

THE EFFECT OF ONLINE LEARNING ON INTEREST IN LEARNING MATHEMATICS IN ELEMENTARY SCHOOLS

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Abstract

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This research is quantitative research with a causal approach. The purpose of this study is to find out the effect of online learning on interest in learning mathematics in grade IV at elementary school (SD Negeri 01 Pasir Muncang). Research data for the two variables in this study were obtained using a questionnaire instrument. Test the validity of the parent tutoring instrument using the Pearson Product Moment Correlation formula and the mathematics learning outcomes instrument using the Biseral Correlation Coefficient formula. Test the reliability of online learning instruments and interest in learning mathematics using the Alpha Cronbach formula. The population in this study were fourth grade students at elementary school (SD Negeri 01 Pasir Muncang), totaling 88 students. The samples taken were 47 students obtained using the Taro Yamane formula. Testing Prerequisite analysis in the form of normality test (Liliefors). After the normality test, homogeneity testing (Fisher) was then carried out. Data that has been declared normal and homogeneous is used to test the hypothesis whose results show that there is an effect of online learning on interest in learning mathematics. The simple correlation regression analysis technique produces a relationship model which is expressed in the form of a regression equation, namely $\hat{Y} = 15.90 + 0.89X$. This can be seen from the calculation results t_{count} (13.24) is greater than t_{table} (1.72), thus t_{count} (13.24) > t_{table} (1.72) which means the correlation coefficient of online learning with interest in learning mathematics stated to be significant, this shows that there is an influence between online learning and interest in learning mathematics at elementary school.

Keywords: online learning; interest in learning; mathematics

I. INTRODUCTION

Interest in learning is a feeling of interest in the lesson and encourages individuals to study and pursue the lesson, in this case interest is very closely related to feelings of pleasure or occurs because of a happy attitude towards something. Arousing interest in learning in each lesson is important, especially in the implementation of learning mathematics which for some students is less desirable. Mathematics is the exact science of shapes, compositions, quantities, numbers, and spaces that are related to one another. Mathematics is a basic science that underlies other sciences. For this reason, students should have a high desire and love to learn mathematics. By having a high interest in learning, students will be able to learn and practice mathematics well even though it is done online. The research that supports this research is research conducted by Ria Yunitasari and Umi Hanifah [1] that online learning has an effect on students' interest in learning. Because students get bored easily when online learning takes place. Less interesting learning is not like learning in the classroom. Therefore, teachers must create interesting online learning and increase student learning interest. Based on the results of surveys and interviews with teachers and Class IV students at elementary school (SDN 01 Pasir Muncang), not all students have a good interest in learning mathematics during face-to-face learning or during online learning as currently students do not

understand mathematics learning material, to measure interest in learning mathematics students, namely by distributing questionnaires to students in class IV-A which consists of 20 students and IV-B which consists of 20 students. Based on the results of the questionnaire, it is known that 72% of students have an unfavorable interest in learning mathematics. This is evidenced by the lack of students who study mathematics the night before tomorrow's lesson, students think mathematics is a subject that is difficult to understand, students are not interested in doing math problems if the teacher does not ask them to, then students only learn mathematics when asked by their parents and only learn these lessons when they are going to face tests, and the results of students' mathematics learning are unsatisfactory. The low interest in learning mathematics above is caused by several factors, namely internal factors (inside students) such as interest, attention, and enjoyment towards mathematics lessons and external factors (outside students) such as facilities and infrastructure, environment, teacher and parent factors.

Seeing the problems above, researchers are interested in conducting research on the effect of online learning on interest in learning mathematics. Researchers will conduct research at SDN 01 Pasir Muncang. Therefore, researchers intend to conduct research with the title The effect of online learning on interest in learning mathematics.

Matrona [2], Interest in learning is a person's (student) attention, liking, interest in learning activities which is shown through enthusiasm, participation, and being active in learning and realizing the importance of these activities. Susanto [3], Interest is a very important factor in student learning activities. A learning activity that is carried out not in accordance with the interests of students will allow a negative effect on the learning outcomes of the students concerned [4]. With the interest and the availability of stimuli that are related to the students themselves, the students will get inner satisfaction from the learning activities earlier [5]. Meanwhile, according to Eismawati, et al [6] learning mathematics is a process of teaching and learning activities where students can use their abilities in solving problems. Novitasari [7] mathematics as a field of study taught in formal educational institutions is an important part of efforts to improve the quality of education. Mathematics lesson is a lesson that deals with many concepts.

There are many factors that affect interest in learning, Hanafi, et al [8], Interest in learning arises because of desires from within a person's personality and things that influence from outside. Interest in learning that makes students excel not only depends on the heart's desire of students but is also influenced by various things that affect student learning activities, such as teaching teachers, learning materials, infrastructure, parental abilities, community environment, school environment, factors physical and spiritual students, strategies and methods used by teachers in learning activities and so on [9]. Syardiansah [10], A person's interest in learning is not always stable, but always changing. Therefore, it needs to be directed and developed towards a choice that has been determined through the factors that influence that interest, namely:

- 1) Internal factors are the same that exist in a person both physically and spiritually, physically and psychologically.
- 2) External factors are all factors that exist outside the individual: family, community, and school.

Based on the opinions of the experts above, it can be synthesized that interest in learning mathematics is a sense of concern and interest in mathematics that relates to many concepts and helps solve everyday problems, interest in learning is influenced by internal factors (spiritual and physical) and external factors (teacher, family, school, and community) interest is very closely related to feelings of liking or occurs because of a happy attitude towards something and active participation in the learning process, this will give pride and satisfaction within himself and lead to good achievements in learning

Pohan [11], Online learning is learning that takes place in a network where the teacher and those being taught do not meet face to face. Syarifudin [12], Online learning is learning that is carried out using the internet as a place to channel knowledge. This form of learning can be done anytime and anywhere without being bound by time and without having to meet face to face. Online learning has benefits, according to Pohan [11], Online learning can also encourage students to be challenged with new things that they acquire during the learning process, both interaction

techniques in learning and the use of various learning media. Students also automatically, not only learn the teaching materials provided by the teacher, but also learn how to learn themselves. Bilfaqih & Qomarudin [12], The benefits of online learning are:

- 1) Improving the quality of education and training by using multimedia effectively in learning.
- 2) Increase the affordability of quality education and training through the implementation of online learning.
- 3) Reducing the cost of providing quality education and training through the use of shared resources.

Based on the opinions of the experts above, it can be synthesized that online learning is learning that uses electronic devices remotely and utilizes networks and internet connections in delivering material, online learning is more efficient and makes it easier for students to interact with teachers so that it can encourage students to master information technology-based learning, more independent and increasing the affordability of quality education with indicators of interaction, quality, affordability, efficiency, facilitation, connection, independence, and mastering information-based learning [13].

II. RESEARCH METHODS

The research was conducted on students in grades IV-A and IV-B of SD Negeri 01 Pasir Muncang, Caringin District, Bogor Regency, odd semester of the 2020/2021 school year. The time of the research was carried out in September 2020. The sample used in this study was a simple random sampling technique using a random system from class IV-A and IV-B. The method used in this study uses a survey method through a causal study approach. The survey method is a method in which information is obtained from a number of samples. The information data includes x and y variables. The data obtained are derived from the sample and research population. The collection used for data collection is the researcher uses a questionnaire instrument to obtain original data and directly from all respondents who have been selected for research. The questionnaire instrument test is used to measure the effect of online learning on interest in learning mathematics. The instrument contains statements regarding the variables studied and arranged in the form of statements using a Likert scale instrument consisting of five ranges. Sugiyono [14] descriptive statistics are statistics that are used to analyze data by describing or describing the data that has been collected as it is without intending to make general conclusions or generalizations.

III. RESULTS AND DISCUSSION

The results of the two variables, namely online learning (X) as the independent variable and the variable interest in learning mathematics (Y) as the dependent variable are then analyzed and described in the form of descriptive statistics with minimum values, maximum values, score ranges, mean, median, mode, standard deviation, variance, total score, number of respondents, number of classes and class length. Testing Prerequisites

Analysis includes the normality of the estimated standard error and the homogeneity of variance test. According to the type of data, the standard error normality test is estimated using the Liliefors test and the variance homogeneity test is using Fisher's test. Based on the normality test using the Liliefors test, $L_{count} = 0.116$ with $L_{table} = 0.25089$ so that $L_{count} < L_{table}$ $0.116 < 0.25089$ which means that the price of L_{count} is smaller than L_{table} , so the online learning variable (X) and interest in learning mathematics (Y) are stated normal. Based on the results of the calculation of the homogeneity test of online learning variables (X) and interest in learning mathematics (Y), an f_{count} of 1.318 was obtained for sample 47 and a significant level α (0.05) obtained a f_{table} of 4.06. To clarify that there is an influence between online learning variables (X) on interest in learning mathematics (Y), which is based on the results of the significance calculation test which is generally expressed in the form of a regression equation, namely $\hat{Y} = a + bx$.

Based on the calculation results, the constant $a = 15.90$ and the direction coefficient $b = 0.68$ are obtained. Thus the effect of X on Y is presented in the form $\hat{Y} = 15.90 + 0.68x$. The regression significance test is used to determine whether the online learning variable (X) has a significant effect on the interest in learning mathematics variable (Y), provided that the hypothesis is tested if $F_{count} > F_{table}$. Based on the results of calculating the significance of the regression obtained $F_{count} = 45.3$ while $F_{table} (\alpha = 0.05) = 4.06$. Thus the value of $F_{count} > F_{table} = 45.3 > 4.06$. So it can be concluded that the effect of online learning (X) on interest in learning mathematics (Y) with the regression equation $\hat{Y} = 15.90 + 0.68x$, is significant.

The regression linearity test aims to find out whether the online learning variable (X) and the variable interest in learning mathematics (Y) have a linear effect or not. For testing the null hypothesis (H_0) is rejected if the linear regression hypothesis $F_{count} > F_{table}(\alpha=0.05)$ whereas if $F_{count} < F_{table}(\alpha=0.05)$ it means that H_a is accepted. The value of $F_{count} = 1.47$ while $F_{table}(\alpha=0.05) = 2.05$ with dk quantifier $(k-2) = 24$ and dk denominator $(n-k) = 21$. Thus $F_{count} < F_{table}(\alpha=0.05)$ $1.47 < 2.05$ then the linear hypothesis is accepted. This means that the regression value of online learning (X) and interest in learning mathematics (Y) has a linear effect.

The path correlation coefficient between online learning variables (X) and interest in learning mathematics (Y) is 0.89. Meanwhile, the coefficient of determination of online learning KD (X) on interest in learning mathematics (Y) is 79.21% ($r^2 = 0.7921$). This shows that online learning contributes 79.21% to interest in learning mathematics, while 20.79% interest in learning mathematics is influenced by other factors.

Statistical hypothesis testing using the path coefficient significance test with the t test Criteria for testing the significance of the path coefficient is if $t_{count} > t_{table}$, then it is declared significant. Based on the calculation results obtained $t_{count} = 13.24$ while $t_{table} (\alpha = 0.05) = 1.72$ thus $13.24 > 1.72$ online learning on interest in learning mathematics is significant, it can be concluded that there is a positive and significant effect between online learning on interest in learning mathematics.

The results of data analysis and hypothesis testing obtained data that there is a positive effect of online learning (X) on interest in learning mathematics (Y). Thus, the research hypothesis is accepted, which means that online learning contributes to achieving students' interest in learning mathematics. The effect of online learning on interest in learning mathematics based on this research is statistically shown by the results of significance and regression with the regression equation $\hat{Y} = 15.90 + 0.68x$. This means that every one unit increase in the online learning variable will lead to an increase in interest in learning mathematics by 0.68 units. The calculation results obtained $t_{count} = 13.24$ while $t_{table} (\alpha = 0.05) = 1.72$ thus $13.24 > 1.72$ from the two values obtained it can be concluded that there is a positive and significant effect between online learning on interest in learning mathematics.

The influence between online learning variables (X) and interest in learning mathematics (Y) has a strength indicated by a path coefficient of 0.89. Meanwhile, the coefficient of determination of online learning KD (X) on interest in learning mathematics (Y) is 79.21% ($r^2 = 0.7921$). This means that an increase or decrease in interest in learning mathematics is influenced by online learning by 79.21%, while 20.79% interest in learning mathematics is influenced by other factors.

Based on the calculation of statistical analysis, which produces a significant correlation coefficient of 13.24. This means that there is a positive influence from online learning variables on interest in learning mathematics. Further supporting research, conducted by Erlando Doni Sirait in 2016 [15] entitled *Pengaruh Minat Belajar terhadap Prestasi Belajar Matematika*. In this study, the results were obtained with a correlation coefficient r of 0.706 with a total sample of 65. The calculation of the t_{count} value was consulted with Pearson's Product Moment table, showing that t_{count} is greater than $t_{table} (\alpha=0.05) = 7.914 > 1.670$. So it can be concluded that there is an influence of learning interest on mathematics learning achievement. The t_{count} value shows a positive number (0.706) which means that the direction of the relationship between the variable interest in learning and learning outcomes in mathematics is positive. This shows that the higher the student's learning interest, the higher the learning outcomes obtained by these students. Based on the description of the two relevant studies and compared with this study, it can be seen that the results of these studies have a positive effect and different levels of influence.

This is supported by several theories, as stated by Syarifudin [12], who argues that online learning is learning that is carried out using the internet as a place to channel knowledge. This form of learning can be done anytime and anywhere without being bound by time and without having to meet face to face.

Online learning greatly influences students' interest in learning mathematics. In line with this, Susanto [3], Interest is a very important factor in student learning activities. A learning activity that is carried out not in accordance with the interests of students will allow a negative effect on the learning outcomes of the students concerned. With the interest and the availability of stimuli that are related to the

students themselves, the students will get inner satisfaction from the learning activities earlier. Meanwhile, Najoan [16], Mathematics is an exact science that studies the abstraction of space, time, and numbers. Mathematics formulates ideas or concepts into the language of symbols and numbers to describe the reality of the universe. Based on the results of research calculations, it shows that there is a positive effect of online learning on interest in learning mathematics. This is evidenced by the research hypothesis being accepted, which means that online learning has a contribution to interest in learning mathematics.

IV. CONCLUSION

Based on the results of data collection, data processing, and discussion of the research results, it can be concluded that there is a positive and significant influence between online learning and an interest in learning mathematics at SDN 01 Pasir Muncang, Caringin District, Bogor Regency, to be precise in class IV-A and IV-B. This can be seen from the calculation results t_{count} (13.24) is greater than t_{table} (1.72), thus t_{count} (13.24) > t_{table} (1.72) which means the correlation coefficient of online learning with interest in learning mathematics stated to be significant, this shows that there is a positive and significant influence between online learning and interest in learning mathematics at SDN 01 Pasir Muncang, Caringin District, Bogor Regency, to be precise in class IV-A and IV-B.

This is shown by statistical analysis which produces a path coefficient using the Pearson product Moment formula, namely (rxy) of 0.89. This shows that the contribution of the online learning variable (X) to the variable interest in learning mathematics (Y) is included in the very strong category. The coefficient of determination (r^2) is 79.21%, with the regression equation $\hat{y} = 15.90 + 0.68x$.

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