THE RELATIONSHIP BETWEEN LEARNING HABITS, LEARNING ENVIRONMENT AT HOME AND NUMERICAL ABILITY WITH MATHEMATICS LEARNING OUTCOMES

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ABSTRACT

The results of students mathematics learning associated with many factors. Learning Habits, Learning Environment at Home and Numerical Ability are some of the factors that related to students mathematics learning outcomes. This research aims to determine the presence or absence of a positive and significant relationship between learning habits, learning environment at home and numerical ability with mathematics learning outcomes in students class VIII of even semester in SMP Muhammadiyah 2 Depok Sleman regency academic year 2016/2017. The population in this research was all students class VIII of even semester in SMP Muhammadiyah 2 Depok Sleman regency academic year 2016/2017. Samples were taken by random sampling technique to the classes derived class VIIIC as a class sample consisting of 32 students. The data collection techniques such as questionnaires techniques and test techniques. Data analysis used correlation analysis and multiple linear regression analysis. The results showed that there were positive and significant relationship between (1) learning habits with mathematics learning outcomes, with $r = 0,4448$; (2) learning environment at home with mathematics learning outcomes, with $r = 0,3042$; (3) Numerical Ability with mathematics learning outcomes, with $r = 0,4798$; (4) learning habits and learning environment at home with mathematics learning outcomes, with $R = 0,4610$; (5) learning habits and numerical ability with mathematics learning outcomes, with $R = 0,5618$; (6) learning environment at home and numerical ability with mathematics learning outcomes, with $R = 0,5110$; (7) learning habits, learning environment at home and numerical ability with mathematics learning outcomes, with multiple correlation coefficient $R = 0,5662$ with linear regression equation $\hat{Y} = 5,5673 + 0,3467 X_1 + 0,1297 X_2 + 0,3037 X_3$ relatively large contribution $X_1 = 39,163\%$, $X_2 = 7,529\%$ and $X_3 = 53,308\%$, with double determination coefficient $0,3206$ and effective large contribution $X_1 = 12,555\%$, $X_2 = 2,414\%$ and $X_3 = 17,090\%$.

Keywords: *learning habits, learning environment at home, numerical ability, mathematics learning outcomes.*

INTRODUCTION

The development of increasingly advanced technology will bring influence to other fields, one of which is the field of education both directly and indirectly. According to Sukardjono (2004: 3), mathematics is a way/method of thinking and reasoning. Mathematics is used to decide whether an idea is true or false, or at least there is a possibility of true. Mathematics is a way of thinking that is used to solve all kinds of problems in science, government and industry.

Student learning outcomes are essentially changes in behavior as explained earlier. Behavior as a result of learning in a broad sense covers the fields of cognitive, affective, and psychomotor (Nana Sudjana, 1990: 3). Student success is inseparable from several factors that can affect student learning processes. This can be achieved well if the factors that might be related to the teaching and learning process can be met properly. Purwanto, Ngalim (1990: 102) said that the factors that influence student learning include: (1) the factors that exist in the organism itself are called individual factors or internal factors in the form of maturity/growth factors, intelligence, exercise, motivation, habits learning and numerical ability. (2) factors that exist outside the individual that we call social factors or external factors in the form of family factors/household circumstances, the teacher and how to teach them, the tools used in teaching and learning, the environment and the opportunities available.

According to Kartono, Kartini (1996: 101) "habit is a form of behavior that is permanent from an effort to adapt to the environment that contains the affective element of feeling. Math habits show the quantity and quality of learning that is usually done by someone, both in the classroom and outside the classroom. Learning habits in terms of quantity shown by the amount of time used is the amount of time used to study mathematics that is always or can be done by students. Much of the time used is the amount of time spent outside of class because in-class time has been set (scheduled), while in terms of the quality of learning habits shown in the habits of students in following the lessons, habits during the lessons and habits after attending the lesson.

Students who are learning besides fulfilling their basic needs also need a good and sufficient learning environment. According to Helmawati (2014: 202-204), environmental conditions that can affect a person while studying. Environmental conditions are divided into two categories, namely social environment (parents, siblings, teachers, friends, community) and non-social (living/learning environment, learning tools, weather conditions, actual learning time is not so important what matters is memory readiness receive material). The above factors can lead to high achievers and low achievers or fail at all. Therefore, both in the learning environment and the teacher is able to anticipate the emergence of students who show symptoms of failure by trying to overcome the factors that hinder the student's learning process.

Ability is a rational behavior to achieve the required goals in accordance with expected conditions. What is meant by this ability is similar but not the same as mathematical ability. It is the ability to "think" with numbers (numbers), rather than the ability to manipulate. There are a few careers that require numerical abilities; it is often combined with other abilities. Hard careers depend on this ability, for example, auditors, bank employees. Many other fields of finance depend on this ability (Jim Barrett and Geoff Williams, 1996: 67-68).

According to Nana Sudjana (1990: 3), Student learning outcomes are essentially changes in behavior as explained earlier. Behavior as a result of learning in a broad sense covers the fields of cognitive, affective, and psychomotor. The low mathematics learning outcomes of VIII grade students of SMP Muhammadiyah 2 Depok Sleman can be seen from the average math scores at the end of the semester exam is still low. The final semester mathematics grade scores of SMP Muhammadiyah 2 Depok Sleman are more than 50% below the KKM standard. This proves that there are still many students who have difficulty in learning mathematics.

Based on the results of information from one of the mathematics subjects in SMP Muhammadiyah 2 Depok Sleman, students' learning habits in mathematics are still not good. This can be seen from the attitude of students when the teacher submits the material, students do not listen and behave as they please. Should a student who wants to achieve success in learning must change behaviors and habits that are not good by increasing discipline in learning.

The learning environment is one of the external factors that might influence student learning outcomes. Based on information from a number of Muhammadiyah 2 Depok Sleman Junior High School students there are some students whose learning environment at home is inadequate and they rarely study mathematics at home because the learning atmosphere is less comfortable and quiet, learning facilities at home are less supportive in the learning process.

One internal factor that is the basis for learning mathematics is numerical ability because the numerical ability is very necessary to solve mathematical problems. In addition, the numerical ability is the ability of a person to operate a number that includes addition, subtraction, multiplication and division operations. Students who have the high numerical ability will find it easier to solve mathematical problems. But until now most students consider mathematics to be complicated and difficult, and there is even a tendency that mathematics is increasingly developing into a frightening subject. Based on the results of an interview with a mathematics teacher on November 23, 2016, which said that most students consider mathematics a difficult subject and many students complain about mathematics because mathematics is too much formula and difficult to understand so students' numerical ability is still low when given questions calculations, for example, positive and negative

numbers are still wrong because most environmental factors are play, so students become less active in the learning process, do not want to think and do not want to try. If given a question in the form of multiplication to do it is very difficult and calculates it manually, for example, the 3×8 number cannot be directly 24, but by adding up the numbers $8 + 8 + 8$.

Based on the background and problem boundaries, it can be formulated that the problem to be investigated is a positive and significant relationship between study habits, learning environment at home and numerical ability with mathematics learning outcomes in eighth-grade students of SMP Muhammadiyah 2 Depok Sleman even semester 2016 academic year / 2017?

The aim of this research is to find out whether there is a positive and significant relationship between study habits, learning environment at home and numerical ability with mathematics learning outcomes in eighth-grade students of SMP Muhammadiyah 2 Depok Sleman in the even semester of the 2016/2017 school year.

METHODS

This research is classified as quantitative research. The place of research was conducted at SMP Muhammadiyah 2 Depok Sleman. While the research was conducted in the even semester of the 2016/2017 school year. The population in this study were all students of class VIII in the even semester of SMP Muhammadiyah 2 Depok Sleman, which consisted of 3 classes, all of which were homogeneous because classes were arranged randomly without leading classes. In this study, the sample was taken randomly using a random sampling technique for the class, and taken as a sample class was class VIIIC with 32 students. There are two variables of the research variable, they are the independent variable and the dependent variable. The independent variable (independent) consists of study habits (X_1), learning environment at home (X_2) and numerical ability (X_3), while the dependent variable (dependent) is the result of learning mathematics (Y). Data collection techniques used questionnaires and test methods. In this study, the questionnaire method was used to obtain data on study habits and learning environment at home. While the test method is used to obtain data about numerical abilities and mathematics learning outcomes of students of class VIII at SMP Muhammadiyah 2 Depok Sleman. The questionnaire test uses the content validity test by reviewers and the instrument reliability test with alpha formula, while the test instrument questions use the instrument validity test with product-moment correlation techniques, different power tests and instrument reliability tests with the KR-20 formula (Suharsimi Arikunto. 2013: 87). After the data is collected, the analysis prerequisite tests that must be met include normality test, linearity test and independence test. Data analysis uses correlation analysis and multiple linear regression analysis.

RESULTS AND DISCUSSION

In this section further discussion of the results of research analyzed in correlation. This study found that the seventh hypothesis test results were that there was a positive and significant relationship between study habits, learning environment at home and numerical ability with mathematics learning outcomes. In other words, the better the students' study habits, the better the learning outcomes. Likewise, with the learning environment at home, the better students use the learning environment at home to the maximum extent possible, the higher the learning outcomes. In addition, the numerical ability also influences learning outcomes, because if numerical ability is high then the learning outcomes will also be higher. In this study also uses analysis prerequisite tests which include:

1. **Normality test**

   This normality test is used to test the distribution of data obtained by each variable whether it is normally distributed or not. The summary of the normality test results from the four variables are:

Table 1. Summary of Normality Test Results

No	Variable	χ^2_{count}	χ^2_{table}	df	Info
1	Study Habits (X_1)	4,427	7,815	3	Normal
2	Learning Environment at Home (X_2)	0,985	7,815	3	Normal
3	Numerical Ability (X_3)	1,314	7,815	3	Normal
4	Mathematics Learning Outcomes (Y)	2,334	7,815	3	Normal

2. Linearity test

Linearity test is used to find out between independent variables and dependent variables whether they have a linear relationship or not. Summary of the linearity test results of the four variables are:

Table 2. Summary of Linearity Test Results

No	Variable	F_{count}	F_{table}	Info.
1	X_1 to Y	1,459506083	2,44	Linear
2	X_2 to Y	0,695057579	2,57	Linear
3	X_3 to Y	0,640535425	2,35	Linear

3. Independence Test

Independence test is used to find out whether or not there is a relationship between independent variables. A summary of the results of the independent tests of the three independent variables is:

Table 3. Summary of Independence Test Results

No	Variable	χ^2_{count}	χ^2_{tabel}	df	Info
1	X_1 to X_2	21,320	37,652	25	Independen
2	X_1 to X_3	25,127	37,652	25	Independen
3	X_2 to X_3	31,621	37,652	25	Independen

4. Hypothesis testing

From the multiple correlation analysis, the multiple correlation coefficient (R) value is 0.566. In this study also obtained a coefficient of determination (R^2) of 0.321 which means that variations in mathematics learning outcomes (Y) can be explained by student learning habits (X_1), home learning environment (X_2), and numerical ability (X_3) through linear lines $\hat{Y} = 5{,}567 + 0{,}347\ X_1 + 0{,}130\ X_2 + 0{,}304\ X_3$. This means an increase in one unit (X_1) results in a 0.347 increase in Y, an increase in one unit (X_2) results in a 0,130 increase in Y, and wear one unit (X_3) results in 0,304 increase in Y. While for relative contribution X_1 is 39,163%, X_2 is 7,528% and X_3 amounted to 53.308% and effective contribution X_1 amounted to 12.555%, X_2 amounted to 2.414% and X_3 amounted to 17.090%. This shows that numerical ability provides a more significant relationship to learning outcomes in mathematics compared to study habits and learning environment at home.

CONCLUSION

Based on the results of research and discussion as described above, it can be concluded that there is a positive and significant relationship between study habits, learning environment at home and numerical ability with mathematics learning outcomes in students of class VIII SMP Muhammadiyah 2 Depok Sleman even semester of the year 2016/2017 teaching. This is indicated by the F-test is $F_{count} > F_{table}$ or $4{,}404 > 2{,}95$ with a multiple correlation coefficient (R) of 0.566 and a coefficient of determination (R^2) of 0.321. Linear regression equation $\hat{Y} = 5{,}567 + 0{,}347\ X_1 + 0{,}130\ X_2 +$

0,304 X_3. The relative contribution of X_1 was 39.163%, X_2 was 7.528% and X_3 was 53.308% and the effective contribution was 12.555%, X_2 was 2.414% and X_3 was 17.090%.

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