THE RELATIONSHIP BETWEEN STUDENTS' INTEREST IN LEARNING AND MATHEMATICS LEARNING OUTCOMES

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Abstract

This study aims to determine a positive and significant relationship as well as an influence between students' interest in learning and their mathematics learning outcomes. The research method used in this study is quantitative research with a correlational approach. The population in this study consists of all eighth-grade students at SMP Negeri 1 Toma, totaling 65 students. The sampling technique used is total sampling, meaning the entire population is used as the sample. The instruments in this study include closed-ended questionnaires and students' mathematics learning outcomes in the form of even semester final exam scores (UKK). Data analysis techniques involve describing the data, correlational analysis, coefficient of determination, and hypothesis testing. The results of this study show that there is a positive and significant relationship between students' interest in learning and their mathematics learning outcomes, and there is also an influence of students' interest in learning on their mathematics learning outcomes. It can be concluded that 1) because students have a sense of enjoyment, interest, and a high desire to learn that they perceive as beneficial and satisfying, and 2) students feel comfortable, are aware of the benefits of learning, and understand the learning objectives, which makes them interested and leads to an improvement in learning outcomes.
Keywords: Relationship; Interest; Learning; Students; Mathematics.

A. Introduction

Education is one of the fundamental aspects of human life (Darmawan Harefa, Murnihati Sarumaha, Kaminudin Telaumbanua, Tatema Telaumbanua, Baziduhu Laia, 2023). In Indonesia, education is divided into three pathways: formal education, informal education, and non-formal education (Law No. 20 of 2003, Article 13, Paragraph 1) in (Hesti Anjani Wau, Darmawan Harefa, 2022). One of the forms of formal education is education provided in schools (T Hidayat, A Fau, 2023). Schools serve as the place where students and teachers come together to carry out the learning activities (Harefa, D., 2020b). The learning process involves planning, implementation, and evaluation.

Evaluation is the activity of measuring and assessing students' learning outcomes (M. D. Sarumaha, 2022). Learning outcomes are what students acquire after the learning process is completed (M. Sarumaha et al., 2022). If information absorption is maximized during the learning process, the learning outcomes will also be maximized (Harefa, 2022b).

Learning, in general, is defined as a change in an individual that occurs through experiences, not due to physical growth or natural characteristics (M. Sarumaha & Harefa, 2022). According to Slameto (2010), learning is "a process of effort made by an individual to acquire new behaviors as a whole, as a result of their own experiences in interaction with their environment".

R. Gagne, as cited in Surur, M. (2020), defines learning as "a process in which an organism changes its behavior as a result of experience". Learning outcomes are the abilities possessed by students after they have experienced learning (Iyam Maryati, Yenny Suzana, Darmawan Harefa, 2022). According to Hordword Kingsley (Sudjana, 2011), there are three types of teaching and learning outcomes: 1) Skills and habits, 2) Knowledge and understanding, 3) Attitudes and aspirations. Learning outcomes play a crucial role in the learning process as they provide information to teachers about the progress of learners in achieving their learning goals (Harefa, 2020a).

A student's ability to receive and understand lesson materials can be seen from their learning outcomes (Hesti Anjani Wau, Darmawan Harefa, 2022), which are defined as "the abilities possessed by students after they have experienced learning" (Dimyati and Mudjiono, 2009). According to Nawawi, as cited in Ziliwu (2022), "learning outcomes can be defined as the level of success of students in learning specific subject matter in school, expressed in scores obtained from tests on specific subject matter".

Learning outcomes are a reflection of how students understand the materials presented by the teacher (Harefa, 2018). Learning outcomes are represented as numerical or letter grades obtained by students after taking tests or exams administered by teachers (Harefa, 2020b). Through these learning outcomes, teachers can gain information about how well students understand the materials learned (Harefa, 2020e).

Based on the explanations of "learning outcomes" and "mathematics", it can be concluded that mathematics learning outcomes are "the abilities possessed by students, expressed in the form of scores or numbers, after engaging in mathematics learning activities." Mathematics learning outcomes can be determined by the achievement of specific learning objectives, including changes in behavior, increased knowledge, and the acquisition of skills (Giawa, 2022).

Based on interviews with 8th-grade teachers at SMP Negeri 1 Toma in the 2023/2024 academic year, it was found that the average mathematics learning outcomes of the students in the eighth grade tended to be low and had not reached the Minimum Mastery Criteria (KKM) set by the school, which is 70. The average score was 62, the highest score was 75, and the lowest score was 45. One of the reasons for this was the students' lack of understanding of basic mathematics concepts, such as multiplication and division, and their lack of awareness of the importance of learning mathematics in daily life. Students felt that they didn't need to learn many formulas for everyday life (Harefa & Laia, 2021).

Observations in the field showed that students' attention during mathematics lessons was still low (Harefa, 2020d). This was evident during the math lessons when only some students paid attention to the teacher's explanations. Meanwhile, other students were busy focusing on other things, such as the teacher's appearance and way of speaking (Harefa et al., 2020). Students' attention was visible when they listened, wrote, and took notes on the teacher's explanations, which they considered important, and when they could recall the material taught by the teacher (Harefa, 2021b).

Based on initial observations in the eighth-grade class at SMP Negeri 1 Toma in the 2023/2024 academic year, the

mathematics teaching process conducted by the mathematics teacher was effective. The teacher explained in accordance with the current curriculum guidelines. Students were grouped together to collaborate in solving problems given by the teacher (M. Sarumaha & Harefa, 2022). However, in practice, only some students were actively involved, while others simply observed their classmates or were not active at all. Student engagement was visible when students actively participated in group activities, expressed their opinions, listened attentively when their peers spoke, helped each other, and worked together to solve problems (Sarumaha, M., 2022).

In general, there are several internal and external factors that can influence the learning process, including physical, psychological, and fatigue factors (Harefa, D., 2020a). Internal factors affecting the learning process include physical condition and, notably, the interest in learning (Harefa, 2022a). Interest in learning refers to a student's interest in a subject (Fau, 2022a). Some students have a high interest in learning, which means they have a greater chance of understanding a learning material, while others have a moderate interest, indicating a fair chance of comprehending the material, and some students have a low interest, meaning they may learn at a slower pace (Harefa, D., 2022).

Based on interviews with eighth-grade students at SMP Negeri 1 Toma in the 2023/2024 academic year, some of them mentioned that they did not like mathematics. They found mathematics to be the most difficult subject to understand because it always involved formulas, which made it challenging for them to grasp (Harefa, Darmawan., 2022).

Interest is closely related to motivation because interest serves as a driving force within an individual, causing them to pay selective attention and engage in activities that they find beneficial and enjoyable, ultimately leading to satisfaction (M. D. Sarumaha, 2022). Therefore, the relationship between motivation, attention, and enjoyment in an activity is intertwined with the factors that generate interest (Sarumaha, Martiman Suaizisiwa., 2023). If the factors that generate interest in an activity are low, it can result in reduced interest in that activity.

Slameto, as cited in (S. M. Teluambanua, F. Laia, Y. Waruwu, A. Tafonao, B. Laia, 2023), states that "interest is a constant tendency to pay attention to and remember certain activities." When someone has an interest in something, they will show a high level of attention and continuous interest, accompanied by a sense of enjoyment. This enjoyment ultimately leads to satisfaction. This tendency toward attention is evident when students continuously focus on something, allowing individuals to be more diligent in learning.

(Harefa, 2021a) states that interest is a "source of motivation that drives people to do what they want when they are free to choose." If they see something as beneficial, they become interested, leading to satisfaction. However, if satisfaction decreases, interest also decreases.

A person who engages in various activities is driven by their interest. According to (Harefa, 2020d), interest is a "constant tendency to pay attention to and remember certain activities." Activities that are of interest to an individual will be continuously attended to and enjoyed. This enjoyment ultimately leads to satisfaction.

(Wiputra Cendana., 2021) states that interest is a "source of motivation that

drives people to do what they want when they are free to choose." If they see something as beneficial, they become interested, which eventually leads to satisfaction. If satisfaction decreases, interest also decreases (T Hidayat, A Fau, 2023).

This explains that an individual's actions are influenced by their interest in something. If someone has a strong interest, their drive to act will be greater (Telaumbanua, M., Harefa, 2020). Conversely, if someone's interest is low, their motivation to act will also be low. Strong interest will motivate someone to make more effort in achieving something. Similarly, in learning, students who are interested will have the motivation to improve their learning outcomes (Harefa, 2021b). When students can achieve good learning outcomes, it brings them satisfaction (Harefa, 2019).

According to Crow & Crow in (Harefa, 2022a), "interest is related to a person's style of movement that drives them to confront or deal with people, objects, activities, experiences that are stimulated by the activity itself. This means that interest can be the cause of an activity and the cause of participation in that activity. A strong desire to get involved in an activity is influenced by a person's interest in it. This interest is what motivates individuals to act without being told to do so (Adirasa Hadi Prastyo, 2021).

Slameto in (Harefa & Laia, 2021) states that "interest plays a significant role in learning because if the subject matter studied does not align with the students' interests, they will not learn it to the best of their abilities, as there is no attraction for them." Students will become lazy to learn and will not derive satisfaction from the subject. Subject matter that piques students'

interest is easier to learn, thus improving learning outcomes (M. Sarumaha & Harefa, 2022).

Based on the above statements and existing theories, learning interest is a contributing factor to students' learning outcomes (Harefa, D., Telambanua, 2020). In connection with this, the researcher is interested in conducting research with the title "The Relationship Between Learning Interest and Mathematics Learning Outcomes of Students."

B. Research Method

This research was conducted in the eighth-grade class of SMP Negeri 1 Toma during the 2023/2024 academic year. The research type is quantitative, which means "research that extensively uses numbers, from data collection, data interpretation, to presenting the results" (Arikunto, 2010). The method used is correlation. According to Arikunto in (Harefa. D., 2022), correlation research aims to "find out whether there is a relationship and, if so, how strong the relationship is and whether it is meaningful or not." The relationship between one variable and several variables is expressed by the magnitude of the correlation coefficient and statistical significance. This research involves two variables: learning interest (X) as the independent variable and mathematics learning outcomes (Y) as the dependent variable.

By using this method, it is expected to obtain an understanding of the relationship between learning interest and mathematics learning outcomes of eighth-grade students at SMP Negeri 1 Toma during the 2023/2024 academic year. The research design is as shown in the figure below.

Figure 1. Research Design

Explanation:

X = Interest in Learning of Students

⟶ = Relationship

Y = Students' Learning Outcomes

Data Collection Techniques in Research Using Closed-Ended Questionnaires. Closed-ended questionnaires consist of statements with predetermined answer choices, allowing respondents to select from provided options (Arikunto, 2010). The steps for collecting data using closed-ended questionnaires are as follows:

a. Preparing the research instrument in the form of a questionnaire.

b. Inquiring about the readiness and willingness of respondents to fill out the questionnaire.

c. Distributing the questionnaire to the respondents or students.

d. Providing an explanation on how to fill out the questionnaire.

e. Allowing respondents to fill out the received questionnaire.

f. Collecting the completed questionnaires from the respondents or students.

g. Scoring and analyzing the data.

Meanwhile, the results of mathematics learning are obtained from the abilities possessed by students after they receive their learning experiences (Supardi, 2012). Data on students' mathematics learning outcomes were collected from the mathematics teachers of the eighth-grade students at SMP Negeri 1 Toma. Subsequently, data analysis was conducted.

C. Results and Discussion

Result

To determine whether there is a significant relationship between students'

interest in learning and their mathematics learning outcomes in the eighth grade at SMP Negeri 1 Toma for the 2023/2024 academic year, hypothesis testing is conducted statistically using a test for the linearity of regression. The regression equation used is a simple linear regression model. Before performing calculations, the data for variable X and variable Y are presented in the table below.

Table 1. Preparation for Regression Linearity Test Calculation

	N	X	Y	XY	X^2
Σ	65	6994	4042	438416	763252

Based on the data in the table above, calculations can be performed as follows:

$$a = \frac{(\sum Y)(\sum X^2) - (\sum X)(\sum XY)}{n \sum X^2 - (\sum X)^2}$$

$$a = \frac{(4042)(763252) - (6994)(438416)}{65 \times 763252 - (6994)^2}$$

$$a = \frac{3085064584 - 3066281504}{49611380 - 48916036}$$

$$a = \frac{18783080}{695344}$$

$$a = 27,01$$

To obtain the value of b the calculation is performed as follows:

$$b = \frac{n \sum XY - (\sum X)(\sum Y)}{n \sum X^2 - (\sum X)^2}$$

$$b = \frac{65 \times 438416 - (6994)(4042)}{65 \times 763252 - (6994)^2}$$

$$b = \frac{28497040 - 28269748}{49611380 - 48916036}$$

$$b = \frac{227292}{695344}$$

$$b = 0,33$$

After obtaining the values of a and b, the equation takes the form $\hat{Y} = 27,01 + 0,33x$ From this equation, it can be stated that when the value of X changes, the value of Y will also change. This means that Ha_1 is accepted and Ho_1 is rejected, indicating a significant

relationship between learning interest and mathematics learning outcomes for 8th-grade students at SMP Negeri 1 Toma in the 2023/2024 academic year.

To determine whether there is an influence of learning interest on the mathematics learning outcomes of 8th-grade students at SMP Negeri 1 Toma in the 2023/2024 academic year, hypothesis testing is conducted statistically using the t-test as follows:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$t = \frac{0{,}513\sqrt{65-2}}{\sqrt{1-0{,}513^2}}$$

$$t = \frac{0{,}513\sqrt{63}}{\sqrt{1-0{,}2632}}$$

$$t = \frac{4{,}0718}{0{,}8584}$$

$$t = 4{,}74348$$

Based on the calculations above, we obtained $t_{hitung} = 4{,}74348$, and then t_{tabel} with a significance level of 0.05 and $dk = n - 2$ the value obtained $dk = 63$, we found the value to be $t_{tabel} = 1{,}99834$. From these results, it can be concluded that t_{hitung} = 4,7434 > t_{tabel} = 1,9983, or in other words, Ha_2 is accepted, and Ho_2 is rejected. This means that there is an influence of learning interest on the mathematics learning outcomes of 8th-grade students at SMP Negeri 1 Toma in the 2023/2024 academic year.

Research Results

The findings obtained by researchers during the research using a closed questionnaire indicate that students' interest in learning is in the high category. Similarly, the results of students' mathematics learning are in the high category. From the research, the researcher found that there is a significant relationship and influence between learning interest and mathematics learning outcomes of eighth-grade students at SMP Negeri 1 Toma in the 2023/2024 academic year.

The researcher also found several obstacles when conducting the research using questionnaires, namely:
a. Students have difficulty understanding how to fill out the questionnaire.
b. Students hesitate to select unfavorable/negative answers.

However, to minimize these obstacles, the researcher took several actions, namely:
a. Explained to students how to fill out the questionnaire.
b. Explained and reassured students that choosing unfavorable/negative answers would not affect their test scores or daily grades in mathematics.

Discussion

Based on the data analysis results, a positive correlation coefficient was obtained, indicating a positive relationship between learning interest and mathematics learning outcomes. (Harefa, D., 2021) This means that an increase in students' learning interest leads to an improvement in their learning outcomes, and conversely, when learning interest is low, learning outcomes tend to be low (Fau, Amaano, 2022). This is evident in the most frequent frequency for variable X being in the high category, as well as for variable Y, where the highest frequency is in the high category. However, in this study, there were also respondents with low learning interest but high learning outcomes. This is attributed to other factors, namely the respondents' lack of seriousness in filling out the questionnaires.

The results of the analysis indicate a significant correlation between the two

variables, and they also exhibit an influence. The equation obtained from the linear regression analysis confirms that when the value of X changes, the value of Y also changes. This means that when learning interest increases, learning outcomes will also improve. This aligns with the statement by Slameto (2010) that interest has a significant impact on learning because if the subject matter being studied does not align with the students' interests, they will not learn as effectively due to the lack of attraction. Students will become less motivated to study and will not find satisfaction in the subject matter. Subjects that align with students' interests are easier to learn and can enhance learning outcomes.

Low student learning interest results in students facing difficulties in learning (Harefa, 2020c). This is because students are not interested in activities related to the learning process (Fau, Amaano, 2022). Students may also not understand the importance of paying attention to and mastering the subject matter being taught by the teacher (Fau, 2022b). Students who are no longer interested and do not understand the purpose of their learning tend to lack the desire to master and engage in the learning activities (Gee & Harefa, 2021). This makes it difficult for students to comprehend the material presented by the teacher (Harefa, D., 2020b).

These findings are supported by the research of Wasti (2013) titled "The Relationship between Learning Interest and Learning Outcomes in the Clothing Department at Madrasah Aliyah Negeri 2 Padang," which showed that learning interest and learning outcomes in the Clothing Department at Madrasah Aliyah Negeri 2 Padang have a correlation coefficient of 0.552 with a positive direction

(+). This means that the better the learning interest, the higher the students' learning outcomes. As stated by Harefa, D. (2021), interest is a sustained tendency to pay attention to and remember certain activities. Activities that one is interested in will be continuously observed and accompanied by a sense of pleasure. Continuous learning activities with high attention will help students gain knowledge and understanding of the material they are studying. Bernard, as cited in Harefa et al. (2023), added that interest does not arise suddenly or spontaneously but is the result of participation, experience, habits during study or work. Interest is fundamentally the acceptance of a relationship between oneself and something outside of oneself. The stronger and closer the relationship, the greater the interest. Interest does not inherently exist in a person from birth but is the result of learning that tends to support subsequent learning activities (Yudi Purwono, Sulasmiyati Sulasmiyati, Heni Susiana, Ari Setiawan, Roslaini Roslaini, 2023). This forms the foundation for teachers, parents, and the environment to support the growth of students' interest in learning.

D. Conclusion

Based on the research results and discussion, the following conclusion is provided.

a. There is a positive and significant relationship between students' interest in learning and their mathematics learning outcomes in the 8th grade at SMP Negeri 1 Toma during the 2023/2024 academic year because students have a sense of joy, interest, and a high desire for learning, which they perceive as

providing benefits and satisfaction to themselves.

b. There is an influence of students' interest in learning on their mathematics learning outcomes in the 8th grade at SMP Negeri 1 Toma during the 2023/2024 academic year because students feel comfortable, are aware of the benefits of learning, and understand the learning objectives, which make them interested and result in an improvement in their learning outcomes.

Based on the findings of this research, which indicate a positive and significant relationship between interest in learning and mathematics learning outcomes, it is recommended that educators should always make students feel comfortable by providing them with sufficient and appropriate attention, impart an understanding of the benefits of learning and learning objectives to stimulate students' interest in learning. This will ensure that the learning process runs smoothly, leading to improved student learning outcomes, especially in the subject of mathematics. Furthermore, for researchers, it is advisable to develop instruments that can measure interest in learning more accurately to reduce limitations in this study. Additionally, future researchers can expand the study's population to allow for generalization to a broader subject base.

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