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Relationship Between Use of Learning Media With the Mathematics Learning Outcomes of SMK N 3 Bondowoso students

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Abstract

The purpose of this study was to find out the relationship between student learning outcomes in mathematics and the use of learning media. The sample for this research was selected from as many as 34 students in class X by using cluster random sampling techniques, namely quantitative and correlation techniques. Questionnaires and learning achievement tests serve as data collection instruments. Data analysis is used, especially direct correlation analysis. This technique determines the significance of the correlation between the variables studied. Normality and linearity tests, which are prerequisite tests for this method, were used. The research findings show that there is a relationship between the use of instructional media and student learning outcomes. This is due to the 0.617 correlation between the use of educational media and student learning outcomes. The fact that the value of 0.617 is in the range of 0.61-0.80 indicates the strength of the relationship. However, the direction of the relationship is favorable because the value of r is favorable.
Keywords: Learning Media, Learning Outcomes, Mathematics.

INTRODUCTION

Education has a big role for humans. A person's future and life path is determined and guided by their education. Education still ranks as the most important societal need, despite what some may believe. In carrying out daily life, humans certainly prioritize education in interacting with their environment. A person's skills and abilities are formed and perfected through education. Education is also often used as a measure of the quality of each person. Education can also be described as an effort to develop independence. Education can be defined as the process by which a group of people acquire knowledge, skills, and habits which are

then passed on through teaching, research, and education from one generation to the next.

The development of education has a major impact on the goals of the nation where education is designed and planned to be a good education. As a teacher-counselor, one must anticipate student boredom and difficulties. (Marlina et al., 2021). According to Wahyono (2019), the role of the teacher is needed to produce innovative learning so that student learning motivation can optimally increase. There are several levels and types of formal education available in schools. One of them is vocational high school, a type of formal educational institution that arranges vocational high school education as a continuation of junior high school, or other forms of education that are closely related, with subjects one of which is mathematics. Mathematics is one of the subjects that must be taught in schools around the world (Sachdeva and Eggen, 2021; Septiani).

The learning process is a series that involves several components to achieve a certain goal, one of the components is the teacher. Teachers play an important role in the successful implementation of the learning process to achieve goals and teachers must be able to place themselves and have the skills for the implementation of the learning process (Priawasana & Waris, 2019)

Human activities can use mathematics to help them solve problems in a variety of fields, including social, economic, and even technological. Because it can help humans solve problems in various aspects of everyday life, mathematics is a field of study (Sari et al., 2020). Everyone must understand mathematics, but especially those who attend formal education (Permatasari et al., 2020; Ramadhan and others., 2020). The main goal of learning mathematics in schools is to equip students with problem-solving skills, such as the ability to understand concepts, develop mathematical models, solve models, and understand the required solutions (Khaillasiwi et al., 2020). Only if they understand and interpret these concepts can students be sensitive to mathematics (Numan, 2019). Therefore, you can tell if someone understands a concept when they can explain it in their own words (Mariam et al., 2019).

With its role in changing aspects of life, mathematics is developing very rapidly. Distractions in mathematics cannot be separated from the development of all aspects. Students' perceptions of mathematics must be changed so that they realize mathematics is more than just calculating numbers. Many students find math challenging. This point of view causes students to give up easily even before they learn mathematics. Without knowing why they are being taught or what it means, students memorize concepts from textbooks or concepts from their teachers. A common problem is learning disabilities.

The number of students who have difficulty learning mathematics must be anticipated. The results of several interviews and observations of prospective teachers made mathematics the most avoided subject, causing many students to lack good aspects of their learning outcomes. Problem students to understand the mathematics they learn. In addition, the reason is that students do not understand the concept of material and students often feel forgotten. Therefore, mathematics is still a frightening specter for children. Kids are always bored and get bored easily while learning math. Seeing the relationship of mathematics to everyday life, one can predict how difficult it will be for children to socialize if they do not understand mathematics. The need for a breakthrough so that students are interested in learning

mathematics. One that can capture students' attention and understanding by using media.

To overcome various problems in learning mathematics, what teachers can do is to use learning media. Learning media is a vehicle for conveying information/learning messages to students. With the existence of media in the learning process of mathematics, it is hoped that it can assist teachers in increasing students' understanding of learning. Therefore, teachers should present media in every learning process in order to achieve the goals to be achieved. learning media are tools, methods and techniques used in order to make communication and interaction more effective between teachers and students in the process of education and teaching in schools. Especially in mathematics lessons, students often experience difficulties in their learning activities, including difficulties in fast counting, logic skills, writing or drawing skills and a feeling of laziness in learning mathematics. This is because students view mathematics as a difficult and boring subject. Mathematics is one of the subjects that occupies an important role in education because it is seen from the time spent in mathematics lessons at school, more than other subjectsa

Media is a tool that can be used to provide and disseminate information. With the use of the right resources there is, of course, a great chance of studying mathematics successfully. Students easily understand their math lessons. (Herdiyanti, Sulaiman, Hayati, & Dedoe, 2021)(2016), the presence of media in learning affects class success. With the help of learning media, it is easier for teachers to convey important information to each student. Through the use of media in the classroom, students' thoughts and feelings are stimulated, resulting in a willingness to learn mathematics. According to Hiedayat (2010), learning mathematics using media is the method or learning that is most preferred by students, especially learning mathematics assisted by media. The presence of media in learning mathematics facilitates learning for teachers to convey information to students. with the help of the media, it makes it easier for students to understand what is unclear with the help of the media.

As a tool, media images function to facilitate the learning process as well as to achieve learning objectives. This must be based on the belief that the learning process with the help of media, especially media images, can improve student learning outcomes so that the goals of learning mathematics are achieved. This opinion was reinforced by several researchers including Anggraeni Krisda Titis (2012) conducting research, the problem that occurs is that there is a tendency for the process of learning mathematics, especially in math lessons to be teacher-centered, students tend to be passive so this certainly has an impact on decreasing student learning outcomes and the average average learning outcomes obtained is 5.0. And to overcome these problems, researchers used media images and research results obtained that media images had a positive effect on mathematics learning outcomes with the material of addition and subtraction of two-digit numbers

METHOD

Quantitative approach is used as a research method. The variables are the independent variable (X) the use of learning media and the dependent variable (Y), student learning outcomes. Questionnaires and learning performance tests were used as data collection tools. Cluster random sampling technique in determining the sample. The sample consisted of 34 students, a total of 67 students of class X. In the

analysis, the relationship between the use of learning media and student learning outcomes was determined by simple correlation analysis. .

RESEARCH RESULTS AND DISCUSSION

The researcher presents this data in the form of a data description with exposure from the beginning of the activity to the end in the form of data analysis and hypothesis testing. At the beginning, a conditional test was carried out in the form of normality and linearity tests on the research data. In the normality test it was found that the sig value was 0.168 > 0.05. In accordance with the decision, this data is normally distributed.

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		34
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	30,24243843
Most Extreme Differences	Absolute	,205
	Positive	,152
	Negative	-,022
Test Statistic		,205
Asymp. Sig. (2-tailed)		,168[c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Furthermore, a linearity test was carried out as one of the requirements in the simple correlation analysis test. In the linearity test the researchers used SPSS 25. In this linearity test it was found that the deviation from linearity value was 0.088 > 0.05. More details about linearity using SPSS 25 as follows.

Table 2. Linearity Test

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Hasil * Media	Between Groups	(Combined)	13788,725	11	1253,520	1,801	,116
		Linearity	50,996	1	50,996	,073	,789
		Deviation from Linearity	13737,729	10	1373,773	1,974	,088
	Within Groups		15308,333	22	695,833		
	Total		29097,059	33			

The requirements test is the normality test and the linearity test and it is concluded that the data are normally and linearly distributed, each of which has a value of 0.168 and 0.088, both of which are more than a value of 0.05 which is based on a normal and linear distribution decision. Therefore, the researcher proceeded to perform a simple correlation analysis test. In this simple correlation test, researchers also use SPSS 25 to facilitate testing on research data. In a simple correlation test using the SPSS 25 formula in the form of analysis - corralate - behavior.

To determine how closely the two variables are related to each other and in which direction, simple correlation analysis, also known as bivariate correlation, is used. The link between the two variables is shown by a simple correlation coefficient which after being analyzed the results are as follows:

Table 3. Simple Correlation

Correlations

		MEDIA PEMBELAJARAN	HASIL BELAJAR
MEDIA PEMBELAJARAN	Pearson Corelation	1	,617
	Sig. (2-tailed)		,000
	N	34	34
HASIL BELAJAR	Pearson Corelation	,617	1
	Sig. (2-tailed)	,000	
	N	34	34

In table 3 the simple correlation test obtained a sig value of 0.000. In decision making it is shown that the two variables have a relationship if the sign value is less than 0.05. With table 3 we get a value of 0.000 and it is clearly less than 0.05. This shows that the use of learning media has a relationship to student learning outcomes. Furthermore, the Pearson correlation of 0.617 means that the relationship between the use of instructional media and student learning outcomes is very strong because it is in the interval 0.61 – 0.80. The relationship that occurs is also positive at a value of 0.617 so that it can be interpreted that if the value of using media is greater, the value of learning outcomes is also getting better, but if the value of using media is getting smaller, the value of learning outcomes will also decrease. With these results it can be concluded that the relationship between the use of learning media and learning outcomes has a positive and strong relationship.

The use of learning media greatly determines the results of the teaching and learning process, which in general learning media are still conventional so as to reduce students' interest in mathematics, this needs to be changed by using learning media that uses information and communication technology (ICT) based learning so that the teaching process will be more interactive

According to Gagne, media is a type of component in students' environment that can stimulate them to learn (Reigeluth, Merrill, Wilson, & Spiler, 1980). Image media is one of the non-projected media. This media can be designed by the teacher himself in accordance with the learning objectives to be carried out. The use of media images is more effective if the images are adjusted to the child's level, both in terms of image size, detail, color, and background that are necessary for interpretation. Image media is very useful in the process of learning mathematics and can be used as a creative medium to improve material ambiguity (Degeng & ., 2013)

Learning mathematics serves to develop the ability to communicate using numbers and symbols as well as the sharpness of reasoning that can help clarify and solve problems in everyday life (Depdikbud, 1993:95). Mathematics has several characteristics, including: 1) having an abstract object of study, 2) relying on agreement, 3) having a deductive mindset, 4) having symbols that are empty of meaning, 5) paying attention to the universe of speech, and 6) being consistent in its system, (PTAI Consortium 3 Team, 2008:10). Mathematical concepts are abstract, while learning is concrete. If the learning is lacking or without using teaching aid media, the learning will become abstract. Therefore, in learning mathematics, it is better to use media or teaching aids that can make learning concrete. Thus, learning mathematics is an effort to assist students in building mathematical concepts with their own abilities through a process of interaction. Basically students learn from the concrete. To understand abstract concepts, students need concrete (real) objects as intermediaries. Furthermore, abstract concepts that have just been understood will settle, stick, and last a long time if he learns through doing and understanding understanding, not just through remembering facts

CONCLUSION

Based on the results of research data analysis, it can be concluded that the use of educational media has a significant influence on student learning outcomes. Because the correlation between the use of learning media with student learning outcomes is 0.617. This shows that the relationship is strong because the value of 0.617 ranges from 0.61 to 0.80. The direction of the relationship is positive because the value of r is positive, thus there is a significant relationship between the use of learning media and the learning outcomes of class X students of SMK N 3 Bondowoso.

REFERENSI

Amir, Almira. (2016). Penggunaan Media Gambar Dalam Pembelajaran Matematika. *Jurnal Eksakta Volume 2 Nomor 1, 2016.*

Degeng, I. N. sudana, & . (2013). *Ilmu Pembelajaran Klasifikasi Variabel untuk Pengembangn Teori dan Penelitian* (1st ed.). Bandung: Aras Media.

Herdiyanti, H., Sulaiman, A., Hayati, L., & Dedoe, A. (2021). The Role of Social Capital on the Livelihood Strategy of the Pengkalen Batu Community, Payung Sub-district, South Bangka Regency. https://doi.org/10.33019/society.v9i1.306

Hiedayat, S. W. (2010). Pengembangan Komputer Pembelajaran (CAI) Tentang Gerak Lurus Berubah Beraturan Pada Mata Pelajaran Fisika Bagi Siswa Kelas VII SMP Negeri 2 Surabaya. *Jurnal Mahasiswa Teknologi Pendidikan , 1, 1-106*.

Khaillasiwi, O., Purwanto, S., & Meiliasari. (2020). Pengaruh Model Pembelajaran SSCS (Search, Solve, Create, and Share) terhadap Kemampuan Koneksi Matematis Siswa SMA Negeri 45 Jakarta. Jurnal Riset Pembelajaran Matematika Sekolah, 4(1), 44–50.

Mariam, S., Nurmala, N., Nurdianti, D., Rustyani, N., Desi, A., & Hidayat, W. (2019). Analisis Kemampuan Pemecahan Masalah Matematis Siswa MTsN Dengan Menggunakan Metode Open Ended Di Bandung Barat. Jurnal Cendekia : Jurnal Pendidikan Matematika, 3(1), 178–186.

Marlina, E., Rinsyad, A., Antasyari Pratama, B., Bimbingan Konseling Islam, J., Dakwah dan Komunikasi, F., & Islam Negeri Sunan Gunung Djati Bandung, U. (2021). Optimalisasi Pembelajaran Melalui Metode Hybrid pada Masa Pandemi di Kabupaten Ciamis. *Proceedings Uin Sunan Gunung Djati Bandung*, *1*(31), 1–17. Retrieved from https://proceedings.uinsgd.ac.id/index.php/proceedings/article/view/331

Numan, M. (2019). Pengembangan Bahan Ajar Statistika Penelitian Pendidikan Matematika. Jurnal Mercumatika: Jurnal Penelitian Matematika dan Pendidikan Matematika, 3(2), 114–128.

Permatasari, I., Noer, S. H., & Gunowibowo, P. (2020). Efektivitas metode pembelajaran PQ4R ditinjau dari kemampuan berpikir reflektif matematis dan self-concept siswa. Pythagoras: Jurnal Pendidikan Matematika, 15(1), 61–72.

Priawasana, E., & Waris, W. (2019). Peningkatan Kemampuan Berfikir Kritis Dengan Pendekatan Problem Based Learning. *Madrosatuna: Journal of Islamic Elementary School*, *3*(1), 49. https://doi.org/10.21070/madrosatuna.v3i1.1975

Ramadhan, F., Murdiyanto, T., & Rohimah, S. R. (2020). Pengaruh Pendekatan Kontekstual pada Pembelajaran Jarak Jauh Terhadap Kemampuan Komunikasi Matematis Siswa SMA Negeri 1 Depok Jurnal Riset Pembelajaran Matematika Sekolah , 4 (2), 9–17.

Reigeluth, C. M., Merrill, M. D., Wilson, B. G., & Spiler, R. T. (1980). THE ELABORATION THEORY OF INSTRUCTION: A MODEL FOR SEQUENCING AND SYNTHESIZING INSTRUCTION. *Instructional Science*, Vol. 9, pp. 195–219. https://doi.org/10.2307/23368860

Sachdeva, S., & Eggen, P.-O. (2021). Learners' Critical Thinking About Learning Mathematics. International Electronic Journal of Mathematics Education , 16(3), em0644.

Sari, D. P., Isnurani, I., Aditama, R., Rahmat, U., & Sari, N. (2020). Penerapan Matematika dalam Kehidupan Sehari-hari di SMAN 6 Tangerang Selatan. Jurnal Pengabdian Mitra Masyarakat (JPMM), 2(2), 134–140.

Septiani, D. R., & Purwanto, S. E. (2020). Hubungan Antara Kepercayaan Diri dengan Hasil Belajar Matematika Berdasarkan Gender. JKPM (Jurnal Kajian Pendidikan Matematika), 6(1), 141.

Wahyono, N. H., 2019. engembangan Media Pembelajaran Ekonomi Interaktif Berbasis Android Sebagai. Gulawentah:Jurnal Studi Sosial, 2(4), p. 74.