THE RELATIONSHIP BETWEEN NUMERICAL ABILITY, LEARNING MOTIVATIONS, AND PARENTAL ATTENTION WITH MATHEMATICS LEARNING OUTCOMES OF STUDENTS OF SMP NEGERI 03 KALIBAWANG WONOSOBO

Fauzan Adi Saputra[a], Widayati[b]
Program Studi Pendidikan Matematika Universitas Ahmad Dahlan
Jalan Ring Road Selatan, Tamanan, Banguntapan, Bantul Yogyakarta
[a]zanida16@gmail.com , [b]Ummutsabit64@gmail.com

ABSTRACT

Many factors are associated with mathematics learning outcomes. Numerical ability, learning motivations, and parental attention were related to student learning outcomes. Therefore, this study aimed to determine whether there is a relationship between numerical ability, learning motivations, and parental attention with math learning outcomes of students class VII in even semester of SMP Negeri 03 Kalibawang Wonosobo in academic year 2015/2016. The population in this study were students of class VII in SMP Negeri 03 Kalibawang Wonosobo in the academic year 2015/2016 consisting of three classes, are class VII A, VII B, VII C, by the total of students by 69 students. Class VII B was selected as a sample class using random sampling techniques, consisting of 23 students. Data collection techniques are done with the test and questionnaire methods. Contest instruments using validity, reliability, and power difference. After that, analysis prerequisite tests including normality, independence, and linearity test. Data analysis for hypothesis testing using product-moment correlation analysand multiple linear regression analysis. The result showed that there is a positive and significant correlations between numerical ability, learning motivations, and parental attentions with math learning outcomes by multiple correlation coefficient (R) by 0,834 and regression equation $\hat{Y} = -36,6717 + 0,3497\,X_1 + 0,6172\,X_2 + 0,4482\,X_3$, the relative contribution (SR) of variable X_1 by 47,612%, the relative contribution (SR) of variable X_2 by 30,661%, and the relative contribution (SR) of variable X_3 by 21,727%, with the multiple determine coefficient (R^2) by 0,695, the effective contribution (SE) of variable X_1 by 33,121%, the effective contribution (SE) of variable X_2 by 21,330%, and the effective contribution (SE) of variable X_3 by 15, 115%,

Keywords: numerical ability, learning motivations, and parental attentions

INTRODUCTION

Education is a process for developing human potential. This is in accordance with Article 1 (paragraph 1) of Law Number 20 of 2003 concerning the National Education System. "Education is a conscious and planned effort to create an atmosphere of learning and learning process so that students actively develop their potential to have spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation, and state. "In education, mathematics is one of the lessons that have an influence on finding and developing science and technology. However, there are still many students who think mathematics is a difficult subject to understand, so the learning outcomes are less than optimal. Many attempts were made to improve the quality of mathematics learning, both internally by increasing learning motivation and externally by increasing parents' attention to provide adequate learning facilities for their children.

Based on an interview with Ms. Retna Zuli S., S.Pd., one of the mathematics subjects in SMP Negeri 03 Kalibawang, Wonosobo Regency on September 22, 2015, said that the low results of students 'daily tests were due to the lack of students' numerical ability to work on problems , most students are confused in counting especially in solving numbers and social arithmetic. Good numerical skills can be had by students learning how to do math exercises with regular and regular problems. Where numerical ability is important for the next level of education. Meanwhile according to Ketut (2002: 16) "Numerical ability is a special ability to count. Numerical abilities are also important in everyday life, such as calculations and measurements that are general in trading offices, factories, companies or banks".

Ms. Retna Zuli S., S.Pd., also said that most of the students in participating in mathematics learning activities were still lacking in motivation, it can be seen from their lack of desire to learn mathematics, not doing homework (homework) with the excuse of forgetting, preferring cheating rather than working independently. Learning motivation is important in the learning process because its function is encouraging. Motivation is an individual reason to behave in certain situations. Motivation is in everyday life, for example, the simple act of eating is motivated by hunger. Likewise, education is motivated by a desire for knowledge. Motivation in learning mathematics, in general, is still low. One reason is the lack of internal and external motivating factors that support motivation. In this case, mathematical motivation is important because it will determine the right student thinking strategy to understand material. According to Sanjaya, Vienna (2013: 249) Learning Motivation determines student learning success, students who have high learning motivation tend to have high achievement, while students with low learning motivation will also have low achievement because motivation is a movement or impetus for certain actions.

Based on information from Mr. Subaryono S.Pd., one of the counseling guidance counselors at SMP Negeri 03 Kalibawag, Wonosobo Regency on September 22, 2015, said that parents' attention was still low because parents thought the students only learned when their children were at school. After returning from school, children are required to help parents both in the fields, in the fields, even just looking for grass for animal feed. He also said that parents did not realize that children's learning needs are not only in school but also while at home. According to Walgito, B. (2005: 53) "Attention is the concentration or concentration of all individual activities aimed at an activity carried out."

Indicators of low mathematics learning outcomes can be seen from the value of the Midterm (UTS) in the Even Semester achieved by students is still low. This is indicated by the students' mathematical scores which are still below the Minimum Mastery Criteria (MMC) 75 obtained by Grade VII Even Semester students of SMP Negeri 03 Kalibawang, Wonosobo Regency, Academic Year 2015/2015. Seen in Table 1 below.

Table 1. Midterm of Even Semester Middle School 03 Kalibawang Wonosobo Regency 2015/2016 Academic Year

Class	VII A	VII B	VII C
The number of students	23	23	23
Value above KKM	4	4	3
Percentage	17,391%	17,391%	13,043%
Value below KKM	19	19	20
Percentage	82,609%	82,609%	86,957%
Lowest Value	45	40	40
The highest score	85	85	80
Average	60	58,91	59,13

(source : SMP N 03 Kalibawang Tahun Ajaran 2015/2016)

Based on the background of the problems outlined above, the following problems can be identified:
1. Student mathematics learning outcomes are still low.
2. Some students still think mathematics is a difficult subject.
3. Lack of numerical ability of students in working on problems.
4. Most students participating in mathematics learning activities are still lacking in motivation.
5. Parents of students assume learning is only done at school, so parents pay less attention to their children's learning activities at home.

METHODS

This research is a quantitative study. This research was conducted in Class VII of SMP Negeri 03 Kalibawang, Wonosobo Regency, in the Even Semester of the 2015/2016 Academic Year. The

population in this study were all VII grade students of SMP Negeri 03 Kalibawang, Wonosobo Regency in the 2015/2016 academic year, totaling 69 students divided into 3 classes, namely classes VII A, VII B, VII C. In this study the sampling technique using random sampling techniques, because the class is homogeneous, the taking of subjects from population classes is carried out randomly, the sampling is done by drawing the class. After taking a random sample class VII B obtained consisting of 23 students as research samples. This study uses two methods of data collection namely the questionnaire method and the test method. the validity of the Learning Motivation questionnaire and the Parental Attention Questionnaire examined by Soffi Widyanesti P., M.Sc., while to determine the validity of the Numerical Ability test and the Learning Outcomes test the Product Moment correlation formula was used by Karl Pearson.

RESULTS AND DISCUSSION

It can be said that numerical ability, learning motivation, and parental attention are factors that determine student learning outcomes. In addition, it is known that 69.565% of students have moderate numerical ability are students who can perform arithmetic basic operations calculations and solve problems related to numerical concepts and 69.565% of students have moderate learning motivation, namely students who study mathematics actively in order to get math scores good, ask the teacher when there are mathematics subject matter that is not yet understood and 52.173% of students have the attention of parents while some parents buy math textbooks, and parents give encouragement to their children as encouragement in learning mathematics.

From the results of the first hypothesis test, there is a positive and significant relationship of numerical ability with mathematics learning outcomes. This shows the better numerical ability of students, the better the results of learning mathematics. Then the good mathematics learning outcomes will be obtained. In this study, a linear line was obtained $\hat{Y} = 43,7748 + 0,3937 X_1$ with a regression direction coefficient of 0.393. This means that each increase of one unit X_1 results in 0.393 increase in Y. Also obtained a correlation coefficient (R) of 0.610 and a determinant coefficient (R^2) of 0.372 which means that increasing or decreasing numerical ability can be explained by variations in mathematics learning outcomes explained by ability numeric (X_1). In other words, the better the numerical ability of students, the better the mathematics learning outcomes of the student.

From the results of the second hypothesis test, there is a positive and significant relationship between learning motivation and mathematics learning outcomes. This shows the better the motivation to learn students, the better the results of learning mathematics. In this study a linear line was obtained $\hat{Y} = -5,7242 + 0,9075 X_2$, with a regression direction coefficient of 0.907, meaning that each increase in one unit X_2 results in 0.907 increase in Y. A simple correlation coefficient (R) of 0.560 and a determinant coefficient (R^2) of 0.313 mean that the increase or decrease in learning motivation can be explained by the variation in mathematics learning outcomes explained by learning motivation. In other words, the higher the motivation of student learning, the better the mathematical learning outcomes

From the results of the third hypothesis test, there is a positive and significant relationship of parental attention with mathematics learning outcomes. This shows that the better the attention of parents of students, the better the results of learning mathematics will be. In this study obtained a linear line $\hat{Y} = 25,8757 + 0,5679 X_3$, with a regression direction coefficient of 0.567, meaning that each increase of one unit X_3 results in 0.567 increase in Y. A simple correlation coefficient (R) of 0.437 and a determinant coefficient (R2) of 0.190 are obtained, which means that increasing or decreasing parental attention can be explained that there are variations in mathematics learning outcomes explained by parental attention (X_3). In other words, the higher the attention of the students' parents, the better the math learning outcomes.

From the results of the fourth hypothesis test, there is a positive and significant relationship between numerical ability and learning motivation with learning outcomes in mathematics. This shows that the better the numerical ability and motivation, the results of learning mathematics will also be better.

In the study obtained by multiple linear regression lines $\hat{Y} = -14{,}20468 + 0{,}34034\,X_1 + 0{,}75565\,X_2$. Also obtained a multiple correlation coefficient (R) of 0.763 and a double determinant coefficient (R^2) between numerical ability and motivation with mathematics learning outcomes of 0.582 which means that the better or worse the numerical ability and learning motivation can be explained that there are variations in mathematics learning outcomes that are explained by numerical ability (X_1) and learning motivation (X_2). In other words, the better the numerical ability of students and student motivation, the better the results of student mathematics learning will be.

From the results of the fifth hypothesis test, there is a positive and significant relationship between numerical ability and parental attention with mathematics learning outcomes. This shows the better numerical ability and attention of parents, the results of learning mathematics will also be good. In the study obtained by multiple linear regression lines $\hat{Y} = 14{,}01124 + 0{,}35359\,X_1 + 0{,}43610\,X_3$ Also obtained a multiple correlation coefficient (R) of 0.694 and a double determinant coefficient (R^2) between numerical ability and parental attention with mathematics learning outcomes of 0.481 which means that increasing or decreasing parental ability and parental attention can be explained that there are variations in mathematics learning outcomes that are explained by numerical ability (X_1) and parental attention (X_3). In other words, the better the numerical ability of students and student motivation, the better the results of student mathematics learning will be.

From the results of the sixth hypothesis test, there is a positive and significant relationship between learning motivation and parental attention with mathematics learning outcomes. This shows the better motivation to learn and parental attention, the results of learning mathematics will also be good. In the study obtained a double linear regression line $\hat{Y} = -16{,}41539 + 0{,}74186\,X_2 + 0{,}32650\,X_3$. Also obtained a multiple correlation coefficient (R) of 0.605 and a double determinant coefficient (R^2) between learning motivation and parents 'attention with mathematics learning outcomes of 0.366 which means that the increase or decrease between learning motivation and parents' attention can be explained that there are variations in mathematics learning outcomes that are explained between learning motivation (X_1) and parental attention (X_3). In other words, the better the motivation to learn and the attention of parents, the better the students' mathematics learning outcomes will be.

From the results of the seventh hypothesis test, there is a positive and significant relationship between numerical ability, learning motivation, and parents' attention and mathematics learning outcomes. This shows that the higher the numerical ability, motivation to learn, and the attention of parents, the better the results of learning mathematics. In the study obtained by multiple linear regression lines $\hat{Y} = -36{,}671719662 + 0{,}349744008\,X_1 + 0{,}617245223\,X_2 + 0{,}448213141\,X_3$. Also obtained a double correlation coefficient of 0.834 and a double determinant coefficient between numerical ability, learning motivation, and parental attention with mathematics learning outcomes of 0.695 which means that increasing or decreasing numerical ability, learning motivation, and people's attention can be explained that there are variations in learning outcomes mathematics is explained by numerical ability, learning motivation (X_2) and parental attention (X_3). Relative Contributions (SR) are used to look for comparative relativities in which only the independent variable is examined, while the effective contribution (SE) is used to determine the amount of contribution effectively with the comparison of the studied independent variables and other independent variables. The result of the variable relative contribution (X_1) was 47.612%, the relative contribution (SR) variable (X_2) was 30.666% and the variable relative contribution (X_3) was 21.727%. It also obtained an effective contribution variable (X_1) of 33.121%, an effective contribution (SE) variable (X_2) of 21.330% and an effective contribution variable (X_3) of 15.115.

With a value of 0.695, it can be concluded that mathematics learning outcomes are related to numerical ability, learning motivation, and parental attention of 69.566%, while the rest are related to other factors not examined in this study. By referring to the results of statistical tests it can be stated that the better the numerical ability, motivation to learn, and the attention of parents, the results of learning mathematics will also be better, and vice versa.

CONCLUSION

1. There is a positive and significant relationship between numerical ability and mathematics learning outcomes of Grade VII Semester students of SMP Negeri 03 Kalibawang, Wonosobo Regency, 2015/2016 Academic Year.
2. There is a positive and significant relationship between learning motivation and mathematics learning outcomes of Grade VII Semester students of SMP Negeri 03 Kalibawang, Wonosobo Regency, 2015/2016 Academic Year.
3. There is a positive and significant relationship between parents' attention and mathematics learning outcomes of class XI Even Semester Students at 03 Kalibawang State Junior High School, Wonosobo Regency, 2015/2016 Academic Year.
4. There is a positive and significant relationship between numerical ability and motivation of learning with mathematics learning outcomes of Grade VII students of Even Semester Public Middle School 03 Kalibawang, Wonosobo Regency, Academic Year 2015/2016.
5. There is a positive and significant relationship between numerical ability and parents' attention to mathematics learning outcomes of students of class VII Even Semester Public Middle School 03 Kalibawang Wonosobo Regency 2015/2016 Academic Year.
6. There is a positive and significant relationship between learning motivation and parents' attention with the mathematics learning outcomes of Grade VII Semester students of SMP Negeri 03 Kalibawang, Wonosobo Regency, 2015/2016 Academic Year.
7. There is a positive and significant relationship between numerical ability, motivation to learn, and parental attention with mathematics learning outcomes for students of class VII Even Semester Public Middle School 03 Kalibawang Wonosobo Regency 2015/2016 Academic Year.
8. Also obtained an effective contribution variable X_1 of 33.121%, effective contribution (SE) of variable X_2 21.330% and effective contribution of variable X_3 of 15.115%, this means that numerical ability is related to 33.121%, motivation to learn X_2 21.330% and parental attention is related to 15,115%, with mathematics learning outcomes. This shows the better numerical ability, motivation to learn, and parental attention, the better the results of student mathematics learning.

REFERENCES

Depdiknas.2003.*Undang-undang Republik Indonesia No 20 Tahun 2003*. Jakarta: BP. Cipta

Ketut, Dewa, T. 2002. *Tes Bakat Karier Anda.* Jakarta: PT Rineka Cipta.

Sanjaya, Wina. 2013. *Kurikulum dan Pembelajaran*. Jakarta: Kencana.

Suparman. 2012. *Metodologi Penelitian Pendidikan*. Yogyakarta: MIPA UAD Press.

Walgito, Bimo. 2010. *Bimbingandan Konseling*. Yogyakarta: Andi Offset.