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The Relationship between Reading Interest and the Ability to Solve Mathematics Story Problems in Elementary School Students

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ABSTRACT

Reading is the main key to understanding the content of reading texts. Reading activities can be done according to someone's interest. A lack of interest in reading causes a lack of understanding of the content of the reading text. This research aims to determine the relationship between interest in reading and the ability to solve math story problems. This research uses quantitative correlational. The population used was 198 class V students in Gatak District, with a sample of 126 students. The sampling technique uses cluster random sampling. The instruments used in data collection were essay tests to measure the ability to solve mathematical problems and questionnaires to measure interest in reading. The data analysis technique used in this research is product-moment correlation. The results showed that interest in reading was in the moderate category for 69 students, or around 55% of 126 students, while students' ability to solve math story problems was in the medium category for 71 students, or around 56% of 126 students. A sig value was obtained based on hypothesis test calculations using SPSS 23. 0.000 < 0.05, then there is a correlation between variables showing a positive relationship between interest in reading and students' ability to solve math story problems. Schools are expected to improve students' abilities in solving mathematical story problems through motivation and habituation to increase interest in reading.

INTRODUCTION

Mathematics is a field of science that has an important role in forming and developing human cognitive abilities. Mathematics is closely related to everyday life as a science for honing thinking skills and finding answers to solve problems humans face regarding counting (Mulyawati et al., 2022: 224). The aim of elementary school level mathematics learning in the

2013 curriculum is to have the ability to understand mathematical concepts, explain concepts and apply concepts in problem-solving, use reasoning, patterns, and mathematical properties in explaining ideas with symbols, tables, diagrams, have an attitude of appreciating the usefulness of mathematics in life (Hidayat, 2019: 700).

Based on mathematics learning objectives, problem-solving ability is an important indicator of learning that must be achieved. According to Izzati et al. (2021: 237), mathematical problem-solving skills will develop students' critical thinking abilities and understanding of mathematics so that students not only understand concepts but can apply them in everyday life. However, learning mathematics is considered a difficult subject. Difficulty in learning mathematics causes learning goals not to be achieved optimally (Paramita & Bisri, 2022: 5).

The results of a survey of Indonesian students' mathematics abilities in research conducted by TIMSS in 2015 showed that Indonesia was ranked 44th out of 49 countries with an average score of 397 out of an international average score of 500 so from this data, Indonesia's position was in the low category. This result is supported by the average ANBK numeracy literacy results in Sukoharjo Regency in 2022, which obtained a result of 1.48 with a national average of 1.57, and the 2022 AKMI results in Gatak Sukoharjo District obtained 5 MI results in level 3 and 1 categories. MI is in the level 2 category in the category 4 range. The low level of students' mathematical abilities, especially aspects of problem-solving and reasoning abilities, shows that mathematics learning needs to be improved.

Efforts to improve problem-solving abilities in mathematics learning are made by implementing HOTS-based learning and assessment (Amelia, 2016: 123). One HOTS-based evaluation form presents daily life problems through stories with mathematical concepts in the problems. It includes aspects of cognitive levels C4 (analyzing), C5 (evaluating), and C6 (creating). In solving mathematics story problems, students are not only required to obtain results in the form of answers but also understand and know every meaning in the question text (Nurajizah & Fitriani, 2020: 76). The ability to solve mathematical story problems is a benchmark for someone's critical thinking patterns from the problem-solving aspect. According to Sarlan et al. (2022: 49), the ability to solve mathematics story problems is one application of HOTS-based assessment to measure students' level of understanding and critical thinking regarding the material.

METHOD

This research uses a quantitative correlational method at MI in Gatak Sukoharjo District

from September 2023 to February 2024. The sampling technique used cluster random sampling because the objects studied or used were very broad. The population of this study consisted of 6 schools in Gatak District with a total of 198 students. A cluster random sampling technique was used to select samples. The drawing was done by writing the names of the six schools on a roll of paper, and then four schools were chosen randomly. The selected schools were MI Muhammadiyah Klaseman, MI Guppi Wironanggan, MI 51 Muhammadiyah Sraten, and MI Muhammadiyah Trangsan. However, the research samples were taken from only three schools, namely MI Muhammadiyah Klaseman, 39 students, MI Muhammadiyah Trangsan 69 students, MI Guppi Wironanggan 18 students, so the total number of samples in this study was 126.

The data collection technique uses a questionnaire to measure interest in reading with 4 statements (always, often, sometimes, never). The aspects of learning motivation measured are 1) Feelings of joy, the indicators of which are enthusiasm and initiative in reading math story problems without coercion; 2) Interest, whose indicators are responsiveness and immediacy in reading mathematics story problems; 3) Attention, the indicators of which are concentration and accuracy in reading mathematics story problems; 4) Involvement, which is an indicator of willingness and tenacity in reading and solving math story problems. Meanwhile, the data collection technique for measuring the ability to solve mathematical story problems uses an essay test with 7 question items, with indicators: 1) Write down known aspects; 2) Write down the aspect being asked; 3) Complete the mathematical model; 4) Draw conclusions. The instrument has been tested for validity and reliability, with a Cronbach's Alpha of 0.899 for the reading interest variable and 0.790 for the ability to solve math story problems.

The data analysis technique used in this research is that prerequisite tests are carried out before testing the hypothesis, namely normality and linearity tests. Hypothesis testing using the product moment correlation formula with the help of the statistical data processing application SPSS version 23.

RESULTS AND DISCUSSION

Interest in reading is important in supporting mathematics learning because it helps students understand problems, develop mathematical literacy skills, think critically, connect theory with practice, and increase learning motivation. Apart from that, interest in reading also supports the development of independent learning, readiness to face exams, communication skills, interdisciplinary understanding, and general knowledge. Apart from that, solving math problems requires a high interest in reading because math story problems need a good

understanding of the text. Therefore, this research aims to determine the relationship between learning motivation and the ability to solve mathematics problems. The results of the descriptive analysis of class V students' reading interests are shown in Table 1.

Table 1. Calculation of Descriptive Statistics on Reading Interest

Descriptive Statistics	Value
Mean	72,11
Median	72
Mode	72
Standard deviation	14,803
Maximum value	39
Minimum value	114

The descriptive statistical analysis results show an average (mean) of 72.11, a median of 72, and a mode of 72. The data shows that most students have a consistent level of reading interest around the value of 72. Meanwhile, the fairly high standard deviation (14.803) shows significant variation in reading interest among students. This result means that although most students have a reading interest of around 72, some have a reading interest much higher or lower than average. Based on the descriptive analysis above, reading interest categories can be divided into 3 categories: high, low, and medium, as shown in Table 2.

Table 2. Categorization of Reading Interest Questionnaire Results

No	Intervals	Frequency	Category	Percentage
1.	89-114	19	High	15%
2.	64-88	69	Medium	55%
3.	39-63	38	Low	30%

Table 2 shows that class V students' reading interest in the high category is 15%, in the medium category is 55%, and in the low category is 30%. Based on this description, it can be concluded that the reading interest of class V MI students, with an average of 72.11 and a percentage of 55%, is in the medium category. Thus, these results illustrate that most students are interested in reading (medium category). In contrast, some have a high interest in reading, and others have a low interest in reading.

Students with a moderate interest in reading tend to have sufficient motivation to develop their academic abilities stably. This condition can be caused by students' motivation to learn, which impacts better focus and concentration levels when studying, including understanding and solving complex mathematics problems. This result aligns with research by

Hamdani & Nurdin (2020), which states that interest in learning positively impacts students' ability to apply the mathematical concepts studied.

Even though most students are in the medium category, some have high and low interest in reading. This result is in line with the opinion of Perdana & Suswandari (2021) that students with a high interest in reading tend to be more active in seeking additional information and developing a deeper understanding of mathematics material, which can influence their ability to solve mathematics problems better. Students in the low reading interest category require additional intervention to increase their reading interest, which can indirectly affect their ability in mathematics. Meanwhile, the descriptive statistical analysis results show the ability to solve story questions for class V students in Table 3.

Table 3. Calculation of Descriptive Statistics for the Ability to Solve Mathematics Story Problems

Descriptive Statistics	Value
Mean	44,17
Median	44
Mode	53
Standard deviation	18,856
Maximum value	4
Minimum value	90

The average ability to solve math story problems is 44.17. The middle or median value of the ability to solve math story problems is 44. This result means half of the sample scores are above 44, and the other half are below 44. The value that appears most often in the data on the ability to solve math story problems is 53. Meanwhile, the standard deviation from the ability to solve math story problems is 18.856. Standard deviation measures how far data is spread from the average value. The higher the standard deviation, the greater the variation or dispersion of the values in the sample. Based on the descriptive statistical analysis results, the ability to solve math story problems can be categorized.

Table 4. Categorization of Tests for the Ability to Solve Mathematics Story Problems

No	Interval	Frequency	Category	Percentage
1.	61-90	18	High	14%
2.	33-60	71	Medium	56%
3.	4-32	37	Low	29%

After grouping them based on interval values, the test scores for the ability to complete mathematics story problems in the high category were 18 students with a percentage of 14%. The medium category is 71 students, with a rate of 56%, and the low category is 37 students, with a percentage of 29%. Students with a moderate interest in reading tend to have a fairly good focus and concentration when studying. This result aligns with research by Zuliani et al. (2023), which states that solving math problems also influences their ability to understand and solve math story problems, often requiring in-depth understanding and application of mathematical concepts.

Data analysis shows that although interest in reading can influence students' ability to understand and solve math story problems, a high level of interest in reading does not always guarantee high math ability. Some students are highly interested in reading but do not necessarily have a deep understanding of mathematics or the ability to solve math story problems well. This result is in line with Laily's (2014) opinion that the factor that influences the ability to solve mathematics story problems is the ability to read and comprehend. Even though students' interest in reading is high, if they cannot understand the questions, they cannot solve math story problems well. Apart from an interest in reading, other factors can influence students' abilities in mathematics, such as prior knowledge, appreciation of mathematics, and mathematical logical intelligence (Irawan et al., 2016). These factors can contribute to variations in students' abilities even if they have the same level of reading interest. Based on the results of the hypothesis test, the relationship between interest in reading and the ability to solve mathematics problems is shown in Table 5.

Table 5. Correlation Test Results

		Reading Interest_X	Story Problem Solving Skills_Y
Reading Interest_X	**Pearson Correlation**	1	0.936**
	Sig. (2-tailed)		.000
	N	126	126
Story Problem Solving Skills_Y	**Pearson Correlation**	0.936**	1
	Sig. (2-tailed)	0.000	
	N	126	126

The test results show a relationship between interest in reading and the ability to solve math story problems for class V MI Muhammadiyah students in Gatak Sukoharjo District based on the product moment correlation formula. If the significance value is <0.05, then there is a relationship. Correlation table 5. shows that the sig. (2-tailed) is 0.000, so it can be said to be

less than <0.05. This result indicates that H0 is rejected and H1 is accepted. So, it can be concluded that there is a relationship between the variable interest in reading (X) and the ability to solve mathematics story problems (Y) for class V MI students. Then, the Pearson correlation value was obtained at 0.936, which means it is positively related and is at a very high level. The positive direction of the relationship in this research states that the higher the interest in reading (X), the higher the ability to solve math story problems (Y) or vice versa.

Based on the coefficient of determination value obtained, R2 = 0.875 or 87.5%, meaning that the ability to solve math story problems is related to interest in reading by 87.5%. In comparison, the remaining 12.5% is caused by other factors associated with students' problem-solving ability. Mathematics stories, such as prior knowledge, appreciation of mathematics, and mathematical, logical intelligence (Irawan et al., 2016), and reading comprehension abilities (Laily, 2014).

Students' interest in reading and ability to solve math story problems for class V MI students in Gatak Sukoharjo District and speed and flow material are not high or low. The cause of students' low interest in reading mathematics story problems is the lack of practice in the form of story-shaped mathematics questions, resulting in students' disinterest in mathematics story problems. This condition is because many teachers are still used to creating simple issues that can be immediately solved using formulas (Salvia et al., 2022: 353). This statement is also supported by research by Sari et al. (2020:293), which states that students are less interested in reading math story problems because they are used to working on simple math problems. Apart from that, the low interest in reading students in mathematics story problems can be seen from students' interest in learning mathematics. Every student has a variety of favorite subjects that they find interesting.

The factor causing the low ability to solve students' math story problems is that many students do not like mathematics because it is considered a difficult subject, and story questions are considered boring. After all, students must read carefully first to understand the information contained in the problem. Islami et al. (2019: 168) support this statement, stating that internal and external factors influence students' difficulties in solving mathematics story problems. Internal factors include difficulty in determining the formula, inability to apply the formula, lack of understanding of the story of the question, and not being careful in looking for information in the question. External factors include a lack of variety in practice questions and class management.

The results of the hypothesis testing analysis using product moment between interest in

reading and ability to solve math story problems obtained a score of sig. (2 tailed) 0.00 < 0.05 with a Pearson correlation value of 0.936 in the interval 0.80-1.000. This result shows that H1 is accepted and H0 is rejected, so it can be concluded that a strong positive relationship exists between interest in reading and the ability to solve mathematics story problems for class V MI students. It can be said that the higher a student's interest in reading, the higher their ability to solve math story problems. This result follows the theory presented by Simarmata et al. (2020: 100) that the student's ability to solve mathematics story problems is influenced by the factor of interest in reading mathematics story problems. This result is in line with research by Widyawati et al. (2020: 72), which shows that there is a positive relationship between interest in reading and the ability to solve math story problems, where the higher a student's interest in reading, the higher the ability to solve math story problems. This statement is supported by Zuliani et al. (2023: 753), who states that students with a high interest in reading will get used to reading and understand math story problems more easily than those with a low interest in reading.

Further research can be conducted to explore other factors that may influence the ability to solve math word problems, such as teaching methods, learning environment, and family support. In addition, it is necessary to investigate the long-term effects of increasing interest in reading on mathematics abilities at various grade levels and other subjects.

CONCLUSION

The conclusions from the research and discussion that have been carried out are: (1) MI class V students' interest in reading is in the medium category, with 69 students, or 55% of 126 students, having a moderate interest in reading; (2) The ability to solve mathematics story problems of class V MI students is also in the medium category, with 71 students or 56% of 126 students having this ability at a medium level; (3) The results of the correlation test showed that there is a very high positive relationship between interest in reading and the ability to solve mathematics story problems for class V MI students. This result is indicated by a significance value (2-tailed sig) of 0.000, smaller than 0.05, and a Pearson correlation value of 0.936. This research means that the higher students' interest in reading, the higher their ability to solve math story problems, especially in speed and debit material.

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