

# Analysis of Mathematical Problem Solving Ability Students Judging by Gender Differences in 1 Kuta Buluh Junior High School

Ita Margaretta Tarigan, Mangaratua M Simanjorang , Pargaulan Siagian  
Postgraduate Mathematics Education study program, Medan State University  
Medan, North Sumatra, Indonesia  
Itamargaretta1997@gmail.com

## Abstract

This study aims to determine: (1) students' mathematical problem solving abilities in terms of gender differences in class VIII-A SMP N 1 Kuta Buluh; (2) significant differences in students' mathematical problem solving abilities in terms of gender differences in class VIII-A SMP N 1 Kuta Buluh. This research uses quantitative and qualitative approaches (mixed methods). This research was conducted at SMP N 1 Kuta Buluh for the academic year 2021/2022. The research subjects consisted of 12 students, 6 male students and 6 female students. The results of this study indicate: (1) the mathematical problem solving ability of class VIII-A students of SMP N 1 Kuta Buluh in terms of gender differences shows that female students are superior, better than male students. It can also be seen from the average percentage of male students' mathematical problem solving abilities at the stage of understanding the problem that is 41.67%, the stage of preparing a problem solving plan is 15.42%, the stage of implementing a problem solving plan is 25.83%, and the stage of re-examining the results of problem solving is 17.92%. While the average percentage of female students' mathematical problem-solving abilities in the stage of understanding the problem is 64.29%, the stage of compiling a problem-solving plan is 27.68%, the stage of implementing a problem-solving plan is 25.89%, and the stage of re-examining the results of problem solving, namely 20.54%; (2). There is a difference in the mathematical problem solving ability of male and female students, the highest at the stage of understanding the problem and developing a problem-solving plan, while at the stage of implementing the problem-solving plan it is not very visible. It can also be seen from the average percentage of each stage of students' mathematical problem solving abilities, namely the stage of understanding the problem with a difference of 22.62%, the stage of drawing up a problem-solving plan with a difference of 12.26%, the stage of implementing a problem-solving plan with a difference of 0.06 %, and the stage of re-examining the results of problem solving with a difference of 2.62%. Overall each stage of problem solving female students are better than male students. Judging from the results of tests and interviews, it shows that male and female students have not been able to understand the problem well. It is suggested the need to improve students' mathematical problem solving abilities, students must be trained and accustomed to problem solving and the need for school socialization related to students' mathematical problem solving abilities.

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## 1. Introduction

Mathematics is a field of study that is studied by all students from elementary school to high school and even in college. Marwazi, et al (2019: 127) states that "mathematics as the queen of science will of course be needed by other sciences as a tool to solve problems related to number operations, logic, or related to elements of space or related things. -other things that require mathematics". Based on some of the opinions above, we can know that studying mathematics is very important, as we know this mathematics is continuous from the lowest level we receive to the highest level like in college and we can also find it in studying other fields of science. , so that by studying mathematics there are many benefits that we can get.

One of the mathematical abilities that need to be developed is higher order thinking skills which are often called Higher Order Thinking Skills (HOTS) because they can improve students' reasoning power. Hayatullah, (2020: 2) states that "Higher Order Thinking Skills (HOTS) is a thinking process that can encourage students to find new information and ideas in a certain way and provide new implications, including critical thinking, creative and problem solving abilities" . We can know Higher Order Thinking Skills (HOTS) is a student's thinking process which includes critical thinking, creative and mathematical problem solving, this is very helpful in students' mindset related to students' mathematical abilities.

Dinni, (2018: 170) states that "Higher Order Thinking Skills (HOTS) are students' abilities in connecting, changing, manipulating their knowledge critically and creatively to determine settlement decisions in new situations". From the statement above, it is known that Higher Order Thinking Skills (HOTS) is a thinking process that really needs to be improved, because the existence of higher order thinking skills like this requires

students to be more creative and critical. Lailya & Fasha, (2021: 490) stated that "Higher Order Thinking Skills (HOTS) can be trained in the learning process by giving non-routine questions so that they can encourage students to think critically and creatively". Based on some of the statements above, we can conclude that Higher Order Thinking Skills (HOTS) is the thinking process of students being able to apply their knowledge in determining solutions in new situations, including critical, creative, and problem solving abilities and can improve students' reasoning power. This can be done by giving non-routine questions.

Students' mathematical problem solving ability is one of the Higher Order Thinking Skills (HOTS) abilities that need to be developed. Because as we know with the development of students' mathematical problem solving abilities, this can increase students' learning motivation and critical thinking skills. The importance of developing students' mathematical problem solving skills is an integral part in learning mathematics, so it cannot be separated from learning mathematics. It can be seen that this student's mathematical problem solving ability is an ability that is very much needed in carrying out a mathematical solution. Rustam, et al (2017: 322) stated that "improving students' mathematical problem solving skills will improve student learning outcomes themselves, and thus will advance mathematics and the quality of education". From the statement conveyed by Rustam, we can see firsthand the benefits that can be obtained from increasing problem-solving abilities themselves.

Riska & Surya (2017: 269) state that "mathematical problem solving is a complex cognitive activity, as a process to overcome a problem encountered and to solve it requires a number of strategies". With the understanding of students whose solutions are based on mathematical problem solving abilities, they are also able to build new knowledge and reasoning, because by solving mathematical problems in stages and through creative thoughts they are able to create new thoughts and insights for students who do it. Also with mathematical problem solving like this we are increasingly capable of dealing with problems in our daily lives. Student-centered learning process activities, where students are given the opportunity to construct knowledge and flexibility in solving a problem are thought to be able to support the improvement of students' mathematical problem solving abilities.

The fact in the field shows that students' mathematical problem solving abilities are still relatively low, where the learning process that takes place is more focused on the targets to be achieved by the teacher without paying attention to the students' mathematical problem solving abilities. Purnama & Mertika, (2018: 59) stated that "but in fact, in the implementation of mathematics in the classroom in general it only focuses on achieving the target material according to the textbook or curriculum, not on the material that students learn". This causes students to only memorize concepts and do not understand the meaning of its contents.

Furthermore, based on the results of research conducted by the author at SMP N 1 Kuta Buluh, it shows that most students still have difficulty in solving problem-based questions, this affects students' mathematical problem solving abilities which are still relatively low.

Based on the results of student answers obtained, namely from 32 students who were given this question when viewed from the problem-solving scoring guidelines from the aspect of students' problem-solving abilities, the understanding of the problem with achievement indicators did not provide an answer at all there were as many as 13 students who were presented from the number of 32 students obtained. 40.625% then the achievement indicator did not write down what was known and asked there were 11 people who were presented from the number of students 32 people got 34.375%, then furthermore the achievement indicator was written wrong which was known and asked there were 5 people who were presented from the number of students 32 people got 15.625% , then the achievement indicators for writing that are known and asked correctly but incompletely there are as many as 2 people who are presented from a total of 32 students, getting 6.25%, and the last is from the aspect of understanding the problem of writing achievement indicators that are known and asked correctly and completely there is as much as 1 person who is represented from the number of students 32 people get 3.125%.

In the aspect of compiling a problem-solving plan with indicators of no answers at all there were 10 students represented from the number of students 32 people got 31.250%, then the indicator of achievement of the strategy used was irrelevant there were as many as 10 people represented from the number of students 32 people got 31.250% , then the indicator of achievement of the strategy used is less able to be implemented and cannot be continued there are as many as 8 people who are represented from the number of students 32 people get 25%, then the indicator of achievement of the strategy used is correct but leads to the wrong answer or does not try another strategy. as many as 4 people who were presented from the number of students 32 people got 12.5%, and the last one from the aspect of planning problem solving achievement indicators using several procedures that lead to the correct answer there were no students who answered correctly so that it was presented from the number of students 32 o rang get 0%.

The author also conducted interviews with mathematics teachers in class VIII-A of SMP N 1 Kuta Buluh regarding students' mathematical problem solving abilities. From the results of interviews conducted by researchers with mathematics teachers in class VIII-A of SMP N 1 Kuta Buluh, general information was obtained that the mathematical problem solving ability of students in class VIII-A of SMP N 1 Kuta Buluh was

still low. From the interview, information was obtained (1) Most of the students had written down what they knew and were asked about, but could not make a mathematical model. (2) Most of the students did not explain the concepts and strategies they used in problem solving, (3) Most of the students could not interpret the mathematical problem solution that they got back into contextual problems, (4). Most students are not able to solve problems with predetermined concepts.

Each student's mathematical problem solving ability is different. Cahyono, (2015: 1) states that "factors that affect students' mathematical problem solving abilities include intelligence, motivation, interests, talents and gender". This is in line with the opinion of Elci, (2017: 101-106) which states that "student attitudes based on gender differences affect students' mathematical problem solving abilities". Rodriguez, et al (2020: 1299) stated that "there is a significant influence between men and women on students' mathematical problem solving abilities". We can see that students of different genders have different attitudes and abilities in solving test questions based on mathematical problem solving. Mubeen et al, (2013: 39) stated that "male students and female students have differences in the achievement of mathematics achievement". Kuzmina, et al (2021: 104) stated that "the mathematical problem solving ability of male and female students is also influenced by the lack of attention from the surrounding environment". Papyrina, et al (2020: 89) stated that "male students and female students have differences in mathematical problem solving skills and abilities". It is known that male and female gender have differences in the achievement of mathematics achievement such as students' mathematical problem solving abilities.

Das & Wilkinson, (2017: 48) stated that "there are significant differences between male students and female students with regard to the ability to solve mathematical problems". This is also in line with the results of research conducted by the author, which shows that there are significant differences between male and female students. Female students are higher at the stage of understanding the problem with a difference of 1.10%, the stage of preparing a problem-solving plan with a difference of 21.30%, the stage of implementing a problem-solving plan with a difference of 22.00%, and the stage of checking back with a difference of 28.00%.

Based on the previous description, it is very necessary to develop students' mathematical problem solving abilities in schools, especially in learning mathematics. The facts obtained also indicate that the overall mathematical problem solving ability of students at SMP N 1 Kuta Buluh class VIII-A is still relatively low. Therefore, the authors are interested in conducting a study to obtain more in-depth information regarding the mathematical problem solving abilities of students at SMP N 1 Kuta Buluh. The title of the research is "Analysis of Students' Mathematical Problem Solving Ability in terms of Gender Differences at 1 Kuta Buluh Junior High School".

## **2. Research Method**

### **Types of research**

The type of research used in this research is descriptive qualitative research. Denzin and Lincoln (in Moleong, 2017: 5) state that "qualitative research is research that uses a natural setting that uses a natural setting, with the intention of interpreting phenomena that occur and is carried out by involving various existing methods".

### **Research Subjects and Objects**

The subjects in this study involved 12 students of class VIII-A SMP N 1 Kuta Buluh, of which 6 were male students and 6 female students were with high, medium and low criteria respectively. The object of this research is the students' mathematical problem solving ability in terms of gender differences.

### **Data analysis**

Field observations were carried out to deepen students' ability problems as research subjects. The research instrument that was arranged was adjusted to the formulation of abilities obtained from the conclusions of field observations. The instruments compiled consist of Mathematical Problem Solving Ability Instruments and learning tools. Mathematical Problem Solving Ability Instruments are arranged to get a complete picture of students' ability to understand mathematical concepts. Meanwhile, learning tools are arranged in relation to conditioning students to understand mathematical concepts and learn independently. To ensure that the instruments and learning tools that are prepared are in accordance with the abilities designed as a result of field observations, the accuracy of the instruments and learning tools is validated. Learning students' problem solving abilities in terms of gender. intended to condition research subject students to get used to understanding mathematical problems and using them in solving mathematical problems. The implementation of this activity is carried out after the entire series of learning activities using problem solving skills in terms of gender has been completed. The problem-solving ability test activity in terms of gender and filling out the questionnaire was carried out honestly and transparently, the answer sheets were corrected, and analyzed using the Miles and Huberman Model including: data collection, data reduction, the results of the ability test for understanding concepts and learning independence questionnaire, data display (data display), and conclusions (conclusion) and

verification (verification). Interviews were conducted on the research subject students based on the results of the assessment of students' answers to the problem-solving ability test in terms of gender. Interviews with teachers were conducted to obtain comparative data on the assessment descriptions of students' answer sheets and the results of the descriptions of interviews with students (data triangulation). Data analysis was carried out after the test and triangulation activities were completed. Data analysis was carried out in the form of quantitative descriptions and qualitative descriptions to produce research findings and draw conclusions. Research results in the form of a description of the answers to the formulation of the problem posed in this study. From the results of this description, a discussion is carried out by comparing it to the theory and the results of other similar studies to get a broader picture of problem solving in terms of mathematical gender. This description of the results and discussion will produce conclusions from the research conducted. The following is a chart in this study depicted as Figure 1.

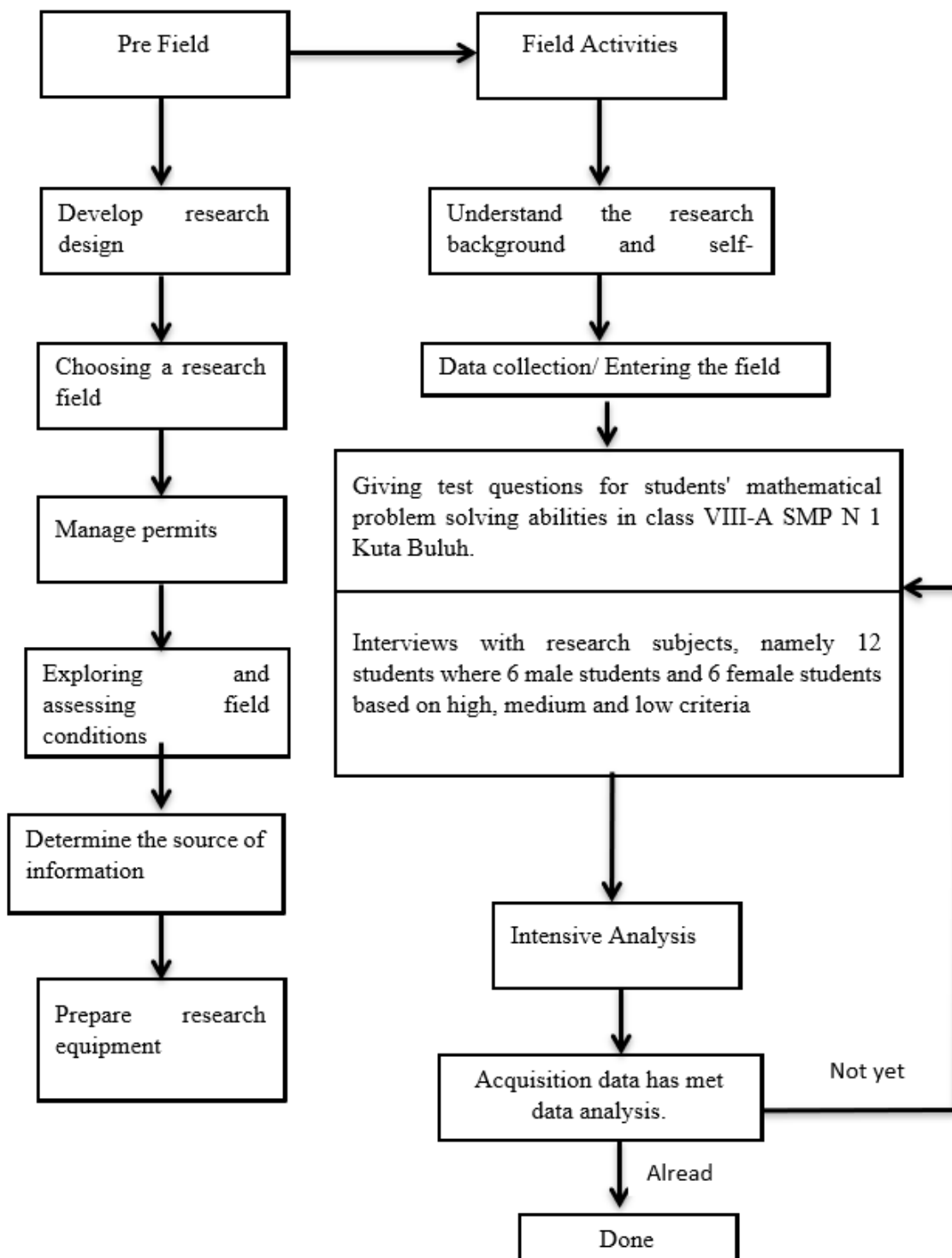


Figure 1 Chart of Procedures and Research Design

### Research Instruments

The instrument used to measure problem solving ability in terms of gender is in the form of a written test. This test is structured referring to indicators of mathematical problem solving ability.

### 3. Research Results

#### Description of Students' Mathematical Problem Solving Ability

The value of the students' problem solving ability test results obtained from students was described statistically which was spread over 3 criteria, namely low, medium, high. The distribution of students' mathematical problem

solving abilities is presented in Table 1.

**Table 1. The Level of Students' Mathematical Problem Solving Ability in Review of Gender Differences in Class VIII-A SMP N 1 Kuta Buluh**

| No | Gender | Score Interval        | Total students | Percentage | Rating Category |
|----|--------|-----------------------|----------------|------------|-----------------|
| 1  | Man    | score $\geq$ 46,78    | 5              | 33,33 %    | Hight           |
|    |        | 3,65 < score > 46,77  | 8              | 53,33 %    | Medium          |
|    |        | score $\leq$ 3,64     | 2              | 13,33 %    | Low             |
| 2  | Woman  | score $\geq$ 54,05    | 2              | 14,28 %    | Hight           |
|    |        | 15,13 < score < 54,05 | 8              | 53,33 %    | Medium          |
|    |        | score $\leq$ 15,13    | 4              | 28,57 %    | Low             |

Based on the results of the mathematical problem solving ability test of 29 students with 15 male students and 14 female students, the students' mathematical problem solving ability level was obtained into three levels, namely high, medium, and low. The level of students' mathematical problem solving ability in terms of gender differences in class VIII-A of SMPN 1 Kuta Buluh above, we can see that there are differences in the mathematical problem solving abilities of male and female students. Male students have more numbers and percentages in the high category grouping of students compared to female students. Furthermore, male students have the same number and percentage as female students in the grouping of students in the medium category. Meanwhile, in the low category grouping, male students have fewer numbers and percentages than female students.

However, in this case we cannot conclude that male students are better than female students, only based on the number of students who are still gender in the high, medium and low categories, because the grouping that is carried out depends on the value of each gender, not on the basis of gender. all students of SMP N 1 Kuta Buluh class VIII-A. We can also see this from the values of the high and low groups, which are still gendered. Male students in the high group with a problem-solving ability score 46.78 and the low group with a problem-solving ability score 3.64. Meanwhile, female students in the high group with a problem-solving ability score 54.05 and the low group with a problem-solving ability score 15.13. From the problem-solving ability scores of male students and female students in the high and low groups above, it is possible that female students are better than male students on the problem-solving ability test that has been done. This will be discussed further in the discussion of student written test results followed by interviews with predetermined research subjects

The percentage of male students' mathematical problem solving abilities in class VIII-A of SMP N 1 Kuta Buluh can be seen in Table 2

**Table 2 Percentage of Mathematical Problem Solving Ability Male Students in Class VIII-A SMP N 1 Kuta Buluh**

|  | Percentage of Each Stage of Students' Mathematical Problem Solving |           |           |           |
|--|--|-----------|-----------|-----------|
|  | Problem 1  | Problem 2 | Problem 3 | Problem 4 |
| Understanding the problem              | 57 %   | 50 %      | 37 %      | 23 %      |
| Develop a problem-solving plan         | 1,7%   | 0 %       | 27 %      | 33%       |
| Implementing a problem solving plan    | 27 %   | 25%       | 27 %      | 25 %      |
| Checking troubleshooting results again | 23,3%  | 18,3 %    | 18,3 %    | 11,7 %    |

Based on the results of the mathematical problem solving ability test of male students, it can be seen the results of the completion of each given question in terms of each stage, namely the stage of understanding the problem, the stage of compiling a problem-solving plan, the stage of implementing a problem-solving plan, and the stage of re-examining the results of problem solving. to the four test questions. From 15 male students, we can see that they have different percentages for each question and each stage of predetermined mathematical problem solving ability. At the stage of understanding the problem the percentage of male students from questions number 1 to number 4 decreases. It can be seen that the stage of understanding the problem is the highest in question number 1, followed by question number 2, then question number 3 and understanding the lowest problem in question number 4. It is possible that at the stage of understanding problems number 1, 2, 3 and 4 male students tend to have able to write down what is known and asked is correct but not complete. From the percentage of the stage of understanding the problem of male students which is still relatively low, it is possible that male students on questions number 1, 2, 3 and 4 have not been able to explain the appropriate problem sketch of each question.

Based on the percentages and diagrams of the level of mathematical problem solving ability of male students in class VIII-A of SMP N 1 Kuta Buluh above, it is suspected that students' mathematical problem solving abilities are still low. It can be seen that students have not been able to understand the problems given

well where the percentage at the stage of developing a problem solving plan for female students is still low. This also affects the stage of carrying out problem solving and checking the results of problem solving shows that the percentage is still low.

The percentage of female students' mathematical problem solving abilities in class VIII-A of SMP N 1 Kuta Buluh can be seen in Table 3

**Table 3 Percentage of Mathematical Problem Solving Ability Female Gender Students in Class VIII-A SMP N 1 Kuta Buluh**

|  | Percentage of Each Stage of Students' Mathematical Problem Solving |           |           |           |
|--|--|-----------|-----------|-----------|
|  | Problem 1  | Problem 2 | Problem 3 | Problem 4 |
| Understanding the problem              | 88 %   | 71 %      | 55,4%     | 43 %      |
| Develop a problem-solving plan         | 8,9 %  | 25%       | 52 %      | 25 %      |
| Implementing a problem solving plan    | 32%  | 27 %      | 21 %      | 23 %      |
| Checking troubleshooting results again | 27 %   | 20 %      | 16 %      | 20%       |

Based on the results of the mathematical problem solving ability test of 29 students with 14 female students, it can be seen the results of the completion of each given question in terms of each stage, namely the stage of understanding the problem, the stage of compiling a problem solving plan, the stage of implementing a problem solving plan, and the stage of examining return the problem solving results to the four test questions. From 14 female students, we can see that they have different percentages for each question and each stage of predetermined mathematical problem solving ability. At the stage of understanding the problem the percentage of female students decreased. The stage of understanding the problem the highest percentage lies in question number 1 and the lowest percentage lies in question number 4. It is possible that at the stage of understanding problems number 1, 2, 3 and 4 female students tend to be able to write down what is known and asked is correct but not complete and the same the case with male students, female students have not been able to explain the appropriate problem sketch of each question.

Based on the average percentage of each stage of the mathematical problem solving ability of male and female students in class VIII-A of SMP N 1 Kuta Buluh which has been presented in Table 2 and Table 3, it is obtained a comparison of the average percentage of male and female students who presented in Table 4

**Table 4. Comparison of the Average Percentage of Mathematical Problem Solving Ability of Male and Female Students in Class VIII-A SMP N 1 Kuta Buluh**

| Indicator                              | The Average Percentage of Each Stage of Students' Mathematical Problem Solving |         |
|--|--|---------|
|  | Man  | Woman   |
| Understanding the problem              | 41,67 %  | 64,29%  |
| Develop a problem-solving plan         | 15,42 %  | 27,68 % |
| Implementing a problem solving plan    | 25,83 %  | 25,89 % |
| Checking troubleshooting results again | 17,92 %  | 20,54 % |

In the comparison table of the average percentage of mathematical problem solving abilities of male and female students above, it can be seen that the overall percentage of female students' mathematical problem solving abilities is higher than the percentage of male students' mathematical problem solving abilities. The difference that looks very clear is at the stage of understanding the problem and developing a problem-solving plan. Meanwhile, at the stage of implementing the problem-solving plan, it is almost invisible, because only the percentage difference is 0.06%. Furthermore, at the stage of re-examining the results of problem solving, there is also a difference in percentage but not too high. It is possible that female students better understand problems, are better able to develop problem solving plans, are more thorough in carrying out problem solving and are better able to review the results of problem solving that exist in each problem solving ability problem given than male students.

#### 4. Research Discussion

Problem solving ability is one of the higher order thinking skills. Conceptual understanding ability is a general ability that students must have to have other abilities such as problem solving skills, communication skills, and mathematical representation abilities (Lestari & Surya, 2017: 92). Problem solving ability is a cognitive activity where the completion process requires several strategies (Riska & Surya, 2017: 269). For that problem solving ability is one of the higher-order thinking skills that need to be improved.

Increased students' mathematical problem solving abilities can affect students' mindsets, students become more creative, critical, confident, responsible, and accustomed to solving problems, especially problems in the

surrounding environment. Improving problem solving abilities will also have an impact on student learning outcomes themselves, where students' mathematical problem solving abilities increase, student learning outcomes will also be better (Rustam, et al, 2017: 322). Students' mathematical problem solving abilities will increase when students are given the opportunity to complete and review the process of solving a problem (Amalia, et al, 2017: 3403). We can conclude that problem solving ability is one of the higher-order thinking skills that really needs to be improved, by confronting problems and solving them directly by the students themselves.

Each student's mathematical problem solving ability is different. One of the factors that affect students' mathematical problem solving abilities is gender (Cahyono, 2015: 1). There are significant differences in the mathematical problem solving abilities of male and female students (Rodriguez, et al, 2020: 1299). Problem solving ability is strongly influenced by environmental factors of the students themselves such as gender and so on.

The analysis of the mathematical problem solving ability of students in class VIII-A of SMP N 1 Kuta Buluh is still relatively low, because students have not been able to carry out problem solving correctly and completely according to the facts and information obtained from each question. It was noted from the percentage of the number of students based on the assessment category of male students with the high assessment category there were 5 students, namely 33.33%, in the medium assessment category there were 8 students, namely 53.33%, and the low assessment category there were 2 students, namely 13, 33%. While the percentage of the number of students based on the assessment category of female students with a high assessment category there are 2 students, namely 14.28%, in the medium assessment category there are 8 students, namely 53.33%, and in the low assessment category there are 4 students, namely 28.57%. Where the upper limit of the male score interval is 46.78 and above, and the lower limit is 3.64 and below. While the interval for women's scores the upper limit is 54.05 and the lower limit is 15.13 and below. From the results of the presentation, we can see that the mathematical problem solving abilities of male and female students in class VIII-A of SMP N 1 Kuta Buluh show that the percentage of female students is higher than that of boys and overall male and female students are still relatively low.

Analysis of students' mathematical problem-solving abilities in terms of gender differences showed male students at the stage of understanding the problem the average percentage was 41.67%, the stage of preparing a problem-solving plan was 15.42%, the stage of implementing a problem-solving plan was 25.83% , and the stage of re-examining the results of problem solving, namely 17.92%. From the results above, we can see that the highest average percentage of male students is at the stage of understanding the problem and the lowest percentage is at the stage of developing a problem-solving plan.

Based on the problem-solving stages used, it can be analyzed that female students at the stage of understanding the problem the average percentage is 64.29%, the stage of preparing a problem-solving plan is 27.68%, the stage of implementing the problem-solving plan is 25.89%, and the stage of re-examining the result of problem solving is 20.54%. From the results above, we can see that the average percentage of female students is the same as male students, namely the highest at the stage of understanding the problem, then developing a problem-solving plan, followed by implementing a problem-solving plan, and the lowest average percentage being at the stage of re-examining the results of problem solving.

Judging from the analysis of the mathematical problem solving ability of male and female students above, it shows that the mathematical problem solving ability of female students is higher than the mathematical problem solving ability of male students. This is in line with research (Tunnajach & Gunawan, 2021: 7) from the results of his research showing the mathematical problem-solving abilities of male and female students on trigonometry material, where female students are higher than male students, both overall and at this stage. certain. Followed by research conducted by (Davita & Pujiastuti, 2020: 116) in the results of his research showing that the mathematical problem solving abilities of female and male students have differences, where women are generally focused on things that are concrete, practical, emotional and practical while men are focused on things that are intellectual, abstract and objective. Similar to the research conducted by (Buranda & Bernard, 2018: 38) in its research results show students' mathematical problem solving abilities on circle material, female students are on average better than male students can be seen from the way of thinking and understanding and solve the problem.

Lestari, et al (2021: 1141) also showed mathematical problem solving abilities on matrix material, overall female students were better than male students this was influenced by the level of student accuracy when doing calculations. The results of the study (Annisa, et al, 2021: 481) also show that students' mathematical problem solving abilities on cube material, girls are superior to male students, this is influenced by accuracy and thoroughness, while male students are superior in the application of logic. Overall mathematical problem solving ability of female students is better than male students influenced by the way of thinking, understanding and solving problems. This is also influenced by the level of precision, accuracy and application of logic where women are more focused on things that are concrete, practical, emotional and practical while men are focused on



things that are intellectual, abstract and objective.

There are differences in the mathematical problem solving ability of male and female students seen from the average percentage of students' mathematical problem solving abilities. Female students are higher at the stage of understanding the problem with a difference of 22.62%, the stage of drawing up a problem solving plan with a difference of 12.26 %, the stage of implementing a problem-solving plan with a difference of 0.06%, and the stage of re-examining the results of problem solving with a difference of 2, 62%. This is in line with research conducted (Tunnajch & Gunawan, 2021: 13) which shows that overall female students are higher than male students with differences in the stage of understanding the problem that is 11.30%, the stage of preparing a problem-solving plan is 3.28%, the stage of implementing the problem-solving plan is 10.68%, and the stage of re-checking is 9.76%". Furthermore, it was also conveyed by (Buranda & Bernard, 2018: 13) overall female students are better than male students, it can be seen from the difference in the stage of understanding the problem which is 1.40%, the stage of compiling a problem-solving plan is 24.30%, implementing the problem-solving plan is 24.30%, and the stage of re-checking is 30.00%. It can be concluded from the average percentage showing the mathematical problem solving ability of SMP N 1 Kuta Buluh students showing that female students are higher than male students. However, there is no significant difference in solving mathematical problems for male students and female students.

Analysis of students' written test results showed that at the stage of understanding the problem, more female students were able to write down both what was known and asked according to the information obtained from the questions. Meanwhile, male students have also written down what is known and asked, but it is not complete according to the information from the questions. However, male and female students have not been able to determine the correct problem-solving sketch, indicating that male and female students have not been able to understand the problem well.

At the stage of developing a problem-solving plan, female students were better than male students. It can be seen from the test results that most of the female students have been able to write what strategies will be used in implementing the given problem solving. Meanwhile, only a few male students were able to write strategies according to the facts obtained from the questions. However, in this case male students and female students have not been able to write down the correct and complete strategy in accordance with the existing facts, which shows things that are in line with the stage of understanding the problem, where male and female students have not been able to understand the problem well, so unable to write good problem solving planning strategies.

At the stage of implementing the problem-solving plan for female students and male students seen from the test results showed the same results, where male and female students even though they were able to write problem-solving implementation strategies, could not implement the problem-solving plan correctly, even of male and female students 317 have implemented predetermined strategies in solving problems not only not being able to solve them well, but also miscalculations. There are some students who write step by step in an unordered manner so that the expected solution is not achieved. In this case, it shows that male and female students have not been able to understand the problem well even though some have been able to determine the problem-solving strategy to be used.

At the stage of re-examining the problem solving results of female and male students seen from the test results showed the same results. Where male students and female students have not been able to check the results of problem solving correctly, and cannot apply different procedures in re-examining the results of the solution. but the results of the interviews showed that female students were better than male students, because female students showed responses that had tried to re-examine the final results but did not apply other procedures.

Gender differences make people think whether the way of learning, the way of thinking is different according to gender. This is in line with research conducted by (Davita & Pujiastuti, 2020: 116) which shows that overall female students are better than male students starting from the stages of understanding the problem, developing a problem-solving plan, the stage of implementing a problem-solving plan, and re-examining problem solving results. This is influenced by differences in roles, functions, and responsibilities between men and women which are the result of social influences and change according to the times. Furthermore, research conducted by (Indrawati & Nurfaidah, 2016: 24) shows that the overall mathematical problem solving ability of male and female students is good, but male students tend to be in a hurry while girls prioritize neatness.

This is in line with the function of the interview guide, namely to find out the responses of the research subjects more deeply, to be able to clarify the answers given by the research subjects and the data obtained are valid with the results of the tests that have been carried out (Sugiyono, 2015: 317). Furthermore, the interview is a meeting of two people to exchange information and question and answer ideas, so that meaning can be constructed in a certain topic (Sugiyono, 2016: 231). At this stage it is intended to test the validity of students' written answers to the problems given so that a description of students' mathematical problem solving abilities is obtained in each stage of problem solving used.

From the results of the explanation of the answer sheets on the problem solving process carried out by students with excerpts from interviews of research subjects that have been determined, we can conclude that the

mathematical problem solving abilities of Class VIII-A students of SMP N 1 Kuta Buluh are still low and in terms of gender differences, namely female students are better than students. man.

## 5. Conclusion

The mathematical problem solving ability of students in class VIII-A of SMP N 1 Kuta Buluh is still low, seen from the interval score of male students in the high group with a problem solving ability score 46.78 and the low group with a problem solving ability score 3.64. Meanwhile, female students in the high group with a problem-solving ability score 54.05 and the low group with a problem-solving ability score 15.13. In terms of gender differences, male and female students have not been able to understand the problem well. At the stage of understanding the problem, a small number of male students have written down what is known and asked but is not correct, and has not been able to sketch problem solving correctly. at the stage of planning problem solving, most of the male students have not been able to plan problem solving well. At the stage of carrying out problem solving, most of the male students have not been able to implement the problem solving strategies that have been determined. At the stage of re-examining the results of problem solving, male students did not apply other procedures to check their answers, from the results of the interviews showed that male students did not try at all to check their answers other than asking friends and teachers. It can also be seen from the average percentage of male students' mathematical problem solving abilities at the stage of understanding the problem that is 41.67%, the stage of preparing a problem solving plan is 15.42%, the stage of implementing a problem solving plan is 25.83%, and the stage of re-examining the results of problem solving is 17.92%.

While female students at the stage of understanding the problem, most of them have written down what is known and asked correctly and completely but have not been able to sketch problem solving correctly. at the stage of planning problem solving, most of the female students were able to plan problem solving well. At the stage of implementing problem solving, most of the female students have not been able to implement the problem solving strategies that have been determined previously. At the stage of re-examining the results of problem solving, female students did not apply different procedures to check the answers, but the results of the interviews showed that female students had tried to re-examine the results of their answers by reading the questions and paying attention to the solutions. It can also be seen from the average percentage of female students' mathematical problem-solving abilities at the stage of understanding the problem, namely 64.29%, the stage of developing a problem-solving plan that is 27.68%, the stage of implementing the problem-solving plan is 25.89%, and the stage of implementing the problem-solving plan is 25.89%. re-examine the results of problem solving, namely 20.54%.

There are differences in mathematical problem solving abilities of female and male students. The highest difference can be seen at the stage of understanding the problem and the stage of planning problem solving. At the stage of understanding the problem female students are better than male students, where female students tend to be better able to write down what is known and asked. Female students tend to be more thorough, more careful, pay more attention to what information is conveyed from the questions. In contrast to male students who only write as long as there is something that is known or asked, there are even students who do not write anything at all. Furthermore, at the stage of compiling a problem-solving plan, female students were better than male students, where female students tended to be better able to draw up a problem-solving plan as to what kind of problem-solving plan would be used to solve the problem than male students. At the stage of carrying out problem solving and re-examining the results of problem solving female and male students also have differences, where female students are better than male students but the difference is not that big. At the stage of re-examining the results of problem solving, female students tend to be better able to draw conclusions from the results obtained even though not using different procedures, while male students are not. This can also be seen from the results of the average percentage of each stage, namely the stage of understanding the problem with a difference of 22.62%, the stage of preparing a problem-solving plan with a difference of 12.26%, the stage of implementing a problem-solving plan with a difference of 0.06%, and the stage of implementing a problem solving plan with a difference of 0.06%. re-examine the results of the problem solving with a difference of 2.62%.

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