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The Influence of Interactive Learning Media on the Learning Outcomes and Motivation of Grade V Students in the Science Subject

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Abstract: This study was conducted with the aim of analyzing and testing the influence of interactive learning media on science learning outcomes and the influence of interactive learning media on students' learning motivation. The interactive media in question is Microsoft Power Point media. This study uses a quantitative method with an ex post facto approach. The population taken was from four schools, namely SDI Miftahul Hikmah, SDIT Permata, SDN Sooko 1 and SDN Gayaman. Based on the results of observations, the four schools have implemented interactive learning media and have the same accreditation and facilities. The research sample was taken from class V with a total of 167 students. The data collection technique used a questionnaire method, a method of documenting students' semester science scores and an interview method for the initial study. The data analysis technique used simple regression analysis. The results of the analysis showed that the Interactive Learning variable (X) had a significant influence on Learning Outcomes (Y1) with a sig value of 0.000 <0.05, R Square of 70.50%, and an F test of 0.000 <0.05; The Interactive Learning variable (X) has an influence on Learning Motivation (Y2) with a mean value of 89.2, a median of 90, where the KKM value for each school is 70.

Keywords: Learning media; Learning motivation; Learning outcomes; Science learning

Introduction

Education plays a major role in preparing and developing Human Resources (HR) that can compete globally. Education starts from the family environment, school, then society (Darling-Hammond et al., 2020). Education plays an important role in developing the potential of students. In addition, the learning process in the classroom as well as learning media and school facilities also play a role in achieving educational goals. Learning strategy is a design that contains a series of activities to achieve educational goals. The learning aspect consists of learning strategies and methods. The learning aspect depends on the objectives, material delivered, student conditions, facilities, time and educators (Haleem et al., 2022). However, the suitability of the media and learning methods used affects the results and motivation of student learning (Riyadi et al., 2023). Learning media is useful as a means of conveying flexible messages that can be used for all levels of education. The delivery of messages from learning media is in the form of information containing learning objectives (Marpanaji et al., 2018). Media in general are humans, materials, events that can make students gain knowledge, skills and attitudes. However, more specifically, media for the teaching and learning process are graphic, photographic and electronic tools used to capture, operate and rearrange information (Abdulrahaman et al., 2020).

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Learning media are: technology-based information used in the learning process; a physical tool prepared for learning materials; hardware as a communication tool in the form of print, visual or audio (Setuju et al., 2020). It can be concluded that learning media is something that has an intermediary function as a provider and recipient of information with the aim of improving learning outcomes and student learning motivation and helping them to follow comprehensive and meaningful learning. Learning media is anything that has a function between providing information and receiving information that aims to increase learning motivation and make learning meaningful. There are four benefits of learning media, including: making it easier for students and teachers in the teaching and learning process; providing concrete examples for abstract material; the teaching and learning process does not make students bored; as a communication bridge (Nafiah et al., 2021). One of the implementations of advances in information and communication technology is learning media (Alfiansyah et al., 2022; Bahri et al., 2021). Currently, the digital era has a major impact on human survival. Therefore, the world of education in Indonesia should not be underestimated (Sparrow et al., 2020). There are three elements in the media, namely sound, visual and motion. Bretz classifies it again into eight groups including: audio media; print media; still visual media; motion visual media; semi-motion audio media; semi-motion media; still audiovisual media and motion audio visual media (Putri et al., 2022).

To explain something that has been packaged and summarized in an attractive slide is one of the teaching methods that makes students understand more easily through visualizations formed in text, images, graphics, sound and video is an explanation of the presentation using power point (Dwivedi et al., 2023). Microsoft power point is a software designed as a presentation material in the form of slides. Power point is one of the applications in computers (Novriandami et al., 2023). Power point has an attractive multimedia program, is easy to make, easy to use and does not require costs, only requires data storage (Golightly et al., 2022). Thus, Microsoft power point is a software application on a computer that is designed for presentations. This application is one of the applications used in the academic field. Apart from easy use, of course there are advantages and disadvantages of each. For the advantages, namely: the delivery of material is more interesting; students' understanding becomes more stimulated regarding material information; messages are easily understood by students; the teacher only explains the core of the learning that appears; can be used repeatedly; does not take up much space and is easy to carry.

Then the disadvantages, namely: the need for preparation that takes time and energy; cannot be separated from the computer; if the screen display is not appropriate, the display is not clear; students' ability to understand technology is also needed (Alahi et al., 2023; Talaviya et al., 2020). Interactive power point contains text, images, audio and video that have been combined into interactive material. It is said to be interactive because there is reciprocal interaction. The teacher plays a role in increasing students' actions and reactions so that they can receive material with the media created by the teacher (Ong et al., 2023). Of course, students have different interests and attractions in several subjects taught in schools. The principle of learning is carried out by teachers so that students play an active role during the learning process (Blinkoff et al., 2023). Learning outcomes are a form of achieving changes that occur in the cognitive, affective and psychomotor domains from the learning process that has been carried out (Wu et al., 2019).

The obstacles that researchers have found during the observation and interview process are the lack of appreciation for each learning that affects students' learning motivation in following the learning process, especially in the subject of social studies. The next obstacle is the lack of variation in teaching methods and the lack of teacher attention to restore students' focus. In addition, the lack of motivation from within and parental support is also an obstacle to achieving maximum learning outcomes. Therefore, student learning outcomes are also affected, especially in the subject of social studies. To improve student learning outcomes and motivation, it is necessary to improve the learning process that is interesting, learning that increases enthusiasm and learning that increases student activity. One way to overcome the above problems is by using interactive learning media based on Microsoft Power Point with a combination of videos that are relevant to the material. By using these learning media, students will be interested and increase their enthusiasm in following learning, especially in the subject of social studies.

Method

The research was conducted at SDI Miftahul Hikmah, SDIT Permata, SDN Sooko 1 and SDN Gayaman Mojokerto, East Java in the even semester of the 2024/2025 academic year. The research used was quantitative research, a method whose data collection and analysis are based on numbers and measurements (Appelbaum et al., 2018). The research is a type of ex post facto research. Ex post facto research is a study of the causal relationship between certain variables that result in certain variables. Ex post facto research leads to

events that have occurred and then looks at the factors causing the event. The sampling technique for this study used the cluster random sampling technique. The population was grade V in each elementary school, while the research sample was only 167 students determined from the Slovin formula. The study consisted of three variables, one independent variable, the influence of media use (X) and two dependent variables, the results (Y1) and motivation (Y2).

The data collection techniques used are: questionnaire, a data collection tool with the presentation of questions written by respondents ; documentation, a method that rewrites existing data, the documents that researchers take are students' semester learning outcomes; interviews, question and answer activities between researchers and respondents , conducted as a preliminary study. Before the questionnaire was used for research, a trial was carried out, because the instruments used must be valid and reliable. The validity test uses the Pearson correlation formula and the reliability test uses Alpha. The validity test is used to measure whether an instrument produces valid data. While the reliability test is the determination of an instrument that is believed to be good or not (Husaeni et al., 2022). Research data analysis uses simple linear regression, coefficient of determination analysis and the F test. The data analysis requirements test uses the normality test, linearity test. For all test calculations using SPSS for Windows Series 25.

Result and Discussion

The results of the data validity test are presented in the following table 1. Based on table 1, it shows that the instrument is valid. The instrument was tested with 24 student respondents who were not included in the research sample. The instrument is said to be valid if r count > r table and vice versa if r count < r table the instrument is not valid. Validity test using Pearson correlation.

Table 1. Validity Test

Question number	Sig.	Information	Question number	Sig.	Information
1	.003	Valid	13	.026	Valid
2	.000	Valid	14	.004	Valid
3	.000	Valid	15	.021	Valid
4	.045	Valid	16	.047	Valid
5	.001	Valid	17	.025	Valid
6	.000	Valid	18	.021	Valid
7	.000	Valid	19	.018	Valid
8	.010	Valid	20	.010	Valid
9	.001	Valid	21	.000	Valid
10	.007	Valid	22	.005	Valid
11	.000	Valid	23	.018	Valid
12	.014	Valid	24	.000	Valid

Table 2. Results of Descriptive Analysis of Research Data

N	Learning outcomes
Mean	89.20
Median	90
Std. Deviation	5.89
Minimum	70
Maximum	100
Total number of	14.91

The results of student learning data obtained by researchers show a range of average values (mean) of 89.20, median 90, Std Deviation 5.89, minimum value 70, maximum value 100 and a total of 14.91. From the average value, it can be said to be high, because the KKM value in each school is 70. For the reliability test, the internal consistency method is used, where the test is only carried out once and the analysis is carried out immediately. The results of the reliability test show a figure of 0.74 where the learning motivation questionnaire is reliable and its reliability is high, because the Cronbach Alpha value (a)> 0.60. Furthermore, a prerequisite test is carried out which consists of a normality test and a linearity test. The prerequisite test uses the Lilliefors method with a significance level of 0.05. A prerequisite test is carried out before conducting a simple linear regression analysis, determination coefficient analysis and F test. The results of the normality test are shown in table 3.

Based on the results of the normality test, the table above shows the number 0.200 which means Ho is accepted. Because, the basis for making probability decisions is if the probability value> 0.05 then Ho is accepted and if the probability value <0.05 Ho is rejected. The linearity test is said to be linear if the value of the Deviation from linearity Sig> 0.05 there is a significant linear relationship between the independent variable and the dependent variable. However, if the value of the deviation from linearity Sig <0.05 then there

is no significant linear relationship between the independent variable and the dependent variable. The results of the linearity test are shown in table 4.

Table 3. Normality Test

One-Sample Kolmogorov Smirnov Test		Unstandardized residual
N	Mean	167
Normal Parameters[a,b]	Std. Deviation	.0000000
	Absolute	.057
	Positive	.057
	Negative	-.056
Test Statistic		.057
Asymp. Sig. (2-tailed)		.200[c, d]

Test distribution is Normal (a); Calculated from data (b); Lilliefors Significance Correction (c); This is a lower bound of the true significance (d)

From the results 4, it shows the number 0.27. So, there is a significant linear relationship between the independent variable and the dependent variable. Because with a value of 0.27> 0.05. With the results of the normality test and linearity test obtained, it is sufficient to carry out a simple linear regression analysis and testing can be carried out. Simple linear regression analysis was carried out to determine whether the interactive learning variable (x) has a significant effect on the learning motivation variable (y). The results of the analysis show that the variable (x) has an effect on the variable (y) with a significance value of 0.000 <0.05. With a probability value of 0.05. If the significance value <0.05, the variable (x) has an effect on the variable (y), and vice versa if the significance value> 0.05 then there is no effect.

Table 4. Linearity Test

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.	Sum of Squares	df
Y1 * Interactive Learning	Between Groups	(Combined)	1269.18	26	48.81	16.66	.000		
		Linearity	1183.57	1	1183.57	404.17	.000		
		Deviation from Linearity	85.60	25	3.42	1.16	.278		
	Within Groups		409.97	140	2.92				
	Total		1679.16	166					

Table 5. Simple Linear Regression Analysis

Coefficients[a]

Unstandardized Coefficients			Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1	(Constant)	55.92	2.03	27.53	.000
	Interactive Learning	.450	.023	19.85	.000

a. Dependent Variable: Y1

The coefficient of determination analysis is used to determine the contribution of the influence of independent variables on dependent variables simultaneously. The results of the analysis show a figure of 70.5% which means that the interactive learning variable (x) has an influence on the learning motivation variable (y), because the R Square value is 0.705.

Table 6. Analysis of Determination Coefficient

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.840[a]	.705	.703	1.73

a.Predictors: (Constant), Interactive Learning

The last test is the F test, which determines whether the regression model is declared FIT. The results of the F test show the number 0.000. Which means the regression model is declared FIT because the sig value of 0.000 < 0.05.

Table 7. F Table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1183.57	1	1183.57	394.05	.000b
	Residual	495.58	165	3.00		
	Total	1679.16	166			

a. Dependent Variable: Y; b. Predictors: (Constant), Interactive Learning

Based on the results of the research and data analysis that have been carried out, there is a positive and significant influence of the use of interactive media based on power point on the learning outcomes and motivation of fifth grade students in the subject of social studies. This is because the use of interactive media based on power point can be a complementary tool that helps clarify learning materials and makes it easier for teachers who have difficulty delivering material because the subject matter is already in the form of a summary that is entered into the slide (Junias et al., 2022; Mogavi et al., 2024). The student learning process can affect learning outcomes (Metekohy et al., 2022). Therefore, teachers as facilitators must be able to create an interesting and enjoyable learning atmosphere. Not only that, the selection of learning media also needs to be considered so that learning objectives can be conveyed. To enable teachers to develop learning techniques, one of them is by using power point media (Mamonto et al., 2023).

The use of power point media makes students not bored when subjects that explain a lot of theory such as Natural and Social Sciences (IPAS) subjects. The existence of learning media helps students improve their understanding, the material is more interesting and allows the material to be stored longer (Mira et al., 2022). A person's desire to do activities is a form of motivation (Bandhu et al., 2024). Having the desire and passion to learn to achieve the desired goals is a picture of a student who has motivation. Student motivation is influenced by several factors including: learning environment; student conditions; learning process in the classroom; and how the teacher explains. Motivation functions as encouragement and direction in order to achieve a goal and choose what is good and bad to do (Stults-Kolehmainen et al., 2020; Urhahne et al., 2023).

Educational objectives are divided into several domains (Nikolic et al., 2024), namely: Cognitive domain, contains behavior that emphasizes intellectual aspects, in this domain there are six levels: knowledge, comprehension, application, analysis, synthesis, evaluation; Affective domain, contains behavior aspects of feelings and emotions, there are five levels: receiving, responding, valuing, organization, value complex; Psychomotor domain, focuses on skills consisting of seven levels: perception, set, guided response, mechanism, complex overt response, adaptation, origination. Two factors that influence learning outcomes, namely internal factors from within the individual and external factors from outside the individual. However, some say that the factors that influence learning outcomes are divided into three types (Aviory et al., 2022; Min et al., 2023; Pham et al., 2021), namely: internal factors, the physical and spiritual condition of the individual; external factors, the condition of the environment around the individual; learning process factors, the state of effort to learn (Berutu et al., 2023). Motivation is a person's internal condition that drives them to achieve a goal (Hattie et al., 2020; Urhahne et al., 2023).

Learning motivation is driven by internal and external students who support them in learning success (Hendrawati et al., 2023). The function of motivation, namely: as a driver of individuals in each of their activities; the direction of an individual's activities towards the goals to be achieved; sorting the actions that will be taken to achieve goals. The current curriculum has P5 updates and IPAS learning. Natural and Social Sciences are natural sciences and social sciences combined. Learning related to nature and social conditions (Yıldırım et al., 2015). The aim of realizing a generation with noble character, forming character, developing cognitive, affective and psychomotor abilities, national education develops the curriculum in Indonesia into an independent curriculum. This affects changes in science and social studies learning which were previously separate into science and social studies learning. This change certainly has reasons, namely: MI/SD students can see the whole; development of holistic (overall) thinking about the natural and social environment; strengthening the profile of Pancasila students (Rachman et al., 2024).

Science and social studies are subjects that aim to increase scientific literacy, with the aim of strengthening students' understanding of the material that will be taught at the junior high school level. Science and social studies at the MI/SD level are directed at developing basic literacy. The combined science and social studies subjects will increase students' thinking skills. After conducting observations and interviews that researchers have conducted with school principals, class teachers and students. The results vary because some schools have their own facilities and standards. There are schools that use power point media for every lesson which will make students feel bored and there are schools that use lecture methods in the learning process which is not in accordance with the current curriculum. Then, the facilities for each school are certainly different. However, researchers have confirmed that some schools that will being a research place has more or less the same facilities such as, each class has an LCD and the school provides additional LCDs for learning outside the classroom and a sound system is provided (Yangambi, 2023).

Conclusion

The results of the research and discussion that have been presented, can be concluded: There is an influence of the use of interactive media on student learning

outcomes, especially in the subject of science as seen in the average value of learning outcomes in the even semester; The significant influence of the use of interactive learning media on student learning motivation which makes them not feel bored when learning takes place. Thus, interactive power point-based learning media is suitable for use to improve student learning outcomes and learning motivation.

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D. R. M., conducted research, collected data, created research instruments, distributed research data needs questionnaires, processed and analyzed data and wrote articles; T. A., as a supervisor who is tasked with guiding, directing and validating research instruments.

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The author declares no conflict of interest whatsoever.

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