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The Relationship Between Students' Attitudes Towards Mathematics Learning And Mathematical Communication Skills Of Students In Class VIII SMPN 1 Gunungsitoli Idanoi

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Abstract
This study aims to determine whether there is a relationship between students' attitudes towards mathematics learning and mathematical communication skills of 8th grade students of SMPN 1 Gunungsitoli Idanoi. This type of research is quantitative research with an associative approach that aims to determine the relationship between two or more variables. The number of informants from this study was 186 students. Data collection techniques through student attitude questionnaire, and written test of mathematical communication ability. Based on this research, the results of hypothesis testing obtained thitung = 3.969 and ttabel 1.653. Because the hypothesis t_{count} = 3.969> t_{table} 1.653 then H_0 is rejected H_1 is accepted which means "There is a relationship between student attitudes on mathematics learning towards students' mathematical communication skills this shows that there is a significant relationship between the attitudes of students in class VIII SMPN 1 Gunungsitoli Idanoi". So it can be concluded that students' attitudes towards learning mathematics have a relationship to students' mathematical communication skills.

Keywords: *Attitude, Mathematical Communication Ability, Quantitative.*

Introduction

Education is one of the means to create a generation that is able to become the baton of the nation's successor. One of the efforts that the Government has made to achieve an increase in the quality of education is the implementation of the 2013 curriculum (Hodiyanto, 2017; Qoriah & Cici, 2021). The 2013 curriculum currently in effect demands students who are characterized, qualified and can answer the challenges of an increasingly advanced and developing era (Harefa, Lase & Zega, 2023). In addition, the current curriculum requires teachers to be able and able to make the atmosphere of the learning process in schools efficient and effective, able to provide good and interesting stimuli and learning resources to improve student learning skills. In terms of improving learning skills, there must be encouragement from within the students themselves (Laoli, Dakhi & Zagoto, 2022). Learning is a process, namely the process of organizing, organizing the environment around students so that it can foster and encourage students to carry out the learning process.

One of the efforts made by the government is to implement learning based on a scientific approach in the learning process at school. Learning that is a scientific approach is contained in the 2013 curriculum that is currently in effect. This

learning requires students to be more active in finding and discovering for themselves. According to Permendikbud Number 22 of 2016 states that based on the Graduate Competency Standards (SKL) learning must be organized using the principles of one of which is from students being told to students finding out. Therefore, students are expected to be actively involved in the learning process at school.

The learning process is closely related to science. One type of science that is important to have is Mathematics. Mathematics is one of the subjects that plays a very important role in the success of educational programs, because mathematics is part of academic education and the basic science of other disciplines (Telaumbanua, Lase & Mendrofa, 2023; Zagoto, 2018). Mathematics is also a science of examining abstract structures with logical reasoning equipped with evidence and through mathematical communication skills. Mathematics is also one of the subjects taught in schools that plays an important role, because mathematics can help students think systematically, make logical thinking more developed, and can be trained in counting. Given the important role of mathematics in education, learning achievement in each school needs to receive good attention from the government, schools, especially subject caregiver teachers.

Most students think of math as a difficult subject by students at school. This assumption makes the attitude that exists in students vary in learning, especially mathematics (Asrori, 2020; Harahap, 2017). Attitude is an ability that comes from within a person who plays a role in taking action to express something in the form of creativity. Attitude assessment is an activity carried out to find out how the character or behavior of students in class or outside the classroom, socially and spiritually. Attitude assessment also aims to control or guide the development of students' attitudes while studying at school (Idrus, 2019).

Attitude comes from a person's feelings in responding to something or another object. Attitude is categorized as an expression of the values or outlook on life that each person has (Dakhi, 2022; Zagoto, 2022). Attitudes can be formed because of behavior, this can happen according to the desired action. So that there is no good attitude from birth, there is learning and getting used to being good.

The attitude competence referred to in an education or learning is an expression of the values or outlook on life that a person has, which is manifested in action or behavior. Assessment of attitudinal competence carried out by teachers in learning is a series of activities to measure student attitudes while in class as a result of the learning program. Attitude assessment is also a standard in making decisions about student attitudes or behavior. Attitude assessment is useful as part of reflection learning or a reflection of understanding and progress of individual student attitudes. Attitude assessment is no less important than knowledge and skills assessment. Even though the value of knowledge and skills is very good, if the attitude assessment is lacking, the learning objectives have not been achieved.

Attitude or behavior is an activity or activity of an organism that has a very wide range, including: walking, talking, reacting, dressing and so on. Permendikbud article 3 says that attitude is an activity carried out by teachers to obtain descriptive information about student behavior (Sina et al., 2019; Zagoto, Yarni & Dakhi, 2019). A student's attitude towards math will determine whether the student responds positively or negatively to math.

This attitude will also distinguish mathematics from other subjects. If students have a positive attitude towards mathematics, they will categorise mathematics as an interesting and useful subject to learn. Conversely, if students respond negatively to mathematics then students will categorise mathematics as an

uninteresting and less useful lesson to learn.

In reality, there are still many students at SMPN 1 Gunungsitoli Idanoi who have low or negative attitudes towards mathematics. Based on the results of an interview with one of the teachers of SMPN 1 Gunungsitoli Idanoi said that there are still many students who are not happy to learn mathematics because they think that mathematics is a difficult subject to learn, this can be seen from the number of students who come in and out during the learning process and who get low mathematics scores from other subjects. Based on observations in the classroom, it shows that during the teaching and learning process of mathematics, many students' attitudes are not good or negative, one of which is not being able to answer questions from the mathematics teacher. This is due to the lack of student attention during the teaching process. Based on the results of interviews from several students, they said that learning mathematics is difficult because it deals with numbers, formulas and counting. The students did not intend to learn it, unless it was a requirement. Students said this was due to the way the teacher taught which did not motivate students in learning and the enthusiasm to learn from themselves was lacking.

The above is inversely proportional to some students who respond positively to mathematics. Based on an interview with one of the teachers, only a small number of students respond well to mathematics. It can be seen from students who are focused when learning mathematics is taking place, doing their assignments well. Based on the results of interviews from several students, said that learning mathematics is fun because if you understand the concept then you can answer and it feels good especially when you have the highest score among others. This is because students always pay attention when the teacher teaches, and also some students take private lessons.

Based on the observations made, students' attitudes are very influential on students' mathematical communication skills. Mathematical communication ability is the ability of students to convey mathematical ideas both orally and in writing. One aspect that needs to be taught to students is how they are able to express their thoughts both orally and in writing. This is in line with the content standards for primary and secondary education units in mathematics with the Regulation of the Minister of National Education No. 22 of 2006 that "one of the objectives of learning mathematics is that students have the ability to communicate ideas with symbols, tables, diagrams, or other media to clarify the situation or problem".

Mathematical communication skills in students are the basis for making it easier to receive lessons, develop communication skills using symbols, sharpen reasoning that can clarify problems in everyday life, master the next level of material and foster analytical skills. Because of the importance of mathematical communication skills, a teacher must understand mathematical communication and know the indicators of mathematical communication, so that the implementation of mathematics learning needs to be designed as well as possible so that the goal of developing mathematical communication skills can be achieved.

As is the case in the learning process at the school, causing the emergence of problems where if students behave well or respond positively to learning then the student's mathematical communication skills are good. Vice versa, if students respond negatively to mathematics, then the students' mathematical communication skills are also low. The teacher also said that the school has tried to overcome the problem by providing adequate facilities and infrastructure for learning at school, holding meetings for parents, and providing guidance for problem students, but the results have not been achieved. The teacher has also tried to apply various teaching methods in the mathematics learning process to reduce boredom in students and to encourage students to enjoy mathematics

so that students have a positive attitude towards mathematics, using multi-media during the learning process so that students are easier or in communicating mathematically, but has not yet achieved the expected results.

Research Methods

This type of research is quantitative with an associative approach. In this study the population was all class VIII SMP Negeri 1 Gunungsitoli Idanoi. The sampling technique in this study was saturated sampling. This research is quantitative research with an associative approach. In analysing the data, this study used student attitude questionnaire instruments and mathematical communication ability tests. The researcher gave a test question to get data in the form of the results of the subject's answers to find out the student's attitude to learning mathematics in completing the mathematical communication ability test.

Questionnaires and tests given to the subject, previously validated to the validator. Then a test test was carried out from the number pattern material where the material had been previously studied by the subject. The goal is to find out how the results of students' mathematical communication skills after going through the learning process. And after the test was done by students, the researcher conducted an assessment. Then the data validity test is carried out by extending the research to fulfil the data, and the information collected must contain accurate truth values. As a material to fulfil the data from this study, accompanied by taking documentation during the activities carried out. The subjects of this study were class VIII students of SMP Negeri 1 Gunungsitoli Idanoi, totalling 186 students. who will be taken attitude questionnaire data on mathematics learning. Then distributed essay test questions related to mathematical communication skills.

Before this research was carried out, the researcher conducted a test of the test instrument first to determine whether the instrument used in the study was valid or not. The test subjects of the instrument of this study were VIII grade students of SMP Negeri 1 Gunungsitoli Barat totalling 35 students.

Result And Discussion

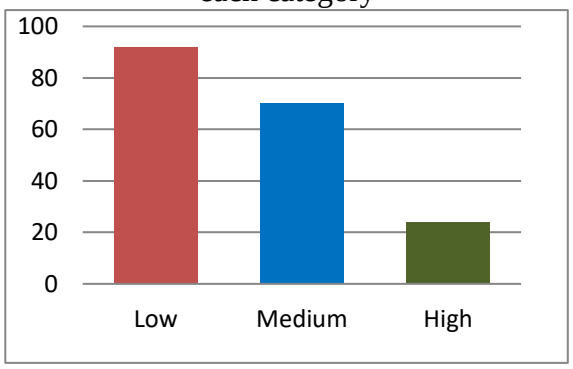
The research findings show that students' attitudes towards mathematics learning and students' mathematical communication skills have a relationship with each other. The relationship between the two can be seen from the average results of students' mathematical communication skills based on how students' attitudes towards learning mathematics. The attitude of students to student learning in mathematics learning can be determined by adjusting the data obtained with the category of students' mathematical communication ability level as follows:

Table 1
Student Attitude Level Categories

Criteria	Category
Score $\geq \bar{x} + (1{,}5 \times S.D)$	High
$\bar{x} - (1{,}5 \times SD) \leq X \leq \bar{x} + (1{,}5 \times SD)$	Medium
$Score < \bar{x} - (1{,}5 \times S.D)$	Low

Based on the student attitude questionnaire data on mathematics learning in the appendix, it is obtained $\bar{x}$ = 51.37 and standard deviation = 13.07 so that the category of student attitude level on mathematics learning "High" is at the vulnerable "Value ≥71", the category of attitude level on mathematics learning "Moderate" is at the vulnerable "32 ≤ Value ≤ 71", and the category of attitude level on mathematics learning "Low" is at the vulnerable "Value ≤ 32".

Figure 1
Diagram of the number of students in each category



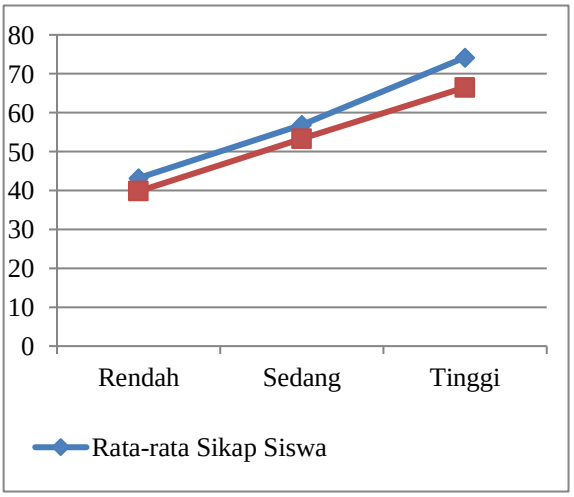
The average mathematical communication skills in each category of student attitudes in mathematics learning are listed in appendix 30 as in the following table:

Table 2
Average Student Attitude in Mathematics Learning and Average KKM

Student Attitude Category	Average Student Attitude	Average KKM	Category KKM
Low	43,2	39,8	Low
Medium	56,8	53,3	Medium
High	74,2	66,5	High

Berikut grafik yang menunjukkan hubungan antara sikap siswa pada pembelajaran matematika terhadap kemampuan komunikasi matematis.

Gambar 2
Grafik hubungan antara sikap siswa terhadap KKM



From the graph above, it can be concluded that if students' attitudes towards learning mathematics are high then students' mathematical communication skills are also higher and vice versa. To see the magnitude of the relationship between student attitudes and students' mathematical communication skills by using the coefficient of determination, namely r2 x 100%. From the calculation results obtained r = 0.28 then with the coefficient of determination r2 = (0.28)2 x 100% = 7.84%. So it can be concluded that 7.84% of students' attitudes towards learning mathematics are related to students' mathematical communication skills.

Conclusion

Based on the results of the research and discussion carried out and based on the research objectives proposed by the researcher, it can be concluded that the statistical test results obtained t_{count} (3.969) $\geq t_{table}$ (1.65318), thus H_0 is rejected and H_1 is accepted. So it can be concluded that there is a relationship between student attitudes towards learning mathematics and students' mathematical communication skills. The relationship between the two is characterized by the higher the student's attitude towards mathematics learning, the higher the student's mathematical communication skills. Conversely, the lower the student's attitude towards learning mathematics, the lower the student's mathematical communication skills.

Bibliography

Asrori. (2020). *Psikologi Pendidikan Pendekatan Multidisipliner*. Jawa Tengah: CV Pena Persada.

Dakhi, O. (2022). Implementasi Model Pembelajaran Cooperative Problem Solving Untuk Meningkatkan

Kreativitas Dan Prestasi Belajar. *Educativo: Jurnal Pendidikan*, *1*(1), 8-15.

Harahap, S. (2017). Kemampuan Pemecahan Masalah Matematis Siswa Kelas VII Dalam Menyelesaikan Persamaan Linear Satu Variabel. *Jurnal Pendidikan Matematika*, *7*(1), (online), (https://online-journal.unja.ac.id/edumatica/article/view/3874)

Harefa, A. D., Lase, S., & Zega, Y. (2023). Hubungan Kecemasan Matematika Dan Kemampuan Literasi Matematika Terhadap Hasil Belajar Peserta Didik. *Educativo: Jurnal Pendidikan*, *2*(1), 144-151.

Hodiyanto. (2017). Kemampuan Komunikasi Matematis Dalam Pembelajaran Matematika. *Jurnal matematika*, *7(*1), Juni, (online), (http://journal.uad.ac.id/index.php/AdMathEdu/article/view/7397)

Idrus, L. (2019). *Evaluasi dalam proses pembelajaran*, dalam Jurnal Manajemen Pendidikan Islam, vol 9 no 2, (online), (https://jurnal.iain-bone.ac.id/index.php/adara/article/view/427)

Laoli, A., Dakhi, O., & Zagoto, M. M. (2022). The Application of Lesson Study in Improving the Quality of English Teaching. *Edukatif: Jurnal Ilmu Pendidikan*, *4*(2), 2238-2246.

Laoli, J. K., Dakhi, O., & Zagoto, M. M. (2022). Implementasi Model Pembelajaran Jigsaw untuk Meningkatkan Motivasi dan Hasil Belajar Mahasiswa Pendidikan BK pada Perkuliahan Filsafat Pendidikan. *Edukatif: Jurnal Ilmu Pendidikan*, *4*(3), 4408-4414.

Qoriah, I., & Cici, N. (2021). Perbandingan Kemampuan Koneksi Matematis Siswa antara Model Pembelajaran Discovery Learning dan Ekspositori. *Plusminus: Jurnal Pendidikan Matematika*, *1*(1), 135-144.

Sina, I., Farlina, E., Sukandar, S., & Kariadinata, R. (2019). Pengaruh Multimedia Interaktif dalam Pembelajaran Matematika Terhadap Kemampuan Komunikasi Matematis Siswa. *Suska Journal of Mathematics Education*, *5*(1), 57-67.

Telaumbanua, B. F. S., Lase, S., & Mendrofa, R. N. (2023). Pengembangan Lembar Kerja Peserta Didik Berbasis Problem Based Learning. *Educatum: Jurnal Ilmu Pendidikan*, *2*(1), 49-56.

Zagoto, M. M. (2022). Peningkatan Hasil Belajar Mahasiswa Melalui Implementasi Model Pembelajaran Kooperatif Word Square. *Educativo: Jurnal Pendidikan*, *1*(1), 1-7.

Zagoto, M. M. (2018). Pengembangan Perangkat Pembelajaran Matematika Berbasis Realistic Mathematic Educations Untuk Siswa Kelas V Sekolah Dasar. *Jurnal Education And Development*, *3*(1), 53-53.

Zagoto, M. M., Yarni, N., & Dakhi, O. (2019). Perbedaan Individu Dari Gaya Belajarnya Serta Implikasinya Dalam Pembelajaran. *Jurnal Review Pendidikan Dan Pengajaran*, *2*(2), 259–265. https://doi.org/10.31004/jrpp.v2i2.48