

## THE RELATIONSHIPS LEARNING INTEREST, LEARNING CREATIVITY, AND PEER INTERACTION WITH MATH STUDENTS LEARNING OUTCOMES IN CLASS VIII OF MTs MUHAMMADIYAH KARANGKAJEN

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### ABSTRACT

The result of low mathematics students learning related to several factors. Self-confidence, learning discipline, and the use of learning resources is some of the factors related to learning outcomes. This research aims to determine the presence or absence of a positive and significant relationship among self-confidence, learning discipline, and use of learning resources with mathematics learning outcomes in students class VIII of even Semester of MTsN Yogyakarta II academic year of 2015/2016. The population in this study was the woman students of grade VIII in MTsN Yogyakarta II academic year 2015/2016, which was divided into 4 classes, namely VIII D, VIII E, VIII F, VIII G totaling 137 students. Samples were taken in class VIII E as a research class sample and with a random sampling technique to the class. Data were collected by the questionnaire method and test method. The research instrument: validity test, different power test, and reliability test. Test requirement analysis includes a test of normality, the test of linearity, and the test of independence. Analysis of the data for testing hypothesis using correlation analysis and linear regression analysis. The results showed that there is a positive and significant relationship among self-confidence, learning discipline, and use of learning resources with mathematics learning outcomes students class VIII of even Semester in MTsN Yogyakarta II academic year of 2015/2016. It is showed by  $F_{count} = 3.7896 > F_{table} = 2.9011$  with  $R = 0.511998$  and  $R^2 = 0.2621$  with  $\hat{Y} = -34.79089 + 0.35715 X_1 + 0.18246 X_2 + 0.45598 X_3$ , with  $SR X_1 = 30.7344\%$ ,  $SR X_2 = 18.5067\%$ , and  $SR X_3 = 50.75895\%$ ,  $SE X_1 = 8.056769796\%$ ,  $SE X_2 = 4.851375128\%$  and  $SE X_3 = 13.3060524\%$ .

**Keywords:** Self Confidence, Learning Discipline, Use of Learning Resources, Mathematics Learning Outcomes.

### INTRODUCTION

Education in schools is education that takes place systematically, directed, and measured. Students and teachers become central to education. Thus, the success of education is very dependent on these two parties, namely students and teachers. Teachers as implementers in the field of education have heavy responsibilities in the learning and teaching process as an effort to implement National Development. The teacher plays an important role in helping students develop their life goals optimally. Interests, talents, abilities, and potentials possessed by students will not develop optimally without the help of the teacher. But in reality, the learning process is a series of activities that are always related and not merely absorb information from the teacher but involve various factors that influence it. The learning process is not just absorbing information from the teacher. In the learning process, there is a reciprocal relationship (interaction) between the teacher and students. In this interaction, the teacher acts as a motivator and facilitator in learning. Teachers are required to be able to create learning situations that are conducive and enjoyable in the process of learning activities.

Learning is basically caused by many factors but can be classified into two groups, namely internal factors, and external factors Internal factors are factors that originate from within the individual. While external factors are factors that are outside the individual self. Based on the results of observations, there are still a lot of scores in the Middle Semester (UTS) mathematics in the odd semester of grade VIII students of MTs Muhammadiyah Karangkajen that have not yet reached the Minimum Mastery Criteria (KKM), which is 75. This shows that students experience learning difficulties. Based on this, the study took several variables as internal factors that might be related to

student learning outcomes. These factors include learning interest and learning creativity, while external factors are peer interaction.

Interest in learning is one of the internal factors thought to be related to student learning outcomes. Interest in learning can make the attraction of a particular subject. The understanding of interest in learning according to Slameto (2013: 180) that students who have an interest in a particular subject tend to pay greater attention to the subject. Interest in something is learned and influences further learning and influences learning outcomes and supports further learning. So it can be concluded that students who have a deeper interest in certain subjects, these students will pay more attention and focus on these subjects. But on the contrary, if the student's learning interest is lacking then the student will not respond to the subject being presented or the student is paying more attention to objects other than the subject.

Learning creativity is thought to be related to student learning outcomes. Creativity is a term that is widely used both in the school environment and outside of school. According to Guilford, quoted by Ali, Muhammad., And Muhammad Asrori (2006: 41) states that "creativity refers to abilities that mark the characteristics of a creative. Guilford put forward two ways of thinking, namely convergent and divergent thinking. Convergent thinking is an individual way of thinking about something with the view that there is only one correct answer. Whereas divergent thinking is the ability of individuals to look for alternative answers to a problem, Guilford emphasizes that creative people have more divergent ways of thinking than converges. Meanwhile, according to Evans, quoted by Suharnan (2005: 374), argues that "creativity is the ability to make new combinations based on existing concepts, as well as the ability to find new relationships that view things according to new perspectives. Simply put can be formulated the notion of creativity is one's ability to create new works that can take the form of imaginative activities and creativity can also understand gaps or obstacles in life, creative people have more ways to diverge and communicate their works and modify new works then applied into an action

Then, an external factor that is thought to be related to student learning outcomes is peer interaction. In peer groups, interaction is a reciprocal process that is sure to occur. According to Raharjo, Agus Setyo (2013), interaction with peers will give an opportunity for a student to learn to show their abilities to their peers or peer groups. A student will get feedback from peers or peer groups after showing the ability they have. Based on this feedback a student can evaluate whether what he is doing is better, the same or worse than what his peers are doing. According to Santrock, John W. (2014: 228), "Students who are more accepted by their peers and who have good social skills often succeed better in school and have positive academic achievement motivation. Conversely, students who are rejected, especially those who are very aggressive, risk being exposed to a number of achievement problems, including getting low grades and dropping out of school. In simple terms can be formulated understanding of peer interaction is a reciprocal process between children and peers with the same age level or maturity level. Interactions between children and peers that occur such as exchanging feelings and problems and participation or the level of involvement of children in peer groups. The process of peer interaction has an impact that can affect children's thoughts, attitudes, feelings, actions, social skills, and adaptation.

The problems in this study are: 1) Students' interest in learning mathematics is still lacking. 2) Students are less creative in learning mathematics. 3) The interaction of students with peers is still less supportive of learning mathematics. 4) The learning outcomes of some mathematics students are low. 5) There are still many students who waste their free time on things that are not useful.

The purpose of this study was to find out: 1) The presence or absence of a positive and significant relationship between learning interest and mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangajen 2016/2017 school year. 2) The presence or absence of a positive and significant relationship between learning creativity and mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangajen in the 2016/2017 school year. 3) The presence or absence of a positive and significant relationship between peer interaction with mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangajen in the 2016/2017

school year. 4) The presence or absence of a positive and significant relationship between learning interest and learning creativity with mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year. 5) The presence or absence of a positive and significant relationship between learning interest and peer interaction with the mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year. 6) The presence or absence of a positive and significant relationship between learning creativity and peer interaction with mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year. 7) The presence or absence of a positive and significant relationship between learning interest, learning creativity and peer interaction with the mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year.

## METHODS

This study is classified as a quantitative study and includes a type of correlation research with a population of eighth-grade students of MTs Muhammadiyah Karangkajen in the 2016/2017 academic year, totaling 149 students consisting of 5 classes, namely classes VIII A, VIII B, VIII C, VIII D, and VIII E. Sampling was conducted using the technique of sampling to the class. The sample of this study amounted to 30 students in class VIII E and class VIII C as a test class. Data collection techniques used were questionnaires and test methods. Angles were used for variables of interest in learning, learning creativity, and peer interaction. While the test is used for mathematics learning outcome variables. The research instrument tests used were validity, different power tests, and reliability tests. Then for the prerequisite test analysis used is the normality test, linearity test, and independence test. Data analysis for hypothesis testing uses correlation analysis and linear regression analysis.

## RESULTS AND DISCUSSION

### 1. Test Prerequisite Regression Analysis

The normality order results can be seen in Table 1.

**Table 1.** Summary of Normality Test Results

| Variable       | $\chi^2_{count}$ | $\chi^2_{table}$ | dk |
|----------------|------------------|------------------|----|
| X <sub>1</sub> | 4,637            | 7,8147           | 3  |
| X <sub>2</sub> | 3,612            | 7,8147           | 3  |
| X <sub>3</sub> | 1,790            | 7,8147           | 3  |
| Y              | 1,825            | 5,991            | 2  |

From the normality test at a significant level of 5% seen  $X^2_{count} \leq X^2_{table}$ , this means that the distribution of data obtained in each variable is normal.

The summary of linearity test results can be seen in table 2.

**Table 2.** Summary of Linearity Test Results

| Variable            | $F_{count}$ | $F_{table}$ |
|---------------------|-------------|-------------|
| X <sub>1</sub> to Y | 1,0698      | 2,7981      |
| X <sub>2</sub> to Y | 0,3392      | 2,5989      |
| X <sub>3</sub> to Y | 1,2105      | 2,4837      |

From an independent test at a significant level of 5% ( $\alpha = 0.05$ ) with a numerical freedom degree  $v_1 = k - 2$  and the denominator's degree of freedom  $v_2 = N - k$ , seen  $F_{count} \leq F_{table}$ , this means that the data obtained from each variable is linear.

The summary of independent test results can be seen in table 3.

**Table 3.** Summary of Independent Test Results

| Variable                          | $\chi^2_{count}$ | $\chi^2_{table}$ |
|-----------------------------------|------------------|------------------|
| X <sub>1</sub> and X <sub>2</sub> | 34,819           | 37,652           |
| X <sub>1</sub> and X <sub>3</sub> | 23,310           | 37,652           |
| X <sub>2</sub> and X <sub>3</sub> | 17,496           | 37,652           |

From an independent test at a significant level of 5% ( $\alpha = 0.05$ ) and degrees of freedom (df) = (B-1) (K-1) seen  $\chi^2_{count} \leq \chi^2_{table}$ , this means that the data obtained from each variable is independent.

## 2. Pengujian hypothesis

### a. First Hypothesis

From the first hypothesis test at a significant level of 5% and  $df = 28$ , it can be seen that  $t_{count} = 2.0920$   $t_{table} = 1.6909$  so that  $t_{count} > t_{table}$ . This means that there is a positive and significant relationship between interest in learning with mathematics learning outcomes of students of class VIII MTs Muhammadiyah Karangkajen Academic Year 2016/2017.

The first hypothesis test obtained a simple correlation coefficient ( $r$ ) of 0.5195 which means the relationship of learning interest with mathematics learning outcomes has a weak relationship. Obtained a determinant coefficient ( $r^2$ ) of 0.2699 which can be explained that 26.99% of learning outcomes are influenced by an interest in learning, while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) which are explained by interest in learning (X<sub>1</sub>) through linear lines  $\hat{Y} = 4,0623 + 0,7250 X_1$ .

### b. Second Hypothesis

From the second hypothesis test at a significant level of 5% and  $df = 28$ , it can be seen that  $t_{count} = 2,6004$  while  $t_{tabel} = 2,0484$  so that  $t_{count} > t_{table}$  which means that there is a positive and significant relationship between learning creativity with mathematics learning outcomes for students of class VIII of MTs Muhammadiyah Karangkajen Academic Year 2016/2017. In the second hypothesis test, the correlation coefficient obtained ( $r$ ) 0.4411, which means the relationship of learning creativity with learning outcomes in mathematics has a weak relationship. Obtained a determinant coefficient ( $r^2$ ) of 0.1946 which can be explained that 19.46% of learning outcomes are influenced by learning creativity while the rest influenced by other factors. There are variations in mathematics learning outcomes (Y) explained by learning creativity (X<sub>2</sub>) through linear lines  $\hat{Y} = 2,2158 + 0,8079X_2$ .

### c. Third Hypothesis

From the third hypothesis test at a significant level of 5% and  $df = 28$ , it can be seen that  $t_{count} = 2,0811$  while  $t_{tabel} = 2,0484$  so that  $t_{count} > t_{table}$ . This means that there is a positive and significant relationship between peer interaction with mathematics learning outcomes for students of class VIII of MTs Muhammadiyah Karangkajen in the 2016/2017 Academic Year. In the third hypothesis test, the correlation coefficient obtained ( $r$ ) of 0.3660 which means the relationship between the use of learning resources with learning outcomes in mathematics has a weak relationship. Obtained a determinant coefficient ( $r^2$ ) of 0.1340 which can be explained that 13.40% of learning outcomes are influenced by peer interactions while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) which are explained by peer interactions (X<sub>3</sub>) through lines linear  $\hat{Y} = 1,7119 + 0,7428 X_3$ .

### d. Fourth hypothesis

From the fourth hypothesis test at a significant level of 5% and the numerator,  $v_1 = 2$  and the denominator  $v_2 = 27$  so that it can be obtained  $F_{count} = 5,7824$  while  $F_{table} = 3,3541$  so that  $F_{count} > F_{table}$ . This means there is a positive and significant relationship between learning interest and learning creativity with mathematics learning outcomes for students of class VIII Muhammadiyah Karangkajen 2016/2017 school year. From the multiple correlation analysis, it is obtained the value of the multiple correlation coefficient (R) of 0.5476 which means the

relationship between learning interest and learning creativity with mathematics learning outcomes has a weak relationship. In this study also obtained a coefficient of determination ( $R^2$ ) of 0.2999 meaning 29.99% of learning outcomes are influenced by learning interest and learning creativity while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) that can be explained by interest in learning ( $X_1$ ) and learning creativity ( $X_2$ ) through linear lines  $\hat{Y} = -12,2331 + 0,5545X_1 + 0,3884X_2$ .

**e. Fifth Hypothesis**

From the fourth hypothesis test at a significant level of 5% and the numerator,  $v_1 = 2$  and the numerator  $v_2 = 27$  so that it can be obtained  $F_{count} = 5,2056$  and  $F_{table} = 3,3541$  so that  $F_{count} > F_{table}$  This means that there is a positive and significant relationship between learning interest and peer interaction with the mathematics learning outcomes of students of class VIII MTs Muhammadiyah Karangakajen 2016/2017 school year. From the multiple correlation analysis, the value of the multiple correlation coefficient  $R$  is 0.5275, which means the relationship between learning interest and peer interaction with mathematics learning outcomes has a weak relationship. In this study also obtained a coefficient of determination  $R^2$  of 0.2783 meaning 27.83% of learning outcomes are influenced by learning interest and peer interaction while the rest is influenced by other factors. There are variations in mathematics learning outcomes  $Y$  which can be explained by interest in learning  $X_1$  and peer interaction  $X_3$  through linear lines  $\hat{Y} = -8,1571 + 0,6370 X_1 + 0,2243 X_3$ .

**f. The Sixth Hypothesis**

From the fourth hypothesis test at a significant level of 5% and the numerator,  $v_1 = 2$  and the numerator  $v_2 = 27$  so that it can be obtained  $F_{count} = 3,5690$  and  $F_{table} = 3,3541$  so that  $F_{count} > F_{table}$  This means that there is a positive and significant relationship between learning creativity and peer interaction with mathematics learning outcomes of students of class VIII MTS Muhammadiyah Karangakajen in the 2016/2017 school year. From the multiple correlation analysis, the value of the multiple correlation coefficient ( $R$ ) of 0.4573 means the relationship between learning creativity and peer interaction with mathematics learning outcomes has a weak relationship. In this study also obtained a coefficient of determination ( $R^2$ ) of 0.2091, meaning 20.91% of learning outcomes influenced by the creativity of learning and peer interaction while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) which can be explained by learning creativity ( $X_2$ ) and peer interactions ( $X_3$ ) through linear lines  $\hat{Y} = -11,2438 + 0,6360X_2 + 0,3103X_3$ .

**g. Seventh Hypothesis**

From the fourth hypothesis test at a significant level of 5% and the numerator,  $v_1 = 2$  and the numerator  $v_2 = 27$  so that it can be obtained  $F_{count} = 3,5036$  and  $F_{table} = 2,9752$  so that  $F_{count} > F_{table}$  This means that there is a positive and significant relationship between interest in learning, learning creativity and peer interaction with mathematics learning outcomes of students of class VIII MTs Muhammadiyah Karangakajen in the 2016/2017 school year. From the multiple correlation analysis, it is obtained the value of the multiple correlation coefficient ( $R$ ) of 0.5366, which means the relationship between learning interest, learning creativity and peer interaction with mathematics learning outcomes has a moderate relationship. In this study also obtained a coefficient of determination ( $R^2$ ) of 0.2879. The variation in mathematics learning outcomes (Y) can be explained by interest in learning ( $X_1$ ), learning creativity ( $X_2$ ), and peer interactions ( $X_3$ ) through linear lines  $\hat{Y} = -13,6727 + 0,4740 X_1 + 0,3971 X_2 + 0,0879X_3$ .

## CONCLUSION

Based on the results of research and discussion, the conclusions can be drawn, namely:

- h. There is a positive and significant relationship between interest in learning with mathematics learning outcomes for students of class VIII MTs Muhammadiyah Karangkajen Academic Year 2016/2017.
- i. There is a positive and significant relationship between learning creativity and mathematics learning outcomes of VIII grade students of MTs Muhammadiyah Karangkajen in the 2016/2017 Academic Year.
- j. There is a positive and significant relationship between peer interaction with mathematics learning outcomes of VIII grade students of MTs Muhammadiyah Karangkajen Academic Year 2016/2017.
- k. There is a positive and significant relationship between learning interest and learning creativity with mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year.
- l. There is a positive and significant relationship between learning interest and peer interaction with the mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year.
- m. There is a positive and significant relationship between learning creativity and peer interaction with mathematics learning outcomes of students of class VIII MTS Muhammadiyah Karangkajen in the 2016/2017 school year.
- n. There is a positive and significant relationship between learning interest, learning creativity and peer interaction with the mathematics learning outcomes of Grade VIII students of MTs Muhammadiyah Karangkajen in the 2016/2017 school year.

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