

The Effect of Student Learning Motivation on Mts Students' Mathematic Communication Ability

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Abstract

This study aims to determine whether there is an effect of student learning motivation on mathematical communication skills. The respondents in this study were 32 students from MTs Negeri Karimun, Kepulauan Riau. A test of mathematical communication abilities and a student learning motivation questionnaire were used. A quantitative descriptive study was used as the research method in this study. Simple linear regression analysis was utilized to analyze the data, with student learning motivation as the independent variable and mathematical communication abilities as the dependent variable. The results of the analysis demonstrate that student learning motivation has an effect on mathematical communication skills, with $\alpha=5\%$.

Keywords: Effect; Mathematical communication; Learning motivation.

INTRODUCTION

Mathematics is one of the fundamental sciences that plays a significant part in education (Ayu, 2017). Mathematics is a science that contributes to the development of other sciences (Siswanto, 2017). According to Subanji Lado in (Fadilla et al., 2021), it is effective to highlight the media (display) in mathematics learning in order to increase students' knowledge. Mathematics is a discipline of science that is used to produce science, technology, and information and communication systems (Laksananti et al., 2017). Communication is required in the learning process in order to fulfill the learning objectives, particularly in mathematics (Nisa & Soro, 2021). Communication is described as a method of transmitting messages from the messenger to the message recipient in order to inform, express opinions, or influence behavior, either directly or indirectly through the media. The practice of comprehending mathematics is one type of mathematical communication (Wijayanto et al., 2018).

One of the most important aspects of teaching, learning, and accessing mathematics is communication. There will be little information, data, and facts concerning students' comprehension of mathematical processes and applications if they do not communicate in mathematics (Fadilah & Amalia, 2020). The learning of mathematics will be affected if there isn't good communication. Tables, graphs, charts, illustrations of mathematical equations, and other symbols can be found in scientific communication. Mathematical communication is a way of exchanging ideas and clarifying concepts. Ideas are refined, discussed, and amended as a result of communication. Students learn to utilize mathematical language in a clear, convincing, and exact manner when they are challenged to convey the findings of their reasoning to others orally or in writing (NCTM, 2000).

During all classroom activities, students communicate with one another, which allows them to improve their mathematics skills, including conceptual and procedural comprehension. Students who do not understand the lesson will usually ask their friends who do understand more to teach them; this is how communication works. Students who don't understand the lesson will seek assistance from friends who are good communicators and teachers (Nisa & Soro, 2021).

There are at least two major reasons why students need to improve their communication skills in mathematics class (Heryan, 2018) . 1) Mathematics as language. This means that mathematics is not only a tool for thinking, detecting patterns, solving problems, and drawing conclusions, but it is also a very useful instrument for presenting various ideas clearly, accurately, and simply. This means that mathematics is not only a tool for thinking, detecting patterns, solving problems, and drawing conclusions, but it is also a very useful instrument for presenting various ideas clearly, accurately, and simply. 2) Mathematics learning as social activity. This means that communication is used in mathematics learning as a social activity, a platform for student participation, and a tool for communication between teachers and students.

Learning motivation is one of the aspects that can affect a student's mathematics communication skills. Learning motivation is an internal process that exists within a person and generates enthusiasm for learning, as well as efforts to reach learning goals and a grasp of learning (Saputra, 2018). The three functions of learning motivation are as follows: 1) Encouraging a particular behavior or conduct. There will be no activity, such as learning, without motivation; 2) Motivation serves as a guidance. Motivation, in other words, drives behaviors toward a desired objective; and 3) Motivation serves as a driving factor. It is to undertake an activity or behavior in order to achieve learning objectives in this case.

The intensity of the motivation will influence whether or not an action is taken (Ayu, 2017). The success of learning is also influenced by student motivation. If students have high levels of learning motivation, the process of learning mathematics will be successful and fulfill its objectives. As a result, learning motivation is important for every learner (Cahyani et al., 2020). Low motivation to learn mathematics will lead to poor mathematics learning results for students (Ayu, 2017). According to the results of research conducted by (Siswanto, 2017) Specifically, while adopting the strategy of motivation, the results of studying mathematics will be improved. This is because motivation encourages students to be more excited about studying and to seek out more learning materials that will help them reach their goals.

METHOD

The descriptive quantitative research method was applied in this research. This study took place at MTs Negeri Karimun Kepulauan Riau, and the participants were grade VII students. A total of 32 students were used as samples. A closed questionnaire including statements relating to learning motivation was employed. There are five response possibilities on the questionnaire: Very often, Often, Sometimes, Rarely, and Very Rarely. There are up to 20 statement items in the learning motivation questionnaire. The responses to the students' questionnaires were then assessed using a Likert scale to provide a general and comprehensive picture of the students' learning motivation.

Three questions on prism and pyramid material are used to assess mathematical communication ability. Each question number is a measure of mathematical communication ability. The problems used to assess mathematical communication skills are organized in a descriptive format. Exploratory, transfer, elaborative, and applicative essay questions, for example, can be used to assess students' mathematical communication abilities (Hodiyanto, 2017). The indicators of mathematical communication skills used are (1) the ability to express a situation or mathematical ideas in the form of pictures or real objects; (2) the ability to express mathematical concepts by stating everyday events in mathematical models; (3) The ability to state and explain everyday events in mathematical language or symbols.

RESULT AND DISCUSSION

The analytical data was generated using data from the distribution of student learning motivation surveys and assessments of students' mathematical communication abilities. From the result analysis data The average score for student motivation in the high category, which included 12 students or 37.5 percent of the total students evaluated, was 78.25. There were 18 students in the medium category, representing 56.25 percent of the total students tested, with an average score of 61.83. The low category has an average value of 43.5, with 2 students or 6.25 percent of the total students tested.

Results of the Student Mathematical Communication Ability Test The average score for students in the high category, with 17 students or 53.125 percent of all students tested, was 78. With an average score of 55, there were 14 students in the medium category, accounting for 43.75 percent of all students tested. The low category had an average score of 33, with the number of students in it being 1 or 3.125 percent of the total number of students tested. Correlation Results of Students' Learning Motivation on Students' Mathematical communication ability A simple linear regression test is utilized to examine the hypothesis test using the final data received. Table 3 shows the results of a simple linear regression study performed with the SPSS (Statistical Product and Service Solutions) application.

The student learning motivation variable (X) has a coefficient value of 0.465 and a constant value of 35,224 in Table 3. The linear regression equation yields $Y = 35,224 + 0,465X$, indicating that for every additional 1 value of learning motivation, mathematical communication skill rises by 0,465.

Table 4 shows that the value of $F_{count} = 5,456 > F_{table} = 4,17$, or that the value of Sig is $0,026 < 0,05$ indicating that the test decision is H_0 rejected. As a result, learning motivation has a significant impact on students' mathematical communication abilities.

The more students are motivated to learn, the more exciting mathematical communication abilities they will develop. In turn, the weaker a student's motivation to learn, the lower his or her communication skills. This is due to a lack of motivation among students to perform academically. Students must seek this passion and encouragement in order to improve their grades, because this will allow them to produce positive results, which will improve their communication skills, allowing them to acquire acceptable replies. The magnitude of the correlation between students' learning motivation and mathematical communication skills will be revealed in Table 5.

From the data analysis shows that the correlation coefficient R is 0,392, with a value of $R^2 = 0,154$, indicating that students' learning desire influences mathematical communication skills by 15,4 percent, impacted by other possible variables. The size of the positive correlation between students' learning motivation and mathematical communication abilities can thus be seen from the correlation coefficient's value of 0,392, indicating that the positive relationship is highly significant. Where students' enthusiasm to learn will have a greater impact on their mathematics communication skills. Students who are very motivated to learn will have greater communication skills than students who are less motivated to learn. The correlation coefficient found from the calculations is 0,392, indicating that students' learning motivation has a significant impact on their mathematics communication skills. leads students' mathematical communication skills to be influenced by the value of learning motivation.

Discussion

If students lack the mathematical communication abilities that they should have in order to solve any existing mathematical problems, their grades and learning outcomes will suffer. According to (Siswanto, 2017) students' accomplishment motivation can improve their mathematics academic worth. This is because motivation encourages students to be more excited about studying and to seek out more learning materials that will help them reach their goals. (Abdi, 2018) conducted a related study, which found a link between student learning motivation and mathematical communication skills. That is, the higher a student's drive to learn, the more mathematical communication abilities they will have, as evidenced by their ability to write, draw, and explain themselves mathematically.

CONCLUSIONS AND SUGGESTIONS

Based on the results of data analysis in the form of test results given to 32 students at MTs Negeri Karimun Kepulauan Riau, it can be concluded that (1) there is a significant influence between students' learning motivation and mathematical communication skills; (2) there is a positive correlation between students' learning motivation and mathematical communication skills, with the better the student's learning motivation having a better effect on their mathematical communication skills.

Based on the result of the research, it can be concluded that teachers should be able to assist in the development of student learning motivation in order to improve students' mathematical communication abilities. So that students can accurately convey the mathematical problems presented by the teacher in order to receive the correct answers to the mathematics problems when learning mathematics.

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