

MATHEMATICAL COMMUNICATION ABILITY OF CLASS V SD STUDENTS ON FLAT BUILDING MATERIALS VIEWED FROM GENDER

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Article Info

Article history:

Received: 27-01-2023

Revised: 06-04-2023

Published: 31-05-2023

Keywords:

Mathematical
 Communication
 Skills
 Gender

ABSTRACT

This study aims to describe the mathematical communication abilities of fifth-grade students on the material of flat shapes in terms of the gender of students at SDN 84 Singkawang. The research used is descriptive quantitative research. The population of this study was the fifth-grade students at SDN 84 Singkawang, consisting of VA and VB classes, which consisted of 44 students. The data collection technique used was the test technique, and the data analysis technique used was quantitative descriptive analysis with percentages. The results showed that mathematical communication skills in terms of gender were the mathematical communication skills of fifth-grade male students in solving problems. Subjects with high abilities could fulfil all indicators of students' mathematical communication abilities. Subjects with moderate ability can explain ideas, everyday situations and mathematical relationships in writing with pictures. At the same time, the mathematical communication abilities of fifth-grade female students in solving questions on subjects with high abilities could fulfil all indicators of students' mathematical communication abilities. Subjects with moderate ability can explain ideas, everyday situations and mathematical relationships in writing with pictures. Meanwhile, subjects with low abilities are less able to explain ideas, everyday situations and mathematical relations in writing with pictures and communicate the conclusions of answers to problems according to the results of the questions. Thus it can be concluded that students' mathematical communication abilities in terms of gender in this study averaged 74% in the moderate category.

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1. INTRODUCTION

Education is one of the efforts to improve the quality of human resources as a determining factor for success in development. The aim of education, in general, is to provide an environment that allows students to optimally develop their talents and abilities so that they can realize themselves and function fully, according to their personal needs and the needs of society. The implementation of education can take place as expected if it gets serious attention from the government, teachers, parents and the community.

Mathematics consists of interrelated concepts, both between one mathematical concept and another mathematical concept, mathematical concepts with other sciences, and mathematical concepts with everyday life (Utami & Anitra, 2019).

Based on Government Regulation (PP) No. 32 of 2013 Article 771 concerning National Education Standards, the curriculum structure for SD/MI, SDLB or other equivalent forms consists of content, one of which is mathematics. The objectives of learning mathematics in elementary schools are listed in Permendiknas number 22 of 2016, namely: (1) Understanding mathematical concepts, explaining the interrelationships between concepts and applying concepts or algorithms in a flexible, accurate, efficient and precise way in solving problems; (2) Using reasoning on patterns and properties, performing mathematical manipulations in making generalizations, compiling evidence, or explaining mathematical ideas and statements; (3) Solve problems which include the ability to understand problems, design mathematical models, complete models and interpret the solutions obtained; (4) Communicating ideas with symbols, tables, diagrams, or other media to clarify conditions or problems; and (5) Having an attitude of appreciating the usefulness of mathematics in life, namely curiosity, concern, and interest in learning mathematics as well as being tenacious and confident in solving problems.

The mathematical abilities formulated by NCTM (2000), are (1) mathematical communication; (2) mathematical reasoning; (3) problem-solving; (4) mathematical connections; and (5) mathematical representation, contained in general in core competencies and basic competencies in particular. The description above shows that mathematical communication ability is one of the goals of mathematical ability that must be achieved.

Mathematical communication skills can be interpreted as an event of dialogue or mutual relations that occur in the classroom environment, where there is a transfer of messages, and the transferred messages contain mathematical material that students are studying, for example, in the form of concepts, formulas, or strategies for solving a problem. The parties involved in communication events in the classroom environment are teachers and students. Given the importance of mathematical communication competence for students, but more than this competency is needed, it is necessary to conduct in-depth research on the profile of students' mathematical communication abilities.

The results of research from Aminah (2018) show that mathematical communication skills are classified as low. Mathematical communication ability to model a situation through writing, concrete objects, pictures, graphics, and algebraic methods could be higher. Mathematical communication ability to explain and make questions about the mathematics that has been studied is low. The results of this study became the basis for the authors to conduct further research on the mathematical communication abilities of students at SDN 84 Singkawang.

Lack student response during the learning process because learning is only teacher-centred. Students tend only to take notes given by the teacher so they can answer the questions that will be tested later. Of course, this will affect student learning outcomes. This needs to get more attention so that it always creates a conducive, interesting and not boring classroom atmosphere for students so that students become more enthusiastic and active in learning.

Based on the results of pre-research on mathematics teachers at SDN 84 Singkawang, students' mathematical communication skills are still low, especially in working on word problems related to flat shapes, because in flat shape material, there are quite a lot of symbols, and pictures and other mathematical ideas. So, solving it required good communication skills. Difficulties in conveying or communicating ideas or solving problems related to flat shapes can be seen from the inability of students to understand the words or sentences in the problem and do not know the subject matter that must be solved in the problem. Hence, students have difficulty expressing the story problem through pictures or symbols in mathematics.

Another factor that can affect mathematical communication skills is gender. Male and female students have strengths in their mathematical abilities (Utami & Anitra, 2020). The research results show that gender differences have contributed to explaining a person's profile in solving problems and communicating the results, although these differences are not consistent.

Robert Stoller first introduced The term gender separates human characteristics based on socio-cultural definitions with definitions derived from biological and physical characteristics; as Stroller, Oakley defines gender as a social construction or attribute imposed on humans built by humans (Nugroho, 2008).

The results of Nugraha's research (2019) show that the drawing aspect for female students is higher than for male students, as can be seen from the average value of the drawing aspect, which is 51.7 or 60.4% for female students, while for female students men have an average score of 33.9 or 39.4% with a difference of 17.8 or 20.8%. There are two indicator components in this aspect: expressing a situation or a mathematical idea in the form of a picture and solving it. Female students, the indicator component, completed a higher score

than those expressing a situation or a mathematical idea in an image. This can be seen from the results of the answers of female students who tend to prioritize solving in their way by ignoring the components of expressing a situation or a mathematical idea in the form of an image. On the other hand, for male students, it is higher in expressing a situation or mathematical idea in the form of an image rather than solving it. It can be seen from the results of students' answers that they prioritize components in expressing a situation or mathematical idea in the form of a picture but need to be more right in solving it. This means that female students are more proficient in solving them. In contrast, male students are more proficient in indicators of expressing a situation or mathematical idea in the form of an image. (1) Describe the mathematical communication skills of fifth-grade male students on the flat shape material at SDN 84 Singkawang. (2) to describe the mathematical communication skills of fifth-grade female students on flat shape materials at SDN 84 Singkawang.

2. RESEARCH METHOD

The research used in this study is quantitative descriptive research. The research was conducted at Singkawang 84 Public Elementary School, located at Jl. Trisula, Naram, North Singkawang, Singkawang City. When the research is carried out in the odd semester of the 2021/2022 school year. The population in this study were all fifth-grade students at SDN 84 Singkawang, consisting of VA and VB classes, totalling 44 students. The sample in this study was class VB at SDN 84 Singkawang.

The instrument used in measuring students' mathematical communication skills is a sheet of mathematical communication ability tests used to obtain data on students' mathematical communication abilities. The mathematical communication ability test sheet used describes 3 questions adopted from Mudayanah (2020), which has been validated. The teacher gives the test sheet, and the teacher gives it to students. The questions given based on the sub-topic of flat shapes meet the indicators of interpreting, classifying, describing, explaining and concluding.

3. RESULT AND DISCUSSION

The recapitulation of the results of the data obtained from the students' mathematical communication ability tests in each category is briefly presented in the following table:

Table 1. Mathematical communication skills in each category

Gender	Number of Students	Test Category	Number of Students	Number of Subjects	Mean	Category
Man	8	High	2	1	73%	Medium
		Medium	6	1		
		Low	0	0		
Woman	12	High	4	1	74%	Medium
		Medium	6	1		
		Low	2	1		
Total	20				74%	Medium

Based on the table, it was found that as many as 20 students, with an average of 74%, were included in the medium category. For male students, there was no low category of mathematical communication ability. In the high category of mathematical communication skills, 2 students were obtained, while in the medium category was obtained by 6 students were. For female students, 4 people found high category mathematical communication abilities, 6 people in the medium category, and 2 people in the low category. Based on the study's results, it was found that students with mathematical communication skills showed differences between groups of male and female students. Groups of male students had high and medium categories of mathematical communication skills, while female students had high, medium, and low categories of mathematical communication abilities. This difference can be seen from the categories of mathematical communication abilities obtained from the sheet of mathematical communication abilities that no male students fall into the low category. In contrast, in the high category, there are 2 students. In the medium category, there are 6 students; for female students, in the high category, there are 4 students, medium category, there are 6 students; and low category, there are 2 students.

The results of the analysis with high ability in male students who have mathematical communication skills in the S-01 subject can master all indicators. The analysis results with the moderate ability of male

students having mathematical communication skills on subject S-09 on the first indicator S-09 did not write down information that was known and asked; on the indicator to write conclusions, S-09 also did not write it on the answer sheet. The results of the analysis with high ability in female students who have mathematical communication skills in the S-02 subject can master all indicators. The results of the analysis with medium ability in female students having mathematical communication skills in the S-11 subject did not write down the information that was known and asked, in the indicators of writing the conclusions of the S-11 also did not write it on the answer sheet. The results of the analysis with low ability on female students who have mathematical communication skills on the subject S-05 do not write down the information that is known and asked, the indicator illustrates a flat figure that corresponds to the problem S-05 cannot describe it, and S-05 also does not write a conclusion on the answer sheet. This discussion discusses important findings from research results based on relevant theories and previous research results. These important findings include students' mathematical communication skills in terms of gender.

Based on the results of Matappa's research (2019), the study shows that male and female subjects have different mathematical communication abilities and that the mathematical communication abilities of male students are still low. On the indicator, write down the answers according to the intent of the questions and make conclusions in writing using your language.

Based on the results of Nugraha's research (2019), overall mathematical communication ability. The mathematical communication skills of male students in the writing aspect were higher than in the drawing and mathematical expression aspects. Students' mathematical communication skills in the aspect of writing male students were higher than in female students, with a difference of 3.6%. Based on the study's results, it was found that students with mathematical communication skills showed differences between groups of male and female students. The male students have a high and medium category of mathematical communication abilities. This difference can be seen from the categories of mathematical communication skills, which are obtained from the sheet of mathematical communication abilities that there are no male students who fall into the low category, while in the high category there are 2 students and in the medium category there are 6 students.

The results of the analysis with high ability on male students who have mathematical communication skills on subject S-01 are able to master all indicators. write down information that is known and asked, on indicators write conclusions S-09 also do not write them on the answer sheet.

Based on the results of Matappa's research (2019), the results of the study show that male and female subjects have different mathematical communication abilities, that the mathematical communication abilities of female students are higher than those of male subjects.

Based on the results of Nugraha's research (2019) the research results show that female students are higher than male students with a difference of 9%. The mathematical communication skills of female students in the drawing aspect were higher than in the writing and mathematical expression aspects. The students' mathematical communication ability in the drawing aspect for female students was higher than that of male students with a difference of 20.8%. Students' mathematical communication skills in the aspect of mathematical expression for female students were higher than male students with a difference of 8.8

Based on the results of the study, it was found that students who had mathematical communication skills showed differences between groups of male and female students. The group of female students has high, medium, and low categories of mathematical communication abilities. For female students in the high category there are 4 students, in the medium category there are 6 students, and in the low category there are 2 students. The results of the analysis with high ability in female students who have mathematical communication skills in the S-02 subject are able to master all indicators. The results of the analysis with medium ability in female students having mathematical communication skills in the S-11 subject did not write down the information that was known and asked, in the indicators of writing the conclusions of the S-11 also did not write it on the answer sheet. The results of the analysis with low ability on female students who have mathematical communication skills on the subject S-05 do not write down the information that is known and asked, the indicator illustrates a flat figure that corresponds to the problem S-05 cannot describe it, and S-05 also does not write a conclusion on the answer sheet.

4. CONCLUSION

Based on the results of research at SDN 84 Singkawang, conclusions were obtained. Thus it can be concluded that students' mathematical communication abilities in terms of gender in this study averaged 74%

in the moderate category. (1) The average male student's mathematical communication ability is 73% in the medium category consisting of 2 students with high ability and 6 students with moderate ability. High ability male students are able to fulfill all indicators of mathematical communication skills and medium ability male students are less able to explain ideas, everyday situations and mathematical relationships in writing with pictures. (2) The students' mathematical communication ability in women averaged 74% in the medium category consisting of 4 students with high ability, 6 students with moderate ability, and 2 students with low ability. Female students with high abilities are able to fulfill all indicators of mathematical communication skills, female students with moderate abilities are less able to explain ideas, everyday situations and mathematical relationships in writing with pictures, and female students with low abilities are less able to explain ideas, everyday situations -days and mathematical relationships in writing with pictures and communicate the conclusions of the answers to the problems according to the results of the questions.

ACKNOWLEDGEMENT

Thanks are conveyed to the Principal, teachers, and fifth grade students of SD Negeri 84 Singkawang so that this research can be carried out properly. Then thanks also to STKIP Singkawang for facilitating researchers in completing this article.

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