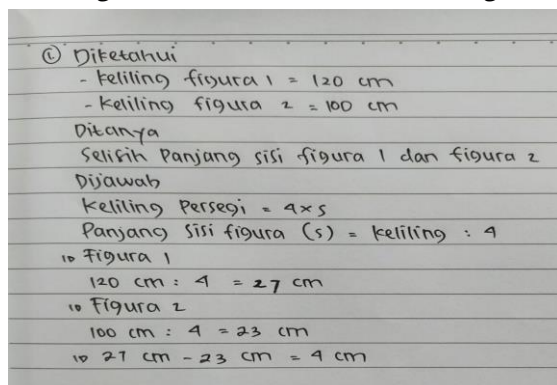


Figure 3. Answer Number 1

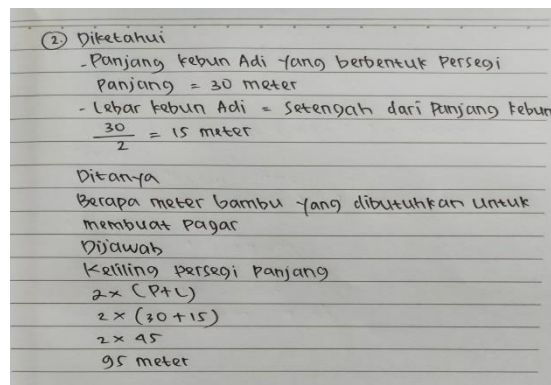


Figure 4. Answer Number 2

According to figures 3 and 4 above, there are indicators of contextual problem solving difficulties that are met which can be seen in table 3 below.

Table 3.  
Contextual Problem Solving Activities of Female Students

| Stages                                | Fulfilled Indicators                                                                                                                                                           |                                                                                                                                                                         |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       | Questions Number 1                                                                                                                                                             | Questions Number 2                                                                                                                                                      |
| Understanding the problem             | Female students are able to write what is asked and known in the problem correctly and completely.                                                                             | Female students can write what is asked and what is known in the problem correctly and completely.                                                                      |
| Develop a problem-solving plan        | Female students are able to make mathematical formulas according to what is known and asked correctly and completely.                                                          | Female students can make mathematical models according to what is known and asked correctly and completely.                                                             |
| Implementing the problem solving plan | Female students are able to write down problem solving but there are still errors in counting.                                                                                 | Female students can write down problem solving but there are still errors in counting.                                                                                  |
| Rechecking the answer                 | Female students are able to do back checking at each stage of problem solving but there are still errors. They did not write a conclusion to the problem asked in the problem. | Female students can check back at each stage of problem solving but there are still errors. They did not write the final conclusion to the problem asked in the problem |

Based on the figure and table above, the first stage, namely the stage of understanding the problem, most female students were able to write what was known and what was asked in the problem correctly and completely. They wrote in detail about the information found in the problem and wrote what was asked. In addition, they wrote in order and neatly. When writing what is known and asked, they use language that is easy to understand and clear to read. According to Laily (2014), if female students have the ability to understand the meaning of story problems well, then these students can solve problems, students will understand what is asked in the problem, and can solve problems using mathematical models that students know. In problem number 1, they were able to write what was known in the problem, namely the circumference of the first figura 120 cm and the circumference of the second figura 100 cm, then they wrote what was asked in the problem, namely the difference in the length of the sides of the first figura and the second figura. In problem number 2, they wrote the length of Adi's

rectangular garden as 30 meters and the width as half the length of the garden which is 15 meters. Although some of them had difficulty understanding problem number 2, they tried to read it repeatedly. After reading the problem repeatedly, they finally understood the meaning of the problem. Based on the results of interviews with them, they said that they often work on story problems using problem solving steps. Therefore, they did not find it difficult to work on story problems using problem solving steps. By writing what is known and what is asked in the problem, it can help them to determine the formula or strategy that will be used to solve the story problem.

The second stage, the stage of developing a problem solving plan, most female students are able to make mathematical models or formulas according to what is known and asked correctly and completely. According to Murtiyasa & Wulandari (2022), if a student uses all the information in the problem, they can design the answer correctly and correctly. At this stage, they must be able to make a mathematical model correctly because it will affect the next stage. If at this stage they are already wrong, then it is likely that at the next stage they will be wrong. In problem number 1, they found the sides of the first and second figurines by using the formula for the perimeter of a square. This shows that they are able to build new knowledge (Anggari & Rufiana, 2020). Then for problem number 2, they used the formula for the perimeter of a rectangle to find the bamboo needed to make a fence. Based on the results of the researcher's observations, some of them seemed to think longer to work on problem number 2. When they were asked by the researcher, they answered that they were actually quite confused about problem number 2, they tried to read repeatedly and understand the meaning of the question. After reading repeatedly and understanding the meaning of the problem, they finally understood what formula to use in problem number 2. The ability of female students to develop mathematical formulas or strategies is because they like mathematics and are interested in learning mathematics. They pay attention to the teacher when explaining the flat shape material, which makes it easy for them to understand the formula for the area or perimeter of a flat shape. In addition, when they get home, they explore the material that the teacher has delivered in class and try to practice working on contextual problem solving problems.

The third stage, When it comes to carrying out the problem-solving strategy, the majority of female students are able to write down the solutions, although there are still counting mistakes. Weakness in counting, which can result from improper number operations, is one of the challenges in problem solving (Cahirati et al., 2020). They approached the problem patiently and calmly when putting the problem solving plan into practice. Their comprehension of the issues at hand determines their capacity for self-control. They are capable of handling all phases of issue solving, including creating plans for solving problems. As demonstrated by Susilowati's research findings (2016), when tackling story challenges, they execute the strategy in accordance with the comprehensively designed strategy. But at the step of implementing the problem solving plan they made mistakes that caused them not to get the right and correct final result. This can be seen when they worked on problems number 1 and 2. In problem number 1, they used the perimeter of a square formula to find the sides of the first and second figurines. After getting the result of the side of the first figura and the side of the second figura, the side of the first figura was subtracted from the side of the second figura. At the division operation stage, they still had errors because they found it difficult to operate division with large numbers. Because few of them could find the final value correctly. In problem number 2, they were able to apply the formula for the perimeter of a rectangle to find the bamboo needed to build a fence. But when they operated multiplication, they still had errors in counting. Based on the results of interviews

with them, they said that they had actually been given how to multiply or divide with porogapit by the teacher. But because they did not memorize the basis for calculating multiplication and division, they found it difficult to calculate multiplication and division on large numbers.

In the fourth stage, the checking or looking back stage, most female students were able to check back each step of the solution, but there were still mistakes. In addition, most of them are not accustomed to writing conclusions to the problems asked in the problem. Rechecking the problems that have been solved can give them confidence that the decisions that have been made are in accordance with problem solving in accordance with mathematical concepts (Nurrahmawati et al., 2021). They rechecked the answers by connecting each stage in contextual problem solving. At the rechecking stage, they did not realize that at the stage of implementing the contextual problem solving plan, they still experienced errors in calculating multiplication and division. In solving problem solving problems, accuracy in calculations is needed, if the concept in solving the problem is correct and correct but in the calculation process is careless, the final answer will definitely be wrong (Rahmayanti & Maryati, 2021). When asked by researchers, they were sure if their answers were correct because they had checked repeatedly. With this, the researcher concluded that they were not aware and less careful to check the multiplication and division operations at the stage of implementing the problem solving plan that had errors in the calculation of multiplication and division.

### **Differences in Contextual Problem Solving Difficulties of Flat Buildings Material for Male and Female Students**

According to the results of the analysis that has been carried out by researchers regarding the difficulty of solving contextual problems of flat building material in terms of gender based on Polya's stages, it is found that the difficulty of solving contextual problems of male students is superior compared to female students. The difference in the difficulty of solving contextual problems of male students and female students can be seen in the way they solve problems which causes a gap between the level of participation of male students and female students (Clara & Heni, 2020). Gender differences become a distinguishing factor for a person when thinking and determining the contextual problem solving obtained. When facing story problems, male students and female students have quite different problem solving characteristics. Most male students are less able to work on problems using Polya's problem solving stages. They are less careful in working on problems and do not use the best possible time to work on problems. As for female students, most of them are able to work on problems with the problem solving stages. They rechecked the stages of problem solving that they had done, even though there were errors in checking and counting. The following differences in the difficulty of solving contextual problems of flat building material between male and female students can be seen in table 4.

**Table 4.**

#### **Differences in Contextual Problem Solving Difficulties of Flat Building Materials between Male and Female Students**

| <b>Stages</b>                  | <b>Males</b>                                                                                                       | <b>Female</b>                                                                                                         |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Understanding the problem      | Male students can accurately and fully write the problem based on what is known and what is asked.                 | Female students can write what is asked and what is known in the problem correctly and completely.                    |
| Develop a problem-solving plan | It is impossible for male students to create mathematical models based on what is known and what the problem asks. | Female students are able to make mathematical formulas according to what is known and asked correctly and completely. |

|                                       |                                                                                                                                                                                   |                                                                                                                                                                                |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Implementing the problem solving plan | Male learners can now write down solutions to problems, although counting mistakes still occur.                                                                                   | Female students are able to write down problem solving but there are still errors in counting.                                                                                 |
| Rechecking the answer                 | When solving problems, male pupils do not go back to check their work. Furthermore, when it comes to the challenges posed in the problem, male students do not write conclusions. | Female students are able to do back checking at each stage of problem solving but there are still errors. They did not write a conclusion to the problem asked in the problem. |

The accompanying table's explanation demonstrates how male and female students differ in their level of difficulty when it comes to handling contextual challenges involving flat building materials. The second and fourth levels of contextual problem solving are where male and female pupils differ in difficulty. In the second phase, while creating a plan to solve an issue, most male students struggle to come up with a mathematical model or approach for both problem number one and problem number two. The female pupils have developed a method or strategy for tackling problems that will be applied. This is consistent with the assertion made by Asmara & Puspaningtyas (2023) that female students outperform male students when it comes to creating a plan for solving problems. This is supported by the results of the researcher's interview with the fifth grade teacher, Mr. Widya Perwira, who said that the ability to remember female students is stronger than male students. Therefore, most female students when working on story problems, they arrange the mathematical model or formula that will be used. They remember that they have worked on story problems that are still similar to the problem. In addition, they easily remember the formula for the area or perimeter of flat buildings.

In the fourth stage, the checking or looking back stage, most male students did not recheck the problem solving steps they had done. In addition, they also did not write conclusions about the problems in the problem. Drawing conclusions is needed to make sure the solution steps are in accordance with what is desired in the problem (Aminah & Ayu Kurniawati, 2018). For female students, most of them rechecked the stages of problem solving that they had done but there were still errors. This is in line with the opinion from Subekti & Krisdiani (2021) which explains that female students' abilities are better than male students, especially at the checking or looking back stage. They are more diligent and tenacious and are able to take advantage of their opportunities and competencies. Based on the results of an interview with Mr. Widya Perwira, he said that most male students do not check back the problem solving steps they have done, they are in a hurry when doing it because they want to play with their friends. As for female students, most of them recheck the problem solving steps they have done by linking to the problem, but they still make mistakes, namely not being careful in checking or looking at the problem solving steps they have done. This is because both male and female students still find it difficult to perform multiplication and division calculation operations. Their attitude in receiving learning was also different, most male students chatted with their classmates because they felt bored with math subjects that contained counting. For female students, they tend to pay more attention to what is conveyed by the teacher, when they do not understand the material presented, they without hesitation raise their hands to ask the teacher.

## Conclusion

This conclusion is obtained based on the results and discussion previously described about the difficulty of solving contextual problems of flat building material in terms of gender. Male

students have difficulty developing a problem solving plan, difficulty counting, especially multiplication and division at the stage of implementing the problem solving plan, difficulty checking or looking back at the problem solving steps they have done and they are not used to writing conclusions about the problems asked in the problem. Meanwhile, female students had difficulty operating multiplication and division at the stage of implementing the problem solving plan. In addition, female students are also less careful in checking or looking back at the problem solving steps they have done and they are not used to writing conclusions to the problems asked in the problem. With this, male students' contextual problem solving difficulties are superior to female students. Then the difference in the difficulty of solving contextual problems of flat building material between male and female students lies in the second stage, namely developing a problem solving plan and the fourth stage, namely checking or looking back.

Based on the research results obtained, the researcher would like to provide the following suggestions: 1) For male and female students, they should often practice working on contextual problem solving problems, better understand the formulas learned, be more careful in working on problems, and be more active in learning about multiplication and division; 2) For teachers, it is hoped that teachers can pay attention that each gender has different characteristics in solving contextual problems. Furthermore, in order for students to become acclimated to solving problems of various complexity, teachers are obliged to provide contextual problem-solving exercises; 3) It is hoped that this research will be useful for future researchers in solving contextual difficulties. It is intended that this research will serve as a resource for future scholars to deepen their understanding of gender-specific contextual problem solving challenges. Furthermore, the study's findings can be utilized as a basis for more in-depth research in related fields with a wider focus.

## References

- Aminah, & Ayu Kurniawati, K. R. (2018). Analisis Kesulitan Siswa Dalam Menyelesaikan Soal Cerita Matematika Topik Pecahan Ditinjau Dari Gender. *Jurnal Teori Dan Aplikasi Matematika*, 2(2), 118–122. <https://doi.org/10.31764/jtam.v2i2.713>
- Anggari, R. S., & Rufiana, I. S. (2020). Analisis Kesulitan Siswa Dalam Memecahkan Masalah Pada Soal Cerita Materi Bangun Datar Ditinjau Dari Minat Belajar. *EDUPEDIA*, 4(2), 113–123. <https://doi.org/10.24269/ed.v4i2.540>
- Anggraeni, R., & Herdiman, I. (2018). Kemampuan Pemecahan Masalah Matematik Siswa SMP Pada Materi Lingkaran Berbentuk Soal Kontekstual Ditinjau Dari Gender. *Jurnal Numeracy*, 5(1), 19–28. <https://doi.org/10.46244/numeracy.v5i1.293>
- Annisa, R., Roza, Y., & Maimunah. (2021). Analisis Kemampuan Pemecahan Masalah Matematis Siswa SMP Berdasarkan Gender. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 7(2), 481–490. <https://doi.org/10.33394/jk.v7i2.3688>
- Anugraheni, I. (2020). Analisis Kesulitan Mahasiswa Dalam Menumbuhkan Kemampuan Berpikir Kritis Melalui Pemecahan Masalah. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 4(1), 261–267. <https://doi.org/10.31004/cendekia.v4i1.197>
- Asmara, P. M., & Puspaningtyas, N. D. (2023). Analisis Kemampuan Pemecahan Masalah Matematis Ditinjau Dari Perbedaan Gender. *Jurnal Ilmiah Matematika Realistik*, 4(1), 7–19. <https://doi.org/10.33365/ji-mr.v4i1.2417>
- Bernard, M., Nurmala, N., Mariam, S., & Rustyani, N. (2018). Analisis Kemampuan

- Pemecahan Masalah Matematis Siswa SMP Kelas IX Pada Materi Bangun Datar. *Supremum Journal of Mathematics Education*, 2(2), 77–83. <https://doi.org/10.35706/sjme.v2i2.1317>
- Cahirati, P. E. P., Makur, A. P., & Fedi, S. (2020). Analisis Kesulitan Belajar Siswa dalam Pembelajaran Matematika Yang Menggunakan Pendekatan PMRI. *Mosharafa: Jurnal Pendidikan Matematika*, 9(2), 227–238. <https://doi.org/10.31980/mosharafa.v9i2.576>
- Clara, D. P. W., & Heni, P. (2020). Analisis Kemampuan Pemecahan Masalah Matematika Ditinjau Dari Gender. *Jurnal Matematika Kreatif-Inovatif*, 11(1), 110–117. <https://doi.org/10.15294/kreano.v11i1.23601>
- Espinoza, A. M., & Taut, S. (2020). Gender and Psychological Variables as Key Factors in Mathematics Learning: A Study of Seventh Graders in Chile. *International Journal of Educational Research*, 103(5), 1–16. <https://doi.org/10.1016/j.ijer.2020.101611>
- Fauzi, I., & Arisetyawan, A. (2020). Analisis Kesulitan Belajar Siswa Pada Materi Geometri Di Sekolah Dasar. *Jurnal Matematika Kreatif-Inovatif*, 11(1), 27–35. <https://doi.org/10.15294/kreano.v11i1.20726>
- Fitriyani, Y., Fauzi, I., & Sari, M. Z. (2020). Motivasi Belajar Mahasiswa Pada Pembelajaran Daring Selama Pandemi Covid-19. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, 6(2), 165–175. <https://doi.org/10.33394/jk.v6i2.2654>
- Hadi, S., Retnawati, H., Munadi, S., Apino, E., & Wulandari, N. F. (2018). The Difficulties Of High School Students In Solving Higher-Order Thinking Skills Problems. *Problems of Education in the 21st Century*, 76(4), 520–532. <https://doi.org/10.33225/pec/18.76.520>
- Ikram, M., Purwanto, & Parta, N. (2021). Analysis of The Occurrence of Reversible Reasoning for Inverse Cases: A Case Study on The Subject Adjie. *International Journal of Progressive Mathematics Education*, 1(1), 1–15. <https://doi.org/10.22236/ijopme.v1i1.6635>
- Jumiati, Febriyanti, L. W., & Gera, I. G. (2024). Analisis Kesulitan Mata Pelajaran Matematika SD Pada Materi Bangun Datar Sudut Pandang Jerome Brunner. *Journal of Global Research Education*, 1(1), 75–83. <https://doi.org/10.62194/92kd8t33>
- Khoirunnisa, S., Sulhan, Kalsum, U., Timbu, D. L., Ngongo, O. B., & Ambarawati, M. (2020). Analisis Kesulitan Siswa Dalam Menyelesaikan Soal Matematika Materi Luas Permukaan Dan Volume Bangun Ruang Sisi Datar. *Prismatika: Jurnal Pendidikan Dan Riset Matematika*, 2(2), 21–32. <https://doi.org/10.33503/prismatika.v2i2.740>
- Laily, I. F. (2014). Hubungan Kemampuan Membaca Pemahaman Dengan Kemampuan Memahami Soal Cerita Matematika Sekolah Dasar. *Eduma: Mathematics Education Learning and Teaching*, 3(1), 52–62. <https://badge.dimensions.ai/details/doi/10.24235/eduma.v3i1.8>
- Latifah, T., & Afriansyah, E. A. (2021). Kesulitan Dalam Kemampuan Pemecahan Masalah Matematis Siswa Pada Materi Statistika. *Journal of Authentic Research on Mathematics Education*, 3(2), 134–150. <https://doi.org/10.37058/jarme.v3i2.3207>
- Lestari, A. S., Aripin, U., & Hendriana, H. (2018). Identifikasi Kesalahan Siswa SMP Dalam Menyelesaikan Soal Kemampuan Penalaran Matematik Pada Materi Bangun Ruang Sisi

- Datar Dengan Analisis Kesalahan Newman. *Jurnal Pembelajaran Matematika Inovatif*, 1(1), 493–504. <https://doi.org/10.22460/jpmi.v1i4.p493-504>
- Murtiyasa, B., & Wulandari, S. (2022). Problem Solving Ability According to Polya on System of Linear Equations in Two Variables Based on Student Learning Styles. *Jurnal Didaktik Matematika*, 9(2), 261–279. <https://doi.org/10.24815/jdm.v9i2.26328>
- Noviyanti, E. D., Purnomo, D., & Kusumaningsih, W. (2021). Analisis Kemampuan Berpikir Reflektif Dalam Pemecahan Masalah Matematika Ditinjau Dari Gaya Kognitif. *Imajiner: Jurnal Matematika Dan Pendidikan Matematika*, 3(1), 57–68. <https://doi.org/10.26877/imajiner.v3i1.7097>
- Nurani, R. Z., & Nugraha, F. (2022). Analisis Karakter Tanggung Jawab Siswa Sekolah Dasar Dalam Pembelajaran Daring. *Jurnal Cakrawala Pendas*, 8(1), 217–228. <https://doi.org/10.31949/jcp.v8i1.1932>
- Nurrahmawati, Sa'dijah, C., Sudirman, & Muksar, M. (2021). Assessing Students' Errors In Mathematical Translation: From Symbolic To Verbal And Graphic Representations. *International Journal of Evaluation and Research in Education*, 10(1), 115–125. <https://doi.org/10.11591/ijere.v10i1.20819>
- Pratiwi, S. D., & Budiarto, M. T. (2014). Profil Metakognisi Siswa SMP Dalam Memecahkan Masalah Matematika Ditinjau Dari Kemampuan Matematika Siswa. *MATHEdunesa*, 3(2), 179–186. <https://doi.org/10.26740/mathedunesa.v3n2.p%25p>
- Purnomo, E. A., & Mawarsari, V. D. (2014). Peningkatan Kemampuan Pemecahan Masalah Melalui Model Pembelajaran Ideal Problem Solving Berbasis Project Based Learning. *Jurnal Karya Pendidikan Matematika*, 1(1), 24–31. <https://doi.org/10.26714/jkpm.1.1.2014.24-31>
- Rahayu, E. (2021). Problema Kesulitan Siswa Sekolah Dasar Dalam Pembelajaran Geometri. *AtTâlim : Jurnal Pendidikan*, 7(1), 46–54. <https://doi.org/10.36835/attalim.v7i1.524>
- Rahmayanti, I., & Maryati, I. (2021). Kesalahan Siswa SMP Pada Soal Pemecahan Masalah Berdasarkan Tahapan Teori Newman. *PLUSMINUS: Jurnal Pendidikan Matematika*, 1(1), 61–70. <https://doi.org/10.31980/plusminus.v1i1.1026>
- Rangkuti, C. J. S., & Sukmawarti. (2022). Problematika Pemberian Tugas Matematika Dalam Pembelajaran Daring. *Jurnal Ilmu Pendidikan*, 2(2), 593–600. <https://doi.org/10.31004/irje.v2i2.300>
- Salsabilah, A. S., Afifah, N. P. N., Herdiansyah, R. F. P., & Komariah. (2023). Analisis Kesulitan Dalam Menyelesaikan Soal Luas Bangun Datar Gabungan Siswa Kelas IV SD. *Journal on Education*, 6(1), 2601–2608. <https://doi.org/10.31004/joe.v6i1.3290>
- Sari, A. R., & Aripin, U. (2018). Analisis Kesalahan Siswa Dalam Menyelesaikan Soal Cerita Bangun Datar Segiempat Ditinjau Dari Kemampuan Pemecahan Masalah Matematik Untuk Siswa Kelas VII. *Jurnal Pembelajaran Matematika Inovatif*, 1(6), 1135–1142. <https://doi.org/10.22460/jpmi.v1i4.p493-504>
- Sesanti, N. R., & Bere, M. G. S. (2020). Analisis Kesulitan Siswa Kelas III Sekolah Dasar Dalam Penyelesaian Masalah Matematika Bentuk Soal Cerita Berdasarkan Teori Newman. *Jurnal Inovasi Penelitian*, 1(7), 1459–1464. <https://doi.org/10.47492/jip.v1i7.264>

- Sri Annisa, I., & Mailani, E. (2023). Analisis Faktor Penyebab Kesulitan Siswa Dalam Pembelajaran Tematik Dengan Menggunakan Metode Miles Dan Huberman Di Kelas IV SD Negeri 060800 Medan Area. *INNOVATIVE: Journal Of Social Science Research*, 3(2), 6469–6477. <https://doi.org/10.31004/innovative.v3i2.1130>
- Subekti, F. E., & Krisdiani, T. (2021). Deskripsi Kemampuan Pemecahan Masalah Matematis Ditinjau Dari Gender Pada Materi Bangun Ruang. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 10(2), 903–914. <https://doi.org/10.24127/ajpm.v10i2.3534>
- Sucipto, L., & Mauliddin. (2016). Analisis Kesulitan Mahasiswa Dalam Memahami Konsep Bilangan Real. *Jurnal Tadris Matematika*, 9(2), 197–211. <https://doi.org/10.20414/betajtm.v9i2.37>
- Susilowati, J. P. A. (2016). Profil Penalaran Siswa SMP Dalam Pemecahan Masalah Matematika Ditinjau Dari Perbedaan Gender. *Jurnal Review Pembelajaran Matematika*, 1(2), 132–148. <https://doi.org/10.15642/jrpm.2016.1.2.132-148>
- Wulandari, M., & Setiawan, W. (2021). Analisis Kesulitan Dalam Menyelesaikan Soal Materi Barisan Pada Siswa SMA. *Jurnal Pembelajaran Matematika Inovatif*, 4(3), 571–578. <https://doi.org/10.22460/jpmi.v4i3.p%25p>