RELATIONSHIP OF NUMERICAL LEARNING, LEARNING INSURANCE, AND ATTENTION OF PARENTS WITH LEARNING MATHEMATICS STUDENTS CLASS IX SMP

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ABSTRACT

The numerical ability of the student in doing mathematics problems is still lacking, students are less interested in mathematics subjects, and parents who are less attentive to the learning activities of children is suspected to be a factor that causes low student learning outcomes. This study aims to determine whether or not there is a positive and significant relationship between numerical ability, interest in learning, and attention of parents with the results of learning mathematics students IX Muhammadiyah Junior High School Imogiri (SMP Muhammadiyah 3 Imogiri) Even Semester of the academic year 2016/2017. SMP Muhammadiyah Imogiri Bantul Regency academic year 2016/2017 consists of 5 classes IXA has an average value of Midterm in the middle among the five existing classes. Data collection techniques used questionnaires and test methods. The data collection instrument used a questionnaire of interest in learning, questionnaire of parental attention, numerical ability test, and math learning result test. Test instrument research using validity test, reliability test. The prerequisite analysis test includes a normality test, linearity test, and independence test. Data analysis for hypothesis analysis using product-moment correlation analysis and multiple linear regression analysis. The results showed there was a positive and significant relationship between numerical ability, interest in learning, and attention of parents to the results of learning mathematics. At a significant level of 5% $v_1 = 3$, $v_2 = 24$ $F_{count} = 4{,}239506252$ and $F_{table} = 3.01$ so $F_{count} > F_{table}$ with double correlation coefficient 0.588539061 and multiple regression equations are three variables namely $\hat{Y} = -68{,}39347489 + 0{,}01603402 X_1 + 0{,}9670728 X_2 + 0{,}266553832 X_3$ relative contribution $X_1 = 56.21988\%$, $X_2 = 25{,}19377\%$, $X_3 = 18{,}58636\%$ and effective contribution $X_1 = 19{,}47388\%$, $X_2 = 8{,}72659\%$, $X_3 = 6{,}43792$

Keywords: numerical ability, interest in learning, parental attention, mathematics learning outcomes.

INTRODUCTION

Based on the results of observations made at SMP Muhammadiyah Imogiri on April 19, 2016, according to several VIII grade students, it was difficult to learn mathematics. Also, it was strengthened by the teacher, who said that students' ability to count was still lacking. It was seen when given the questions, and some did not work on the problems that he thought were difficult. The striking difference in abilities in learning mathematics can cause problems at the numeracy level of students working on math problems. Learning material that interests students is more natural to learn and store. If there are students who are not interested in learning, it can be endeavored to have a higher interest by explaining things that are interesting and useful for life as well as things that relate to ideas and their relation to the learning material that is learned based on otherwise. Information obtained from students that parents tend to tell their children to study rarely. It can be concluded that parents care less about their children.

In learning, children need to get encouragement and attention from their parents. Sometimes children experience a lack of enthusiasm, so parents are required to give attention and encouragement. According to students, parents are busy with their activities and do not pay enough attention so that in daily learning activities, parents rarely know. It can be concluded that parents do not accompany their children's learning activities. Therefore it is not impossible that mathematics learning outcomes tend to be less than optimal. In this internal factor, one of them is a psychological factor in the form of intelligence, ability, interest, talent, motivation, maturity, and fatigue. While external factors such as

family factors, school factors, and community factors. Numerical ability is the ability to do calculations. However, there are opinions about numerical ability according to several sources: According to Fudyartanta (2010: 68), Designed to measure the ability to understand numerical relationships and solve problems related to numerical concepts (numbers). The numerical ability test is more measuring computational ability (calculations) than numerical reasoning.

Simply put, interest means high tendency and excitement or a great desire for something. According to Reber in Baharuddin and Wahyuni, Esa Nur (2012: 24), interest is not a popular term in psychology due to its dependence on various other internal factors, such as the concentration of attention, curiosity, motivation, and needs. According to Slameto (2013: 57), interest is a constant tendency to pay attention to and commemorate some activities. Activities that interest a person are paid constant attention, accompanied by a sense of pleasure. Parents' attention is very influential in mathematics learning outcomes. According to Slameto (2010: 61), The family is the first and foremost educational institution for their children, both nation, state, and world education, so that the way parents educate their children will affect learning.

Thus, parents' attention to children's learning can be concluded as the concentration of thoughts, feelings, and willingness of parents to provide all learning needs ranging from learning facilities, namely places and learning tools, and assistance in learning so that children get the expected results. Learning outcomes is an acquisition of learning evaluation: St—studentrning outcomes regarding students' ability to understand the subject matter. As expressed by Dimyati and Mujiono (2013: 3), learning outcomes are the reason interfromtion of learning and teaching. From the teacher's point of view, the act of ds with a process of evaluating learning outcomes. From the student's side, the learning outcome is the end of the fragment and the top of the learning process. According to Uno, H.B (2011: 139), student learning outcomes in mathematics are the result of learning mathematics in the form of knowledge as a result of students' treatment or learning. Alternatively, in other words, student learning outcomes in mathematics are what students get from the process of learning mathematics.

The purpose of this study is to determine whether there is a positive and significant relationship between numerical ability and mathematics learning outcomes of grade IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year is 1) To find out whether or not there is a positive and significant relationship between numerical ability and mathematics learning outcomes of grade IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year. 2) To determine whether or not there is a positive and significant relationship between learning interest and mathematics learning outcomes for students of grade IX of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year. 3) To determine whether or not there is a positive and significant relationship between parents' attention and mathematics learning outcomes of Grade IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year. 4) To determine whether or not there is a positive and significant relationship between numerical ability and interest in learning with mathematics learning outcomes of class IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year. 5) To determine whether or not there is a positive and significant relationship between numerical ability and parental attention with mathematics learning outcomes of students of class IX Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year. 6) To determine whether or not there is a positive and significant relationship between learning interest and parental attention with mathematics learning outcomes of class IX SMP Muhammadiyah Imogiri Even Semester Academic Year 2016/2017. 7) To determine whether or not there is a positive and significant relationship between numerical ability, interest in learning, and parents' attention with mathematics learning outcomes for students of grade IX of SMP Muhammadiyah Imogiri Even Semester 2016/2017 School Year.

METHODS

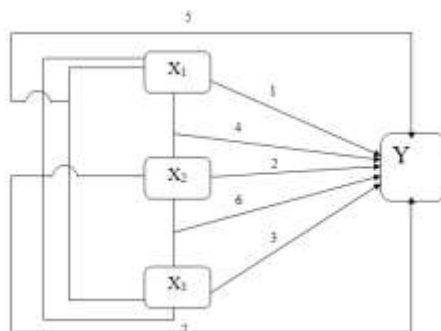The type of research conducted is a correlation.

Figure 1. Schema of Relationships between Variables in Research

Information :

X_1: Numerical Ability

X_2: Interest to learn

X_3: Parents attention

Y: learning mathematics results

(Sugiyono, 2012:216)

This research was conducted at SMP Muhammadiyah Imogiri, and the subject of the research was grade IX students of SMP Muhammadiyah Imogiri in the even semester of the 2016/2017 school year. According to Sugiyono (2012: 80), the population is a generalization area consisting of objects/subjects with specific qualities and characteristics prepared by researchers to be studied and then drawn conclusions. So the population is not only people but also objects and other objects. The population is also not just the amount of the object/subject studied but includes all the characteristics/properties possessed by the subject/object. From this definition, it can be concluded that the population is the whole subject of generalized research. The population in this study were all class IX students of SMPMuhammadiyah Imogiri even semester 2016/2017 academic year consisting of 5 classes, namely class IXA to class IXE. Data grade IX students of junior high school.

The research sample is part or representative of the population studied. Named Research Samples if we intend to generalize the results of research samples. According to Sugiyono (2012: 118), The sample is part of the number and characteristics possessed by the population. In this study, sampling using a random sampling technique to class, which is taken 1 class randomly by lottery class.

This study consisted of 4 variables consisting of 3 independent variables and one dependent variable, as follows.

1. Independent Variable

   Independent variables are often referred to as Stimulus Variables, antecedent predictors, or independent variables. The independent variable is the variable that influences or is the cause of the change or the dependent variable's appearance. (Sugiyono, 2012: 61). In this study has three independent variables, namely:

   a) Numerical Ability (X_1)

   b) Interest to learn (X_2)

   c) Learning Mathematics Results (X_3)

2. Dependent variable

   Dependent variables are often referred to as output variables, criteria, and consequences. In Indonesian, it is often referred to as the dependent variable. The dependent variable is a variable that is affected or which is due, because of the independent variables (Sugiyono: 2012). This study has one dependent variable, namely mathematics learning outcomes (Y).

RESULTS AND DISCUSSION

1. Relationship of Numerical Ability with Mathematics Learning Outcomes.

The analysis results were obtained that the numerical ability of class IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year was in the medium category. From the results of hypothesis testing, there is a positive and significant relationship between numerical ability and mathematics learning achievement test. In this study, a simple correlation coefficient (r) of 0.474469575 was obtained. At a significant level of 5% and that df = 26 to obtain a coefficient of determination (r^2) of 0.225121377, which can be explained that 22.5121377% learning outcomes are influenced by numerical ability while the rest by other factors. There is a variation in learning mathematics (Y), which is explained by numerical ability (X_1) through a linear line $\hat{Y} = 40.059544380 + 0.282517775\ X_1$, with a regression direction coefficient of 0.282517775. This means that each increase of one unit X_1 results in a 0.282517775 increase in Y.

2. Relationship between Learning Interest and Mathematics Learning Outcomes.
   The results of the analysis were obtained that the interest in learning of class IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year was in the medium category. There is a positive and significant relationship between interest in learning and mathematics learning achievement tests from the results of hypothesis testing. In this study, a simple correlation coefficient (r) of 0.360107958 was obtained. At a significant level of 5% and that df = 26 to obtain a coefficient of determination (r^2) of 0.12967774141, which can be explained that an interest influences 12.967774141% learning outcomes in learning while the rest by other factors. There is a variation in learning mathematics (Y), which is explained by an interest in learning (X_2) through a linear line $\hat{Y} = 14.4800233 + 0.65037813\ X_2$ with a regression direction coefficient of 0.65037813. This means that every increase of one unit X_1 results in a 0.65037813 increase in Y.

3. Relationship between Parent's Attention and Mathematics Learning Outcomes.
   The results of the analysis were obtained that the interest of the attention of parents of class IX SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year was in the medium category. The results of hypothesis testing show a positive and significant relationship between the parent's attention and mathematics learning achievement tests. In this study, a simple correlation coefficient (r) of 0.36065512 was obtained. At a significant level of 5% and that df = 26, a coefficient of determination (r^2) of 0.13007211558 can be explained. This can be explained as 13.00721558% learning outcomes are influenced by the attention of parents while the rest by other factors. There is a variation in learning mathematics (Y), which is explained by an interest in learning (X_2) through a linear line $\hat{Y} = 37.78385236 + 0.3336639\ X_3$ with a regression coefficient of 0.3336639. This means that every increase of one unit X_1 results in 0.3336639. increase in Y.

4. Relationship between Numerical Ability and Interest in Learning with Mathematics Learning Outcomes.
   From the results of hypothesis testing, there is a positive and significant relationship between numerical ability and interest in learning and mathematics learning achievement tests. In this study obtained a multiple correlation coefficient (R) of 0.566128930. At a significant level of 5% and that df = 25, so a coefficient of determination (R^2) of 0.320501965 can be obtained, which can be explained that 32.0501965% learning outcomes are influenced by numerical ability and learning interest while the rest are by other factors. There is a variation in learning mathematics (Y) which is explained by numerical ability (X_1) interest in learning (X_2) through linear lines $\hat{Y} = 1.90270343 + 0.26176011\ X_1 + 0.561332258\ X_2$. This means that each increase of one unit X_1 results in 0.26176011 increase Y, and an increase in one unit X_2 results in 0.561332258 increase Y, while for relative contribution X_1 is 65,07943% and X_2 is 34,92057%, while for effective contribution X_1 is 20.858085% and X_2 of 11.192112%.

5. Relationship of Numerical Ability and Parents' Attention with Mathematics Learning Outcomes
   From the results of hypothesis testing, there is a positive and significant relationship between numerical ability and parental attention and mathematics learning achievement test. In this study obtained a multiple correlation coefficient (R) of 0.54515233. At a significant level of 5% and that df = 25 so that a coefficient of determination (R^2) of 0.2971910629 can be obtained, which can be

explained that 29.71910629% learning outcomes are influenced by numerical ability and parental attention while the rest by other factors. There is a variation in learning mathematics (Y) which is explained by the numerical ability (X_1) parents' attention (X_3) through a linear line $\hat{Y} = 24.68694892 + 0.24877929\ X_1 + 0.25384024\ X_3$. This means that every increase of one unit X_1 results in 0.24877929 increase Y and an increase in one unit X_3 results in 0.25384024 increase Y. while relative contribution X_1 is 66.70365% and X_3 is 33.229635% while for effective contribution X_1 is 19.82372 % and X_3 9.89537%

6. Relationship between Study Interest and Parents Attention with Mathematics Learning Outcomes
   From the results of hypothesis testing, there is a positive and significant relationship between learning interest and parent's attention and mathematics learning achievement test. In this study obtained a multiple correlation coefficient (R) of 0.430448313. At a significant level of 5% and that $df = 25$ so that a coefficient of determination (R^2) of 0.18528575016 can be obtained, which can be explained that 18.528575016% learning outcomes are influenced by the interest in learning and the attention of parents while the rest by other factors. There is a variation in learning mathematics (Y) which is explained by the numerical ability (X_1) parents' attention (X_3) through a linear line $\hat{Y} = 10.97684372 + 0.23825462\ X_2 + 0.46345617\ X_3$. This means that each increase of one unit X_2 results in 0.23825462, and an increase in Y and an increase in one unit X_3 results in 0.46345617, an increase in Y. While for relative contributions X_2 is 49.87308% and X_3 is 50.12692% while for effective contributions X_2 is 9.24077 % and X_3 amounted to 9,28780%

7. Relationship of Numerical Ability, Interest in Learning and Parents Attention with Mathematics Learning Outcomes
   From the results of hypothesis testing, there is a positive and significant relationship between numerical ability, interest in learning, and parents' attention, and mathematics learning achievement test. In this study obtained a multiple correlation coefficient (R) of 0.588539601. At a significant level of 5% and that df = 24 to obtain a coefficient of determination (R^2) of 0.346378861, it can be explained that 34.6378861% of learning outcomes are influenced by numerical ability, interest in learning, and parents' attention, while the rest by other factors. There are variations in mathematics learning (Y) explained by numerical ability (X_1) interest in learning (X_2) and parents attention (X_3) through linear lines $\hat{Y} = 0.30692254 + 0.24438262\ X_1 + 0.437668182\ X_2 + 0.16514821\ X_3$. This means that each increase of one unit X_1 increases 0.24438262 Y increases, increases one unit X_2 causes 0.437668182 increases Y and increases one unit X_3 causes 0.16514821 increases Y. while for relative contribution X_1 is 56.21988% relative contribution X_2 is 25, 19377% and X_3 amounted to 18.58636% while for effective contribution X_1 amounted to 19.47.333% effective contribution of X_2 amounted to 8.72659% and X_3 amounted to 6.43792%

CONCLUSION

Based on the results of research conducted by researchers, the following conclusions are obtained:
1. Relationship of Numerical Ability with Mathematics Learning Outcomes. The results of the analysis were obtained that the numerical ability of class IX students of SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year was in the medium category. From the results of hypothesis testing, there is a positive and significant relationship between numerical ability and mathematics learning achievement test. In this study, a simple correlation coefficient (r) of 0.474469575 was obtained. At a significant level of 5% and that df = 26 to obtain a coefficient of determination (r^2) of 0.225121377, which can be explained that 22.5121377% learning outcomes are influenced by numerical ability while the rest by other factors. There is a variation in learning mathematics (Y), which is explained by numerical ability (X_1) through a linear line $\hat{Y} = 40.059544380 + 0.282517775\ X_1$, with a regression direction coefficient of 0.282517775. This means that each increase of one unit X_1 results in a 0.282517775 increase in Y.

2. Relationship between Learning Interest and Mathematics Learning Outcomes. The results of the analysis were obtained that the interest in learning of class IX students of SMP Muhammadiyah

Imogiri Even Semester 2016/2017 Academic Year was in the medium category. From the results of hypothesis testing, there is a positive and significant relationship between interest in learning and mathematics learning achievement tests. The greater the interest in learning, the better the mathematics learning outcomes of students. In this study, a simple correlation coefficient (r) of 0.360107958 was obtained. At a significant level of 5% and that df = 26 to obtain a coefficient of determination (r^2) of 0.12967774141, which can be explained that an interest influences 12.967774141% learning outcomes in learning while the rest by other factors. There is a variation in learning mathematics (Y), which is explained by an interest in learning (X_2) through a linear line $\hat{Y} = 14.4800233 + 0.65037813\,X_2$ with a regression direction coefficient of 0.65037813. This means that every increase of one unit X_1 results in a 0.65037813 increase in Y.

3. Relationship between Parent's Attention and Mathematics Learning Outcomes. The results of the analysis were obtained that the interest of the attention of parents of class IX SMP Muhammadiyah Imogiri Even Semester 2016/2017 Academic Year was in the medium category. From the results of hypothesis testing, there is a positive and significant relationship between the parent's attention and mathematics learning achievement tests. In other words, the greater the parents' attention, the better the results of student mathematics learning. In this study, a simple correlation coefficient (r) of 0.36065512 was obtained. At a significant level of 5% and that df = 26 so that a coefficient of determination (r^2) of 0.13007211558 can be explained which can be explained that 13.00721558% learning outcomes are influenced by the attention of parents while the rest by other factors. There is a variation in learning mathematics (Y), which is explained by an interest in learning (X_2) through a linear line $\hat{Y} = 37.78385236 + 0.3336639\,X_3$ with a regression coefficient of 0.3336639. This means that every increase of one unit X_2 results in 0.3336639. increase in Y.

4. Relationship between Numerical Ability and Interest in Learning with Mathematics Learning Outcomes. From the results of hypothesis testing, there is a positive and significant relationship between numerical ability and interest in learning and mathematics learning achievement tests. In this study obtained a multiple correlation coefficient (R) of 0.566128930. At a significant level of 5% and that df = 25, so a coefficient of determination (R^2) of 0.320501965 can be obtained, which can be explained that 32.0501965% learning outcomes are influenced by numerical ability and learning interest while the rest are by other factors. There is a variation in learning mathematics (Y) which is explained by numerical ability (X_1) interest in learning (X_2) through linear lines $\hat{Y} = 1.90270343 + 0.26176011\,X_1 + 0.561332258\,X_2$. This means that each increase of one unit X_1 results in a 0.26176011 increase in Y, and an increase in one unit X_2 results in a 0.561332258 increase in Y. while for relative contribution X_1 is 65,07943% and X_2 is 34,92057%. While the effective contribution of X_1 was 20.858085%, and X_2 was 11.192112%.

5. Relationship of Numerical Ability and Parent's Attention with Mathematics Learning Outcomes. From the results of hypothesis testing, there is a positive and significant relationship between numerical ability and parental attention and mathematics learning achievement test. In this study obtained a multiple correlation coefficient (R) of 0.54515233. At a significant level of 5% and that df = 25 so that a coefficient of determination (R^2) of 0.2971910629 can be explained, which can be explained that 29.71910629% learning outcomes are influenced by numerical ability and parental attention while the rest by other factors. There is a variation in learning mathematics (Y) which is explained by the numerical ability (X_1) parents' attention (X_3) through a linear line $\hat{Y} = 24.68694892 + 0.24877929\,X_1 + 0.25384024\,X_3$. This means that each increase of one unit X_1 results in 0.24877929 Y increases and increases in one unit X_3 results in 0.25384024 Y increases, while for relative contribution X_1 is 66.70365% and X_3 is 33.229635% while for effective contribution X_1 is 19.82372 % and X_3 were 9,89537%.

6. Relationship between Study Interest and Parents' Attention with Mathematics Learning Outcomes. From the results of hypothesis testing, there is a positive and significant relationship between learning interest and parents' attention and mathematics learning achievement test. In this study obtained a multiple correlation coefficient (R) of 0.430448313. At a significant level of 5% and that

df = 25 to obtain a coefficient of determination (R^2) of 0.18528575016, which can be explained that 18.528575016% learning outcomes are influenced by an interest in the learning and attention of parents while the rest by other factors. There is a variation in learning mathematics (Y) which is explained by the numerical ability (X_1) parent's attention (X_3) through linear lines $\hat{Y}$ = 10.97684372 + 0.23825462 X_2 + 0.46345617 X_3. This means that each increase of one unit X_2 results in 0.23825462, and an increase in Y and an increase in one unit X_3 results in 0.46345617, an increase in Y. While for relative contributions, X_2 is 49.87308% and X_3 is 50.12692% while for effective contributions, X_2 is 9.24077 % and X_3 of 9,28780% the full calculation can be seen in appendix 52.

7. Relationship of Numerical Ability, Interest in Learning, and Parents Attention with Mathematics Learning Outcomes. From the results of hypothesis testing, there is a positive and significant relationship between numerical ability, interest in learning, and parents' attention, and mathematics learning achievement test. In this study obtained a multiple correlation coefficient (*R*) of 0.588539601. At a significant level of 5% and that df = 24 to obtain a coefficient of determination (R^2) of 0.346378861, it can be explained that 34.6378861% of learning outcomes are influenced by numerical abilities, interest in learning, and parents' attention, while the rest is by other factors. There are variations in mathematics learning (Y) explained by numerical ability (X_1) interest in learning (X_2) and parents attention (X_3) through linear lines $\hat{Y}$ = 0.30692254 + 0.24438262 X_1 + 0.437668182 X_2 + 0.16514821 X_3. This means that each increase of one unit X_1 increases 0.24438262 Y increases, increases one unit X_2 causes 0.437668182 increases Y, and increases one unit X_3 causes 0.16514821 increases Y. Whereas relative X_1 contribution is 56.21988% relative contribution X_2 25.19377% and X_3 amounted to 18.58636% while for effective contribution X_1 amounted to 19.47.333% effective contribution of X_2 amounted to 8.72659% and X_3 amounted to 6.43792%.

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