

Research Article

The Effect of Implementing Learning Media on Student Learning Outcomes

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Abstract.

This study aimed to determine (1) the effect of the using Power Point application as a learning medium on students' learning outcomes; (2) the magnitude of the influence of the application of as a learning medium on students' learning outcomes; and (3) the completeness of students' learning outcomes. A quasi-experimental design was used to describe the relationship between variables through hypothesis test. The subject of this study were 20 students from the Elementary School of 1 Waai. Data analysis was done through correlation, regression, and *t*-test. The results of the study show that (1) students' learning outcome increased, which can be seen from the average initial test results, from 70.65 to the final score of 82.3; (2) students' learning outcome in the value of *F* was more than *F* table (18.45 – more than 4.41), the contribution amounted to 50%, and (3) the completeness of the learning outcome was that 75% of the students got a value of 74 by using more creative ways of learning.

Keywords: implementation, learning media, learning outcomes

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1. INTRODUCTION

The development of increasingly advanced information and communication technology in this century has caused the world of education to continue to strive to adapt to existing developments[1]. One of them is the use of learning media in accordance with these developments. The use of computer-based learning media should be supported by the ability of every education manager to use it to fulfill the quality of education. One of the uses of computer-based learning media is by utilizing the Microsoft Office Power Point application.

The use of Microsoft Office Power Point as one of the computers learning media can be utilized in the learning process. Because Microsoft Office Power Point has the ability to combine various media elements, such as text processing, colors, images, graphics, and animation [2],[3]. That way when learning uses Microsoft Office Power Point it

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can encourage the creation of learning in a pleasant atmosphere (joyful teaching and learning), which will ultimately lead to achieving better quality learning.

To change the learning paradigm while improving learning outcomes, students should be given the opportunity to reconstruct their knowledge through acting, observing, classifying, and being able to solve problems. Conversely, teachers should not transfer knowledge to students' minds through lectures, but help students construct that knowledge in their minds by using learning media that can provide pleasant nuances for students so that learning is felt more meaningful. In addition, the use of media as a strategy in learning is always recommended because it has a positive impact, both teachers and students.

According to Baharuddin there are several characteristics that are meaningful in terms of learning media (1) Media is a tool in the learning process; (2) learning media as a channel of communication; (3) Learning media as hardware in learning. (4) Learning media as software. (5) Media as a message distributor is able to stimulate students' thinking and encourage students to learn [4]. In essence, the media functions as an aid in the learning process such as a means that provides visual experiences to motivate student learning, so that learning becomes clear, concrete and learning concepts become easy to understand [5].

The problems experienced by teachers in grade V Elementary School of 1 Waai show that the learning process, especially for Christian religious education subjects, still uses conventional learning, namely learning that is dominated by the teacher, where the teacher only lectures during the learning process without using the media to explain the material being taught. given, while students sit passively receiving information. In addition, teachers have not used learning media to assist the learning process in class. This learning process also had an impact on the learning outcomes of students who did not reach the minimum completeness criteria (KKM), 70, namely as many as 12 students out of 20 students based on the results of the tests given. This means that most of the student learning outcomes are still low. Based on these problems, teachers need to use power point learning media to improve student learning outcomes by using various approaches to solving existing problems.

New technologies, especially multimedia, have an increasingly important role in the learning process. The results of the study [6], also suggest that the use of power point media has proven to have an effect on student learning outcomes. In another relevant study conducted by Misbahudin, et al, it shows that power point as a learning medium

can measure the effectiveness of learning [7]. Students better understand the material presented, are more concentrated and active, and learning becomes more optimal. In line with that, Akgün, et al, showed that students who were taught with power point had a better interest in learning and became an alternative in the learning process [8].

To achieve this goal the teacher must always use computer learning media with the application of power point to help achieve student learning outcomes in the learning process. That way, teachers are able to create interesting teaching materials with their own creativity and innovation. If all of these things can be done, of course it will add to the teacher's creativity in the learning process in the classroom so that it can encourage students' interest in learning while helping to achieve the desired learning goals in various ways and techniques.

2. METHODS

The research method used is quasi experimental. This method is used to see whether there is influence, how much influence, and the completeness of student learning through the application of learning media with the application of power point towards improving student learning outcomes. This research was conducted at Elementary School of 1 Waai, Salahutu District, Central Maluku Regency, Maluku Province. The variables in this study consisted of one independent variable (X), namely the use of power point-based learning media and one dependent variable (Y), namely learning outcomes. The population used was the sample population, namely 22 grade V students. However, until the end of the study, there were 20 complete data collected, 2 students whose data were not collected because they were not present when this study took place. The instrument used in this study is a test instrument. In this study the data obtained were analyzed using the correlation, regression, and t test.

3. RESULTS AND DISCUSSION

3.1. The Effect of Power Point Media on Learning Outcomes

The data in Table 1 is a list of student learning outcomes scores before and after being given a test, where X is the initial test score and Y is the final test score, which is used to test the hypothesis using a simple regression equation.

TABLE 1: List of Student Learning Outcomes Scores.

No.	Inisial	Score	
		Initial	Final
1.	N.T	57	80
2.	M.d	97	100
3.	J.J.M	73	77
4.	M.S.N	57	83
5.	S.C.S	50	73
6.	M.S	77	83
7.	F.T	67	77
8.	R.S	93	97
9.	L.L	63	90
10.	F.R	60	83
11.	R.R	43	73
12.	K.K	83	87
13.	V.S.K	93	90
14.	F.T	67	77
15.	G.S	97	97
16.	H.H	83	80
17.	A.P	77	73
18.	I.L	63	70
19.	J.P	60	73
20.	F.B	53	83
Total (Σ)		1413	1646
Average		70,65	82,3

In Table 1 it is known that after analyzing 20 grade V students, the average value of the initial test was 70.65 and the average value of the final test was 82.3. Based on the data in Table 1, a hypothesis test is carried out to prove whether the proposed hypothesis is accepted or rejected, by following the following steps. Make a hypothesis in the form of a sentence.

Hypothesis alternative: There is an influence of the application of learning media on improving student learning outcomes.

Hypothesis null: There is no effect of the application of instructional media on improving student learning outcomes.

Making H_a and H_o in statistical form Hypothesis alternative: $F \text{ count} \geq F \text{ table}$

Hypothesis null: F count < F table

Looking for and calculating the regression equation with data on learning outcomes, a helper table is needed in Table 2.

TABLE 2: Regression Equation Helper.

No.	X	Y	X ²	Y ²	XY
1.	57	80	3249	6400	4560
2.	97	100	9409	10000	9700
3.	73	77	5329	5929	5621
4.	57	83	3249	6889	4731
5.	50	73	2500	5329	3650
6.	77	83	5929	6889	6391
7.	67	77	4489	5929	5159
8.	93	97	8649	9409	9021
9.	63	90	3969	8100	5670
10.	60	83	3600	6889	4980
11.	43	73	1849	5329	3139
12.	83	87	6889	7569	7221
13.	93	90	8649	8100	8370
14.	67	77	4489	5929	5159
15.	97	97	9409	9409	9409
16.	83	80	6889	6400	6640
17.	77	73	5929	5329	5621
18.	63	70	3969	4900	4410
19.	60	73	3600	5329	4380
20.	53	83	2809	6889	4399
(Σ)	1413	1646	104853	136946	111823
(\bar{X})	70,65	82,3			
S	16,012	8,603			

In Table 2 it is known $\Sigma X = 1413$, $\Sigma Y = 1646$, $\Sigma X^2 = 104853$, $\Sigma Y^2 = 136946$, $\Sigma XY = 111823$, average = 70,65, $\Sigma X = 82,3$. Variance deviation= 16,012, and standar deviation = 8,603. Furthermore, the numbers in Table 2 are used to find a simple regression equation. Input statistics based on Table 2 to calculate b and a value.

Calculating the value of b

$$b = \frac{n \sum XY - \sum X \cdot \sum Y}{n \sum x^2 - (\sum X)^2}$$

$$\begin{aligned}
 &= \frac{20 (118231) - (1413)(1646)}{20 (104853) - (1413)^2} \\
 &= \frac{2364620 - 235798}{2097060 - 1996569} \\
 &= \frac{38822}{100491} \\
 &= 0.386
 \end{aligned}$$

Calculating the value of a

$$\begin{aligned}
 a &= \frac{\sum Y - b \sum X}{n} = \frac{1646 - b \sum X}{20} = \frac{1646 - 0.386 \times 1413}{20} = \frac{1646 - 545.42}{20} \\
 &= \frac{1100.58}{20} = 55.03
 \end{aligned}$$

Calculating a simple linear regression equation

$$Y = a + bX$$

$$= 55.03 + 0.386 X$$

Based on the calculation results and the simple regression equation above, it can be seen that: (1) computer learning media with the application of power point has a positive effect (regression coefficient (b)= 0.386) on students religious learning outcomes. That is, if media is applied in learning, the better student learning outcomes will be; 2) the constant value (a) is 55.03. That is, if you do not use learning media with power point applications equal to zero, then the learning result is 55.03 which is considered fixed.

Draw the diagram

From the diagram in Figure 1, it can be seen those points 1 to 20 show student learning outcomes after (beginning) and after (end) being given a test based on table 4.8. For example, (1). N.T, X = 57, Y = 80; (2) Md, X = 97, Y = 100; and so on, which are interconnected to form a simple regression line.

Make a simple regression equation line

$$\text{Calculates the average of X with the formula: } \bar{X} = \frac{\sum X}{n} = \frac{1413}{20} = 70.65$$

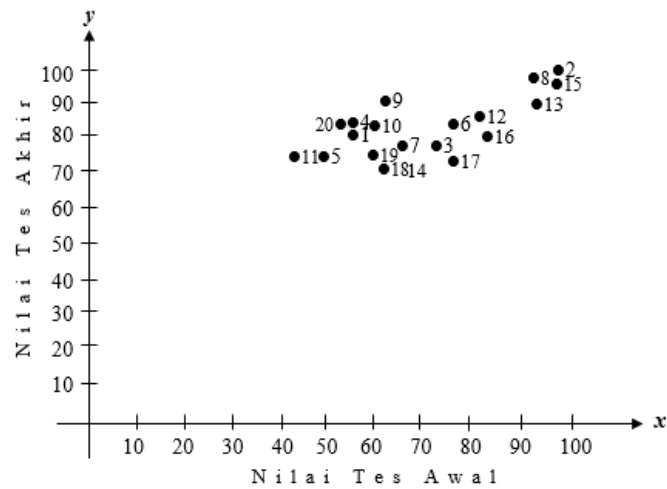


Figure 1: Yield Transmit Chart.

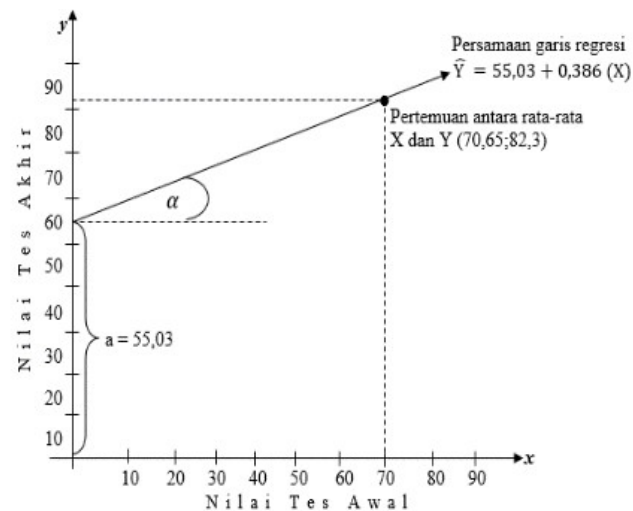


Figure 2: Regression Line.

Calculates the average of Y with the formula: $\bar{Y} = \frac{\sum Y}{n} = \frac{1646}{20} = 82.3$

The regression line in Figure 2 is based on the regression equation $(Y) = 55.03 + 0.386 (X)$. The line that brings together the average initial test score (70.65) and the final test average score (82.3) is used to see whether religious learning outcomes have increased due to the influence of the application of power point learning media to students.

Test the significant with the following steps.

Calculating the total squared sum with the formula:

$$JK_{(T)} = \sum Y^2$$

$$= 136946$$

Calculating the sum of the squares of the coefficient a with the formula

$$JK_{(A)} = \frac{(\sum Y^2)}{n} = \frac{(1646)^2}{20} = \frac{2709316}{20} = 135465.8$$

Calculating the sum of the squares of the regression with the formula:

$$JK_{ba} = b \left\{ \sum XY - \frac{(\sum X)(\sum Y)}{n} \right\} = 0.386 \cdot \left\{ 118131 - \frac{(1413)(1464)}{20} \right\}$$

= 0.386 (118131 - 2325798) = 749.265
 Calculating the sum of the squares of the remainder with the formula:

$JK_{(s)}$	$= JK_{(T)} - JK_{(A)} - JK_{(ba)}$
	$= 136946 - 749.2646 - 135465.8$
	$= 730.935$

Calculate the sum of squared errors

To calculate the sum of the squared errors, the initial test scores are sorted from the smallest score to the largest score. The order of scores is as follows.

Based on Table 3 data, the value of JK (G) = 358.

Calculate the sum of squares of matched compatibility by the formula:

$$JK_{(TC)} = JK_{(S)} - JK_{(G)} = 730.935 - 358 = 372.935$$

Make a table of analysis of variance (ANOVA) from the various sources of variation above:

Table 4 shows the values of various sources of variation based on the equation in Table 4. Total degrees of freedom = 20; sum of squares=136946.00; and average squared = 136946.00; degrees of freedom coefficient (a) = 1; and sum of squares = 135465.8; regression degrees of freedom (bla) = 1; sum of squares = 749.265; and average squared = 749.265; residual degrees of freedom (dk residual) = 18; sum of squares= 790.935; and average squared= 40.61. F count =

18.45. The F table value is at a significant level of 5 percent with a remaining dk of 18 = 4.41. The source of matched tuna variation and error is the error rate of the research data that was not included. These values are used to make decisions and provide conclusions on the proposed hypothesis.

Determine the rules for decision making or significant test criteria

TABLE 3: Preparatory Data Finding Linearity Y over X with Regression Equation $\hat{y} = 55.03 + 0.386(X)$.

No	Initial.	X	Y	N	Group	JK _(G)
1	R.R	43	73	1	1	0
2	S.C.R	50	73	1	2	0
3	F.B	53	83	1	3	0
4	M.S.N	57 57	80 83	2	4	4,5
5	N.T					
6	F.R	60 60	83 73	2	5	50
7	J.P					
8	L.L	63 63	90 70	2	6	200
9	I.L					
10	F.T	67 67	77 77	2	7	0
11	F.T					
12	J.J.M	73	77	1	8	0
13	M.S	77 77	83 73	2	9	50
14	A.P					
15	K.K	83 83	87 80	2	10	24,5
16	H.H					
17	R.S	93 93	97 90	2	11	24,5
18	V.K					
19	M.d	97 97	100 97	2	12	4,5
20	G.S					
(Σ)	1413	646	20		358	

TABLE 4: ANAVA Results Equation $\hat{Y} = 55,03 + 0,386(X)$.

Source of Variation	Degree freedom	Sum Square	Mean Square	Fcount	Ftable (5%)
Total	20	136946,00	136946,00		
Coefisien (a)	1	135465,8	749,265	18,45	4,41
Regression (bla)	1	749,265	40,61		
Remainder	18	730,935			
Compatibility	8	72,935	46,62	1,30	3,07
Error	10	358	35,8		

If F count greater than or equal to F table, then reject the null hypothesis (significant).

Conclusions based on the ANOVA table above

F table with degrees of freedom 1,18, $\alpha = 0,05 = 4,41$. F count = 18,45. So. then reject the null hypothesis because F count (18,45) greater than or equal F table (4.41), significant meaning.

Based on the results obtained from the analysis and testing of the hypotheses above, the proposed hypothesis is verified because F(count) is greater than F table (18.45)

> (4.41). This means that there is an influence of the application of learning media with the application of power point on increasing learning outcomes in Christian religious education subjects in grade V Elementary School of 1 Waai.

3.2. The Magnitude of the Contribution of the Application of Power Point Media to Learning Outcomes

To analyze the magnitude of the contribution of learning media to student learning outcomes, a correlation test is used with the following hypothesis.

Hypothesis alternative: There is a contribution to the application of power point media to improving student learning outcomes

Hypothesis null: There is a contribution to the application of power point media to improving student learning outcomes

$$\begin{aligned}
 r &= \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{\{n \sum X^2 - (\sum X)^2\} \{n \sum Y^2 - (\sum Y)^2\}}} \\
 &= \frac{(20)(11823) - (11413)(1646)}{\sqrt{\{(20)(104853) - (1413)^2\} \{(20)(13696) - (1646)^2\}}} \\
 &= \frac{2364620 - 2357978}{\sqrt{(2097060) - 1996569}(2738920 - 2709316)} = \frac{38822}{\sqrt{(10491)(29604)}} = \frac{38822}{\sqrt{2974935564}} = \frac{38822}{54542.9}
 \end{aligned}$$

The r table value for a significant level of 5 percent with n = 20 is 0.44. Thus, r count is greater than r table for a significant level of 5 percent (0.71 > 0.44). So, it can be concluded that there is a relationship between the application of learning media with the application of power point to improving student learning outcomes at Elementary School of 1 Waai. Furthermore, to test the size of the contribution, the determinant coefficient is calculated $r^2 = 0.711 = 0.51$, so that the formula:

$$KP = r^2 \times 100\% = 0.5 \times 100\%$$

$$= 51\%$$

Based on the results of the calculations above, it can be said that the magnitude of the contribution of the application of learning media with the application of power point to increasing religious learning outcomes in Elementary School of 1 Waai students is 51 percent while the remaining 49 percent is influenced by other factors, such as facilities and infrastructure, teacher's ability to operate computers, how to deliver the material, and others.

3.3. Completeness of Student Learning Outcomes Before and After Applying Power Point Media to Learning Outcomes

Analyzing the completeness of learning outcomes, the t test is used to test the hypothesis proposed. To calculate the percentage of completeness in classical learning outcomes of percent and completeness individually according to Minimum Completeness Criteria, 74, use the formula:

$$NT = \frac{ST}{N} \times 100\%$$

While the percentage of individual student learning completeness can be calculated using the formula:

$$NI = \frac{T}{SM} \times 100\%$$

Furthermore, to test the completeness of learning outcomes before and after being given a test, the two-party average test was carried out. The hypothesis tested is:

Ho: Completeness of student learning outcomes ≤ 75 Ha: Completeness of student learning outcomes ≥ 75 To test the hypothesis above, the formula is used:

$$t_{hitung} = \frac{\bar{X} - \mu_0}{\frac{s}{\sqrt{n}}} = \frac{82.3 - 75}{\frac{8.603}{\sqrt{20}}} = \frac{7.3}{\frac{8.603}{4.472}} = \frac{8.3}{1.924} = 3.794$$

Making a decision to prove the hypothesis above whether it is proven or not, then the calculated t value is compared to t table. To see the t table value, it is based on the degrees of freedom where the magnitude $n-2 = 20 - 2 = 18$. Significant level of 5

percent, the t value is 2.101. This shows that hypothesis alternative is accepted because t arithmetic $>$ t table, namely 3.794. This means that student learning outcomes have reached more than 75 percent of mastery learning according to Minimum Completeness Criteria, namely 74. Thus, the completeness of student learning outcomes as a whole classical and individual before and after the application of power point learning media has increased significantly.

4. CONCLUSION

Based on the results of the research that has been stated previously, the following conclusions: (1) by using learning media with the application of power point, student learning outcomes can be improved. This can be seen from the average initial test result, which is 70.65 and the average final test result is 82.3; (2) there is an influence, the amount of contribution, and the completeness of student learning outcomes by applying power point learning media to improving student learning outcomes at Elementary School of 1 Waai. This can be seen in F count more than F table, namely 18.45 more than 4.41, a contribution of 51percent and an increase in mastery learning outcomes of 75 percent getting a value of 74; and (3) learning by using learning media with power point applications can help teachers to be more creative in the learning process. These conclusions the suggestions for schools are (1) teachers to be able to use computer learning media with the application of power point in the teaching and learning process because it can direct students to provide explanations so as to improve student learning outcomes; (2) so that students can learn more have the opportunity to explore because they are motivated by the presence of learning media with the application of power point in the learning process so that it can encourage communication, creativity, and be able to solve problems faced by students; (3) the school, so that it can be used as input material improving and increasing student learning outcomes.

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