THE RELATION BETWEEN LEARNING INTEREST, PARENTAL INVOLVEMENT AND ANXIETY TOWARD MATHEMATICS LEARNING OUTCOMES

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ABSTRACT

Students' learning outcomes may depend on several factors. It is assumed that learning interest, parental involvement, and anxiety are related to the students' learning outcomes. This research aims to know whether there is a positive and significant relationship between learning interest, parental involvement, and anxiety and mathematic learning outcomes of grade VIII students in the odd semester of SMP Cokroaminoto Wanadadi, Banjarnegara Regency, in the academic year of 2016/2017. The populations of this research are 95 students in grade VIII of SMP Cokroaminoto Wanadadi, Banjarnegara Regency, in the academic year of 2016/2017, consisting of grade VIII A, VIII B, and VIII C. Grade VIII B students were taken as the sample through random sampling class. The data were collected using a questionnaire, which is useful to obtain the data on the learning interest, parental involvement, and anxiety in mathematics. Besides, a test was also carried out to get the data on the learning outcomes in mathematics. The instrument was tested using a validity test, differential test, and reliability test. Prerequisite analysis tests include normality tests, linearity tests, and independence tests. The data were analyzed using product moment analysis and multiple linear regressions. The research findings indicate that there is a significant relationship between learning interest, parental involvement, as well as anxiety and mathematics learning outcomes of grade VIII students in the odd semester of SMP Cokroaminoto Wanadadi Banjarnegara regency in the academic year of 2016/2017. It can be seen from the results showing that $F_{count} > F_{table}$ that is 10.022 > 2.95 with R = 0.7196 and R^2 = 0.51780 with Y= 29.5269 + 0.5797 X_1+ 0.1417 X_2– 0.2878X_3, with Relative Contribution X_1 = 77.7748%, Relative Contribution X_2 = 9.9445%,and Relative Contribution X_3 = 12.2807%, SE X_1 = 40.2718%, Effective Contribution X_2 = 5.1492%, and Effective Contribution X_3 = 6.2590%.

Keywords: Learning Interest, Parental Involvement, Anxiety, Mathematics Learning Outcomes

INTRODUCTION

The purpose of education in the National Education System Law No. 20 of 2003 can be simplified by two changes after students take education, namely changes in knowledge and moral changes. Changes in knowledge can be known by reviewing the learning outcomes that have been taken by students. In contrast, good change can be known from the social process and interacting in the social environment. Both of these changes are tangible manifestations of the education process.

As a prelude to this research, observations were conducted with interviews with Mathematics Teachers and many students at SMP Cokroaminoto Wanadadi, Banjarnegara Regency. Based on interviews with SMP Cokroaminoto Wanadadi Mathematics Teachers in Banjarnegara Regency in the learning process, students follow the learning well. However, when given a practice question, students have difficulty in solving mathematical problems. Difficulties experienced by students resulted in many students getting grades under the CCM. Guidance from parents at home is also very minimal due to the parents' lack of knowledge in guiding children.

The low mathematics learning outcomes of SMP Cokroaminoto Wanadadi, Banjarnegara Regency in 2016/2017 Academic Year, can be seen from the mathematics daily test in even semester obtained from classes VIII A, VIII B. VIII C. Criteria Completeness Minimal (CCM) for the specified

mathematics subjects is 75. From 95, 41 students have not yet reached the CCM score. This shows that the results of student mathematics learning are still low.

Several factors can influence the low percentage of completeness in learning. According to Slameto (2013: 54), factors that influence learning outcomes are internal and external. Internal factors originate from within, classified into physical factors, psychological factors, and fatigue factors. External factors, namely, factors originating from outside the student, are classified into family factors, school factors, and community factors.

Interest is one of the critical factors in supporting students' understanding and success in learning. With interest, students can more easily learn and understand the material presented by the teacher because students have a sense of interest in the teaching material delivered by the teacher. If students have no interest or interest, students will be reluctant and lazy to learn. If doing something must be with others' help, unable to think and act original, not creative, have no initiative, and students will be absent or play truant.

The guidance that must be done by parents is to lead to discipline in learning. In guiding and educating children, parents must not ensure success because it can make children unsuccessful. However, if parents educate children with love, attention, and allow failure can make the child's success. Therefore the guidance given by parents is very influential in their learning achievement in school. With guidance, especially from parents, students become more controlled and have their drive to achieve better mathematics learning outcomes.

Anxiety is needed as a tool to overcome the situation, think more directed, and focus on a problem. However, anxiety is only useful at mild and moderate levels. When anxiety shows the level of weight or even panic will disrupt the thought process and unable to focus on a problem, it will even cause death.

Anxiety is considered one of the inhibiting factors in learning that can interfere with one's cognitive function in concentrating, remembering, concept formation, and problem-solving (Sudrajat, 2008). Mathematical anxiety is a type of illness, mathematical anxiety refers to unhealthy foods such as responses that occur when some students experience mathematical problems and present themselves with panic and loss of mind, depression and helplessness, nervousness and fear, and so on (Luo et al., 2009).

RESEARCH METHODS

This research is quantitative. The research design used is as follows:

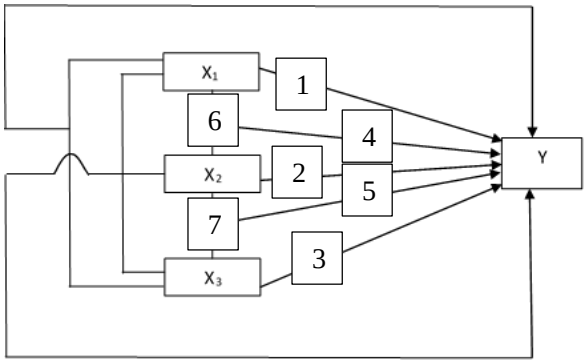

Figure 1. Research Design

Information :

X_1: Interest to learn

X_2: Parental Guidance

X_3: Mathematics Anxiety

Y: Learning outcomes

This research was conducted at SMP Cokroaminoto Wanadadi, Banjarnegara Regency. The research time is in the odd semester of the 2016/2017 school year. The population in this study were eighth-grade students of SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 academic year consisting of 3 classes with a total of 95 students. Samples were carried out using class random sampling techniques. The sample of this study was students of class VIII B, with a total of 32 students. Data collection techniques using non-test instruments and test instruments. Non-test instruments in the form of a questionnaire are used to determine interest in learning, parental guidance, and mathematics anxiety—test instruments to determine the results of learning mathematics with algebraic factorization material. A validity test using item analysis is done using the product-moment formula. Reliability test using the Alpha formula. Analysis prerequisite test with normality test and independence test use Chi-Square formula, and linearity test uses the F-Test formula. The research hypothesis testing uses a simple correlation test, multiple regression analysis tests, and multiple linear regression test with three independent variables.

RESULTS AND DISCUSSION

The prerequisite test analysis conducted in this study is the normality test, independence test, and linearity test.

A normality test is used to test the distribution of data obtained on each variable with normal distribution or not. The normality test in this study uses the chi-square formula. The decision making criteria is the distribution of data obtained on each variable with normal distribution if $\chi^2_{count} \leq \chi^2_{table}$ with a significant level of 5% and a degree of freedom k-1. Where k is the number of interval classes. The normality test results for the four variables can be seen in Table 2 as follows:

Table 2. Normality Test Results

Variable	χ^2_{count}	χ^2_{table}	dk	Information
Interest to learn (X_1)	8,1134	9,4877	4	Normal
Parental Guidance (X_2)	7,3878	7,8147	3	Normal
Mathematics Anxiety (X_3)	2,0981	7,8147	3	Normal
Mathematical Learning Outcomes (Y)	7,1311	7,8147	3	Normal

In table 2, you can see $\chi^2_{count} \leq \chi^2_{table}$. This means that the data distribution obtained in each variable is normally distributed.

The independent test was used to determine the presence or absence of a relationship between the independent variable of learning interest (X_1) with the independent variable of parental guidance (X_2), the relationship between the independent variable of learning interest (X_1) with the mathematics anxiety-free variable (X_3), and the relationship between variables free parental guidance (X_2) with mathematics anxiety-free variables (X_3) using the Chi-squared formula. Criteria for decision making are the two variables are independent if $\chi^2{}_{count} \leq \chi^2{}_{table}$, at α = 5%, and degrees of freedom (dk) = (B-1)$(K-1)$. Where B is the number of rows, and K is the number of columns. The summary of independence test results can be seen in Table 3 as follows:

Table 3. Independent Test Results

Variable	$\chi^2{}_{count}$	$\chi^2{}_{table}$	Dk	Conclusion
X_1 dan X_2	35,601	37,6525	25	Independent
X_1 dan X_3	19,911	37,6525	25	Independent
X_2 dan X_3	31,410	37,6525	25	Independent

In table 3 seen $\chi^2{}_{count} \leq \chi^2{}_{table}$, this means that the variable is the variable of interest in learning (X_1) with the parental guidance variable (X_2), the variable of interest in learning (X_1) with the mathematics anxiety variable (X_3), and the parental guidance variable (X_2) with the mathematics anxiety variable (X_3) independent.

Linearity test is used to determine whether the independent variable and the dependent variable have a linear relationship or not by using a linear regression formula (F Test). The criteria for decision-making are the relationship between variables X and Y if linear $F_{count} \leq F_{table}$, with a significant level of 5% and a degree of numerator freedom $(v_1) = k - 2$ and the denominator's degree of freedom $(v_2) = n - k$. Nature of this research for X_1 to Y with $v_1 = 25$ and $v_2 = 5$, for X_2 to Y with $v_1 = 26$ and $v_2 = 4$, and X_3 to Y with $v_1 = 25$ and $v_2 = 5$. The summary of linearity test results can be seen in Table 4 as follows:

Table 4. Linearity Test Results

Variable	F_{count}	F_{table}	Conclusion
X_1 and Y	0,0697	4,52	Linear
X_2 and Y	0,3174	5,67	Linear
X_3 and Y	0,2456	4,52	Linear

In table 4, seen $F_{count} \leq F_{table}$, this means that interest in learning with linear learning outcomes, parental guidance with linear learning outcomes, and mathematics anxiety with linear learning outcomes.

Hypothesis testing uses a product-moment correlation test. The results of hypothesis testing are presented as follows.

A simple correlation analysis was obtained by the simple correlation coefficient (r) between learning interest and mathematics learning outcomes of 0.7043. Furthermore, in testing the significance of the correlation coefficient by using the t-test obtained $t_{count} = 5{,}434$ while $t_{table} = 1{,}6973$ at a significant level of 5% and $v = n - 2 = 32 - 2 = 30$. The rejection area used is $t_{count} > t_{table}$. Then obtained $5{,}434 > 1{,}6973$, so that $H_{0,1}$ rejected and $H_{1,1}$ accepted, so there is a positive and significant relationship between interest in learning with mathematics learning outcomes of students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year. In addition also obtained a simple regression equation of Y over X_1 is $\hat{Y}$= 4,7568 + 0,71397 X_1

With a simple correlation analysis obtained by the simple correlation coefficient (r) between parental guidance and mathematics learning outcomes of 0.5024. Furthermore, in testing the significance of the correlation coefficient by using the t-test obtained $t_{count} = 3{,}1826$ while $t_{table} = 1{,}6973$ at a significant level of 5% and $v = n - 2 = 32 - 2 = 30$. The rejection area used is $t_{count} > t_{table}$. Then obtained $3{,}1826 > 1{,}6973$, while $H_{0,2}$ rejected and $H_{1,2}$ accepted, so there is a positive and significant relationship between parental guidance and mathematics learning outcomes for students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year. A simple regression equation was also obtained Y over X_2 is $\hat{Y} = 1{,}2018 + 0{,}6945X_2$.

With a simple correlation analysis obtained by the simple correlation coefficient (r) between mathematics anxiety with mathematics learning outcomes of -0.4639. Furthermore, in testing the significance of the correlation coefficient by using the t-test obtained $t_{count} = -2{,}8682$ while $t_{table} = 1{,}6973$ at a significant level of 5% and $v = n - 2 = 32 - 2 = 30$. The rejection area used is $t_{count} > t_{table}$. Then obtained$-2{,}8682 < 1{,}6973$, so that $H_{0,3}$ accepted and $H_{1,3}$ rejected, so there is a negative and significant relationship between mathematics anxiety with mathematics learning outcomes for students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year. Besides, a simple regression equation is also obtained Y over X_3 is $\hat{Y} = 149{,}9286 - 0{,}974\ X_3$.

With a simple correlation analysis obtained by the simple correlation coefficient (r) between mathematics anxiety with mathematics learning outcomes of 0,70991. Furthermore, in testing the significance of the correlation coefficient by using the F-test obtained $F_{count} = 14{,}7327$ while $F_{tabel} = 3{,}33$ at a significant level 5% and v_1= 2 and v_2 = 29, so that obtained $F_{count} > F_{table}$. Therefore $H_{0,4}$ rejected and $H_{1,4}$ accepted, so there is a positive and significant relationship between interest in learning and guidance of parents with mathematics learning outcomes of students of class VIII odd

semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 Academic Year. Besides, the second linear regression equation obtained for X_1dan X_2 is also obtained from $\hat{Y} = -3{,}1086 + 0{,}6438\,X_1 + 0{,}1561\,X_2$.

With a simple correlation analysis obtained by the simple correlation coefficient (r) between mathematics anxiety with mathematics learning outcomes of 0,715. Furthermore, in testing the significance of the correlation coefficient by using the F-test obtained $F_{count} = 15{,}1704$ while $F_{table} = 3{,}33$ at a significant level 5% and v_1 = 2 and v_2 = 29 so obtained $F_{count} > F_{table}$. Therefore $H_{0,5}$ rejected and $H_{1,5}$ accepted, so there is a significant relationship between interest in learning mathematics and mathematics anxiety with mathematics learning outcomes for students of class VIII odd semester at SMP Cokroaminoto Wanadadi, Banjarnegara Regency 2016/2017 school year. In addition, the double linear regression equation is also obtained $X_1$and X_3 is $\hat{Y} = 38{,}181 + 0{,}6401\,X_1 - 0{,}3015\,X_3$.

With a simple correlation analysis obtained by the simple correlation coefficient (r) between mathematics anxiety with mathematics learning outcomes of 0,5872. Furthermore, in testing the significance of the correlation coefficient by using the F-test obtained $F_{count} = 7{,}6316$. In contrast, $F_{tabel} = 3{,}33$ at a significant level 5% and v_1 = 2 and v_2 = 29 so obtained $F_{count} > F_{table}$. Therefore $H_{0,6}$ rejected and $H_{1,6}$ accepted, so there is a significant relationship between parental guidance and math anxiety with mathematics learning outcomes for students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year. Besides, the second linear regression equation is also obtained $X_2$and X_3 is $\hat{Y} = 77{,}7033 + 0{,}53315\,X_2 - 0{,}6838\,X_3$.

With a simple correlation analysis obtained by the simple correlation coefficient (r) between mathematics anxiety with mathematics learning outcomes of 0,7196. Furthermore, in testing the significance of the correlation coefficient by using the F-test obtained $F_{count} = 10{,}022$ while $F_{table} = 2{,}95$ at a significant level 5% and v_1 = 3 dan v_2 = n$-m-1 = 32-3-1 = 28$ so obtained $F_{count} > F_{table}$. Therefore $H_{0,7}$ rejected and $H_{1,7}$ accepted, so there is a significant relationship between interest in learning, parental guidance, and mathematics anxiety with mathematics learning outcomes for students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year. Besides that, we also got the top double linear regression equation X_1, X_2, and X_3 is $\hat{Y} = 29{,}5269 + 0{,}5797\,X_1 + 0{,}1417\,X_2 - 0{,}2878\,X_3$.

CONCLUSION

1. There is a positive and significant relationship between interest in learning with mathematics learning outcomes for students of class VIII in the odd semester of SMP Cokroaminoto Wanadadi Banjarnegara Regency 2016/2017 school year.
2. There is a positive and significant relationship between parental guidance and mathematics learning outcomes for students of class VIII in the odd semester of SMP Cokroaminoto Wanadadi Banjarnegara Regency 2016/2017 school year.
3. There is a negative and significant relationship between mathematics anxiety and mathematics learning outcomes for students of class VIII in the odd semester of SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year.
4. There is a positive and significant relationship between learning interest and parental guidance with mathematics learning outcomes for students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency in the 2016/2017 school year.
5. There is a significant relationship between learning interest and mathematics anxiety with mathematics learning outcomes of students of class VIII odd semester at SMP Cokroaminoto Wanadadi Banjarnegara Regency 2016/2017 school year.
6. There is a significant relationship between parental guidance and mathematics anxiety with mathematics learning outcomes for students of class VIII in the odd semester of SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year.

7. There is a significant and significant relationship between learning interest, parental guidance, and mathematics anxiety with the mathematics learning outcomes of Grade VIII students in the odd semester of SMP Cokroaminoto Wanadadi Banjarnegara Regency2016/2017 school year.

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