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The Effect of Using Poster Session Learning Media on Student Learning Outcomes on Environmental Pollution Material.

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Article Information:
Received (21 Mei 2024)
Accepted (24 Mei 2024)
Published (10 Feb 2025)

Keywords:
Learning Media, Poster Session, Learning Outcomes

Abstract

This study aims to see the effect of Biology learning outcomes of students taught by using Poster Session learning media on environmental pollution material in class X MAS Al-Washliyah 22 Tembung. The population in this study were all students of class X MAS Al-Washliyah 22 Tembung consisting of 2 classes with a total of 72 students, while the research sample was taken by random sampling by means of paper numbered class and put into a glass then shaken and one of the paper branched there was class XA with a total of 36 people.

This research data was obtained using pre-test and post-test. Where the average value of students given a pre-test = 57.33 while the average value of students given a post-test = 71.47. The Minimum Completeness Criteria (KKM) in the X school studied is = 70.

Based on the hypothesis test, the value of t count = 13.27 while the value of t table = 3.320 so that t count > t table, thus H_0 is rejected and H_a is accepted and it can be concluded that there is a significant effect of student learning outcomes taught using Poster Session learning media on Environmental Pollution material at MAS Al-Washliyah 22 Tembung.

INTRODUCTION

Educational development in Indonesia requires an increase in teacher professionalism as one of the main actors in the teaching and learning process, for this reason teachers are required to have adequate competence so that they can integrate educationally, namely, a deliberate integration process to bring students to their level of maturity (Yamin & Syahrir, 2020)(Cikka, 2020).

In addition, in teaching and learning activities, learning models that do not motivate students, namely always using the lecture method, so that learning seems to dominate the teaching and learning process in the classroom which allows students to be less motivated to learn (Mayasari et al., 2022). In addition, the lecture method also often makes students confused in learning a material that is abstract or rarely encountered by students, because the lecture method in learning tends not to be able to present the object into the classroom during learning. In learning with the lecture method, students are not required to be more creative and think critically about what they are learning, but students are only listeners to what the teacher says without understanding it properly (Nurgiansah, 2020).

The problem of learning that is less interesting and boring can be influenced by the weak learning methods or media applied. However, Poster Session learning media is rarely applied in teaching and learning activities (Sari et al., 2023). The rarity of teachers using varied learning media in carrying out teaching has an impact on student abilities and unsatisfactory student learning activities.

There are several kinds of learning media, one of which is the Poster Session learning media which is used so that student learning outcomes and interests increase even more, by using

Poster Session learning media (Agustari et al., 2022). Learning using Poster Session media can be used to improve student learning outcomes, on environmental pollution material. So that students are more excited, can arouse and increase student motivation, in carrying out learning activities, so that the implementation of a more optimal learning process (Holilah et al., 2022)(Agustari et al., 2022). Poster Session learning media, includes all students who take part in teaching and learning activities in the classroom, on environmental pollution material, which is more teacher-led or teacher-directed, where the teacher sets tasks and questions and provides materials and information that will be designed to help students (Harahap et al., 2023)(Hasan et al., 2021).

In this case the author is interested in researching Poster Session learning media, because this media is a type of learning designed to influence student interaction patterns, giving students more time to think, respond to each other and help each other to achieve certain goals. This picture is related to the problems experienced by students who consider the media used by teachers to be less interesting, seem monotonous, and boring (Mukarromah & Andriana, 2022)(Nawawi, 2020).

Based on these problems, the authors are motivated to study and want to conduct research with the title: "The Effect of Using Poster Session Learning Media on Student Learning Outcomes on Environmental Pollution Material".

METHODS

Research Model and Design.

This study uses the experimental method (quasi experiment) by giving treatment. Poster Session learning media on the subject matter of environmental pollution and describe student learning outcomes after Poster Session learning.

Table 1. Research Design

Class	Pre test	Treatment	Pos test
X-A	Pre-Test	Poster Session Learning	Post-tes

Research Procedure:

The steps taken in data collection are as follows:

1. Preparation stage
   a) Conduct observation
   b) Arrange a research schedule according to the syllabus with 2 meetings.
   c) Make a Learning Implementation Plan (RPP) on Environmental Pollution material.
   d) Prepare research instruments.
2. Implementation Stage
   a) Determining the sample class from the existing population by simple randomization.
   b) Giving a pre-test to determine students' initial learning outcomes.
   c) Conduct teaching using Poster Session learning media.
   d) Giving a post-test to determine students' final learning outcomes.
   e) Processing and then analyzing the test result data.
   f) Conduct hypothesis testing.
   g) Conclusion.

Population

In this study were X grade students of MAS Al-Washliyah 22 Tembung consisting of 2 classes with 72 students.

Table 2. Population of Class X Students of MAS Al-Washliyah 22 Tembung

No.	Class	Gender	Total Students

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		Male	Female	
1.	XA	13 Students	23 Students	36 Students
2.	XB	20 Students	16 Students	36 Students
	Total	**33 Students**	**39 Students**	**72 Students**

Sampel

The sample is a part or representative of the population, then from the entire number of class X students in MAS Al-Washliyah 22 Tembung selected is 1 class which is the research sample. The sampling technique was taken randomly (Random Sampling), which means that each class has the same opportunity to be used as a research sample. The sample selected in this study consisted of 1 class, namely, class X-A as a class taught using Poster Session learning media.

Research Instruments and Data Collection Techniques

The data in this study are quantitative, namely in the form of learning outcomes on Environmental Pollution material. The instruments used to collect data on student learning outcomes are pre-test and post-test.

1. Pre-test
   Pre-test type of test in the form of multiple choice which is carried out at the beginning of learning on the material to be taught before the teaching and learning process takes place which aims to determine the basic abilities of students.
2. Post-test is a type of test conducted at the end of learning about the material that has been studied which aims to determine student learning outcomes.
   To see the validity or material to be tested, first determine the test grid in table 3 below:

Table 3. Environmental Pollution Question Grid

Indicator	Learning Goals	%	Bloom's Cognitive Domain						Total of questions
			C_1	C_2	C_3	C_4	C_5	C_6	
			15 %	25 %	30 %	30 %	-	-	
Find factors that cause environmental destruction	1. Students are able to mention the factors that cause environmental pollution.	30	1,7, 9				-	-	3
	2. Students are able to explain the factors that cause environmental pollution.			19,2 4, 15,1 7,59			-	-	5
	3. Students are able to connect various kinds of environmental pollution.				54,4 1,45 ,50, 57		-	-	5
	4. Students are able to explain environmental pollution.			48,3 0,46 ,51, 58			-	-	5

Recognize human behavior that is not environment ally friendly/ethic al	1. Students are able to relate environmental changes due to human intervention.	20			4,5 11, 52,		-	-	4
	2. Students are able to differentiate between organic waste that can be utilized without and with recycling process.					29,3 1, 56	-	-	4
	3.Students are able to distinguish between industrial waste and agricultural waste.					14, 40, 36,			4
Provide examples of pollutant materials	1. Students are able to mention the impact of pollution on humans.	30	2,6, 53, 12,	,		16	-	-	3
	2.Students are able to explain human efforts in overcoming environmental problems due to human activities.			16,4 4,34 ,35, 8					5
	3. Students are able to distinguish the parameters of environmental pollution.					4, 1 2,25 , 10	-	-	5
	4. Students are able to distinguish between natural and polluted environments.					32, 43,3 3, 38, 39	-	-	5
Recognize ways to preserve the environment	1. Students are able to explain the ways to conserve the environment.	20		8, 18,2 0, 26,		22	-	-	4
	2. Students are able to distinguish how to reduce and overcome the effects of pollution.					22,2 1,27 ,3			4
	3. Students are able to distinguish between environmental conservation and environmental pollution.			47,3 7,42 ,49		,55	-	-	4
Jumlah soal		**100**							**60**

Description:

C1 = Knowledge C3 = Application C5 = Synthesis
C2 = Understanding C4 = Analysis C6 = Evaluation

Instrument testing

Before the test is used, it is first tested to find out whether the test has met the requirements. Requirements include validity, reliability, differentiation, and difficulty level.

1. Difficulty level

According to Arikunto (2014), the quality or not of the learning outcome test items can be known from the degree of difficulty or level of difficulty possessed by each item. The test items can be declared as good items, if the items are not too difficult and not too easy in other words the degree of difficulty of the item is moderate or sufficient. The formula used to determine the level of difficulty of the question is :

$$P = \frac{B}{JS}$$ (Arikunto, 2014)

Description:

P = Difficulty index JS = Total number of students taking the test
B = The number of students who answered the question correctly

With criteria:

P = 0,00 – 0, 30 = Difficult Questions P = 0,70 – 1,00 = Easy Questions
P = 0,30 – 0, 69 = Medium Problem

2. Question Differentiation

According to Arikunto (2014), the differentiating power of a question is the ability of a question to distinguish between students with high abilities (clever) and students with low abilities

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(less clever). To determine the differentiating power of each test item with the following formula:

$$DP = \frac{B_A}{J_A} - \frac{B_B}{J_B} = P_A - P_B$$

Description:

DP	=	Differentiating power	B_A	=	The number of upper group participants who answered the question correctly
J	=	Number of test takers	B_B	=	The number of lower group participants who answered the question correctly
J_A	=	Number of upper group participants	P_A	=	Proportion of upper group participants who answered correctly
J_B	=	Number of lower group participants	P_B	=	Proportion of lower group participants who answered correctly

The classification of differentiating power is:

D = 0,00 – 0,19 = Ugly
D = 0,20 – 0,39 = Simply
D = 0,40 - 0,70 = Good
D = 0,70 – 1,00 = Excellent

Test Validity

To calculate the validity of the test, the product moment correlation coefficient formula is used as the following equation:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{\{N\sum X^2 - (\sum X)^2\}\{N\sum Y^2 - (\sum Y)^2\}}}$$

Description:

N	=	Total of students	X	=	Item score (number of students who answered correctly)
r_{xy}	=	Correlation coefficient between variable x and variable y	Y	=	Total question score
XY	=	Sum of multiplication of X score and Y score			

To use the formula above, the steps taken are tabulation of test scores in a table.

a) Calculate $\sum x$, $\sum y$, $\sum x^2$, $\sum y^2$, $(\sum x)^2$, $(\sum y)^2$, $\sum xy$
b) Calculating the rxy formula, the calculation results are adjusted to the product moment table for N students and at the level of $\alpha = 0.05$. Criteria if $r_{xy} > r$ table, then the test item is said to be valid.

Test Reliability

To calculate the reliability of the question, the Kuder Richardson formula (KR-20) is used, namely:

$$r_{11} = \left(\frac{n}{n-1}\right)\left(\frac{S^2 - \sum pq}{S^2}\right)$$

$$S^2 = \frac{k\sum x^2 - (\sum x)^2}{k(k-1)}$$

Description:

r_{11}	=	Overall test reliability	Σpq	=	The sum of the product of p and q
P	=	Proportion of subjects who answered the item correctly	n	=	Banyak item
q	=	Proportion of subjects who answered the item incorrectly	S^2	=	Standard deviation of the test

The test reliability coefficient is then adjusted to the product moment table α = 0.05. If r count > r table then the test is declared reliable.

The test reliability criteria are as follows:

0,80 – 1, 00	= Very high correlation	0,20 – 0, 39	= Low correlation
0,60 – 0, 79	= High correlation	0,00 – 0, 19	= Very low correlation
0,40 – 0, 59	= Medium correlation		

Furthermore, by comparing r11 the calculation results with rtabel. If r count > r table then it can be concluded that the test questions meet the reliability. To interpret the reliability price of the question, the calculation price is confirmed in the critic price table if r count > r table then the question is said to be reliable.

From the calculation results contained in the attachment, the value of r count = 0.789 is obtained while the value of r table = 0.325, so it can be concluded that the test used is reliable with a very high category, thus the test can be used in research.

Data Analysis Technique

The data obtained were analyzed using qualitative descriptive analysis techniques which aim to know the predicate of each aspect of learning effectiveness that has been determined so that it is known whether the learning implemented is effective or not. The data analysis carried out is as follows:

1. Mean

$$\overline{x} = \frac{\Sigma f_i x_i}{\Sigma f_i}$$ (Sudjana, 2016)

Description:

$\overline{x}$	=	Mean
fi	=	Frequency
x_i	=	value

2. Determine the median value using the following formula

$$Me = b + p\left(\frac{\frac{1}{2}n - F}{f}\right)$$

Description:

b =	The lower limit of the median class, is the class where the median will lie.	F =	Sum of all frequencies with class marks smaller than the median class mark.
p =	Median class length	f =	Median class frequency.
n =	Sample size or amount of data		

3. Calculate the mode by using the following formula:

$$Mo = b + p\left(\frac{b1}{b1+b2}\right)$$

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Description:

b =	The lower limit of the mode class, which is the interval class with the highest frequency.	b_1 =	Frequency of the mode class minus the frequency of the interval class with the smaller class mark before the mode class mark.
p =	Mode class length	b_2 =	The frequency of the mode class minus the frequency of the interval class with the greater class sign after the mode class sign.

4. Standard deviation

$$S^2 = \frac{n\sum x_i^2 - (\sum x_i)^2}{n(n-1)}$$

Description:

S^2 = Standard deviation
n = Many samples
x_i = Mean

Data Analysis Requirements Test

1. Normality Test

Data normality test, Liliefors test is used to determine whether the research variables are normally distributed. According to Sudjana (2016: 466) as follows:

a. Observations X_1, X_2, ..., X_n are made into standardized numbers Z_1, Z_2, Z_3, ..., Z_n. By using the formula: $Z_1 = \frac{x_1 - \bar{x}}{s}$ where ($\bar{x}$ and S are the mean and standard deviation of the sample respectively).
b. For each standard number using the standard normal distribution list, then calculate the probability of F (Z_1) = P ($Z \leq Z_2$).
c. Calculate the proportion of X_1, X_2,....., X_n that is less than or equal to Z_1. If this proportion is expressed by S(Z_1) then :

$$S(Z_1) = \frac{many\ \ldots\ldots\ldots X_1, X_2, \ldots\ldots\ldots, X_n}{N}$$

d. Calculate the difference between F(Z_1) - S(Z_2), then determine the absolute price.
e. Taking the largest price Between the absolute prices of the difference F(Z_1) - S(Z_2) is called L_O
f. Comparing the L_O price with its critical price at the real level α with the test criteria:
   1) If $L_O < L$ then the sample table is normally distributed.
   2) If $L_O > L$ then the sample table is not normally distributed.

2. Homogeneity Test

The data used the formula for the largest variance compared to the smallest variance with the formula:

$$F_{count} = \frac{Largest\ variance}{Smallest\ variance}$$

Comparing the F_{count} value with F_{table} with the formula:
dk numerator = n – 1 (for largest variance) ; dk denominator = n - 1 (for smallest variant)
significant level (α) = 0.05, then look for it in the F table, with the test criteria:
If Fcount > Ftable means not homogeneous.
If Fcount < Ftable means homogeneous.

3. Hypothesis Test

To determine the hypothesis, the t test is used with a significant level α = 0.05 with degrees of freedom (dk) = n-1. (Sudjana, 2005: 239). To test whether the research hypothesis is accepted or rejected, statistical testing is carried out with the formula:

$$t = \frac{Md}{\sqrt{\frac{\sum x^2 d}{N\,(N-1)}}}$$

Md = Mean of the difference between pretest and posttest
$\sum X^2 d$ = Sum of squared deviations
N = Subjects in the sample

To test the significant effect, the tcount price is consulted to the t distribution table with the criterion t count > t table with a significant level α = 0.05 and dk = n - 1, then the effect is declared significant.

RESULTS AND DISCUSSION

Results

1. Describe Research Data.

From the results of the research that has been carried out, it can be seen that the highest score of students in the pre-test is 70 as many as 5 people and the lowest score is 1 person 35 as many as 1 person. In the post-test, it is known that the highest score of students is 90 as many as 1 person and the lowest score is 50 as many as 1 person. Based on the value of the Minimum Completeness Criteria (KKM) in the school studied, which is 70, by looking at the pre-test scores of students in table 4, it is known that 5 people (13.88%) completed and 31 people (86.11%) did not complete, after being given teaching with Poster Session media, the post-test scores of students increased, namely, the post-test scores of students who completed were 23 people (63.88%) and 13 people (36.11%) did not complete.

Table 4. Frequency distribution of pre-test student learning outcomes before using Poster Session learning media on Environmental Pollution material at MAS Al-Washliyah 22 Tembung

No.	Interval of Class	fi	xi	xi^2	Fi.xi	Fi $(xi)^2$
1	35 – 40	2	37,5	1406,25	75	2812,5
2	41 – 46	4	43,5	1892,25	174	7569
3	47 – 52	3	49,5	2450,25	148,5	7350,75
4	53 – 58	8	55,5	3080,25	444	24642
5	59 – 64	10	61,5	3782,25	615	37822,5
6	65 – 70	9	67,5	4556,25	607,5	41006,3
∑		**36**	**315**	**17167,5**	**2064**	**121203**

From table 4 above, it can be seen that the lowest pre-test score of students is 35-40 as many as 2 students (5.5% of the total number of students). This shows that students have not understood the subject matter. The students' pre-test scores with the most distribution or mode of student scores are 59-64 scores as many as 10 students (27.78% of the total number of students). While the highest score obtained by students is 65-70 as many as 9 people (25% of the total

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number of students).

Then the average value of student pre-test learning outcomes and standard deviation can be calculated. From the calculation results, the average value of student learning outcomes is 57.33 and the standard deviation (S1) is 9.05.

From the frequency distribution of pre-test student learning outcomes taught using Poster Session learning media on Environmental Pollution material can be depicted in the frequency distribution histogram diagram below.

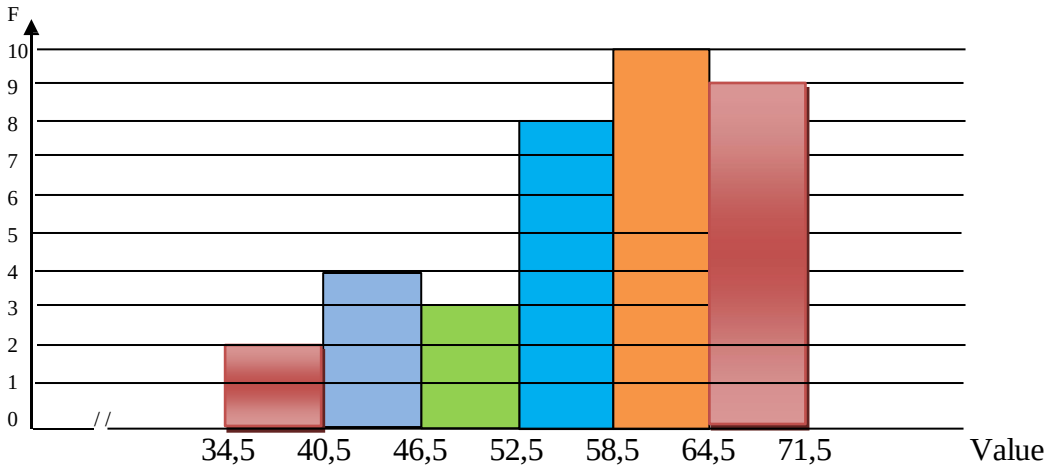

Figure. 1 Histogram of media pre-test scores before Poster Session learning

Description of Histogram:

= Students who scored 34,5-40,5. (2 peoples)

= Students who scored 40,5-46,5. (4 peoples)

= Students who scored 46,5-52,5 (3 peoples)

= Students who scored 52,5-58,5 (8 peoples)

= Students who scored 58,5-64,5 (10 peoples)

= Students who scored 64,5-71,5 (9 peoples)

Table 5. Frequency of post-test student learning outcomes taught using Poster Session learning media on Environmental Pollution material at MAS Al-Washliyah 22 Tembung

No	Interval of Class	fi	xi	xi^2	fi.xi	$fi(xi)^2$
1	50 - 56	3	53	2809	159	8427
2	57 - 63	5	60	3600	300	18000
3	64 - 70	8	67	4489	536	35912
4	71 - 77	8	74	5476	592	43808
5	78 - 84	10	81	6561	810	65610
6	85 - 91	2	88	7744	176	15488
∑		**36**	**423**	**30679**	**2573**	**187245**

From table 5 above, it can be seen that the lowest value of the student post-test is the value of 50 - 56 as many as 3 students (8.33% of the total number of students). This shows that students have not understood the subject matter to be delivered by the teacher and students are not serious in the learning process. The post-test scores of students whose distribution is the most or the mode of student scores are scores 78 - 84 as many as 10 students (27.77% of the total number of students). While the highest score obtained by students was 85 - 91 as many as 2 people (5.55% of the total number of students), this shows that students have understood the material.

Then from table 7, the average value of student pos-test learning outcomes and standard deviation can be calculated. From the calculation results, the average value of student learning outcomes is 71.47 and the standard deviation (S_1) is 9.77. An example of calculations can be seen in appendix 15

From the frequency distribution of post-test student learning outcomes taught using poster session learning media on environmental pollution material can be depicted in the frequency distribution histogram diagram below:

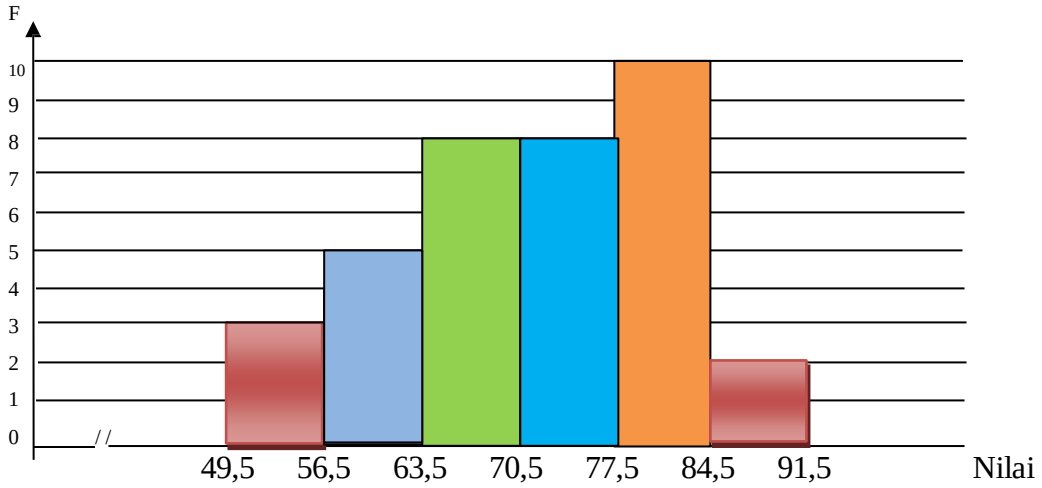

Figure. 2 Histogram of post-test scores of Poster Session learning model.

Keterangan Histogram:

= Students who scored 49,5-56,5 (3 peoples)

= Students who scored 56,5-63,5 (5 peoples)

= Students who scored 63,5-70,5 (8 peoples)

= Students who scored 70,5-77,5 (8 peoples)

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= Students who scored 77,5-84,5 (10 peoples)

= Students who scored 84,5-91,5 (2 peoples)

2. Research Data Analysis Test

In testing the requirements of data analysis, normality test, homogeneity test, and t-test (hypothesis test) were conducted.

Normality test

Table 6. Pre-test Data Normality Test.

No.	Xi	F	F(kum)	Zi	Fzi	S(Zi)	F(Zi) - S(Zi)
1	37,5	2	2	-2,19	0,143	0,0556	0,08744
2	43,5	4	6	-1,53	0,0630	0,1667	0,1036
3	49,5	3	9	-0,87	0,1922	0,2500	0,0578
4	55,5	8	17	-0,20	0,4207	0,4722	0,0515
5	61,5	10	27	0,46	0,6772	0,7500	0,0728
6	67,5	9	36	1,12	0,8686	1,0000	**0,1314**

From the calculation results, the largest price is taken (L_{count} = 0,1314) for the Liliefors test at α = 0.05 and N = 36, the L tabel is :

$L_{tabel} = \frac{0,886}{\sqrt{36}}$

$= \frac{0,886}{6}$

= 0,1476

Based on the table and calculation results above, it can be obtained that L count < L table (0.1314 < 0.1476), it can be concluded that the pre-test data is normally distributed.

Table 7. Post-test Data Normality Test

No.	Xi	F	F(kum)	Zi	F(zi)	S(Zi)	F(Zi)-S(Zi)
1	53	3	3	-1,89	0,0294	0,0833	0,0539
2	60	5	8	-1,17	0,1210	0,2222	0,1012

3	67	8	16	-0,46	0,3228	0,4444	**0,1216**
4	74	8	24	0,26	0,6062	0,6666	0,0604
5	81	10	34	0,97	0,8365	0,9444	0,1079
6	88	2	36	1,69	0,9554	1,0000	0,0446

From the calculation results, the largest price is taken (L_{count} 0,1216) for the Liliefors test at α = 0.05 and N = 36, the L tabel is :

$L_{table} = \frac{0,886}{\sqrt{36}}$

$= \frac{0,886}{6}$

= 0,1476

Based on the table and the results of the above calculations, it can be obtained that L count < L table (0.1216 < 0.1476), it can be concluded that the post-test data is normally distributed.

Homogeneity test

The variance homogeneity test is described to test the similarity of variables using the F test of the largest and smallest variance).

$$\text{F count} = \frac{largest\ variance}{smallest\ variance}$$

$= \frac{9,77}{9,05} = 1,07$

Fcount 1,07 for N = 36, then the value is consulted with the value of the F distribution table. Looking for F table, with α = 0.05 and dk = n-1 (36-1 = 35), because the price of F table is not in the F distribution table, then to find F table is done by interpolation. From the calculation obtained F table of 1.79.

From the above calculations, the F table is 1.79, it turns out that F count < F table or 1.07 < 1.79. This proves that the variance is homogeneous.

Hypothesis Test

From the distribution results for α = 0.05 and dk = n-1 (36-1 = 35), the t table is 3.320. Thus t count > t table or 13.27 > 3.320. Based on the data above, the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. Thus there is an effect of Poster Session media on student learning outcomes on environmental pollution material at MAS Al-Washliyah 22 Tembung.

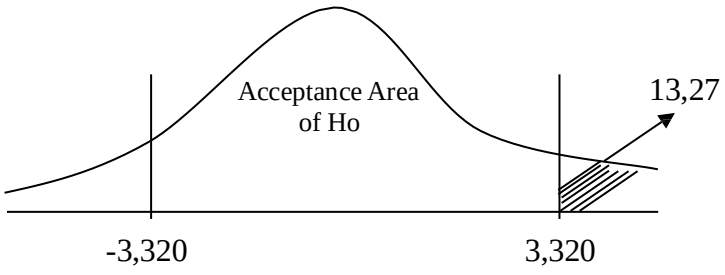

Figure. 3 Hypothesis Testing Curve

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DISCUSSION

Discussion of Research Results

Research conducted at MAS AL-Washliyah 22 Tembung used samples that were treated using Poster Session learning media. At the beginning of learning students are given a pre-test and the end in the form of a post-test of 20 questions and a post test of 30 multiple choice questions with a total sample of 36 people. The Minimum Completeness Criteria (KKM) that has been determined from the school is 70.

Before the treatment was given to the experimental class, researchers first conducted a pre-test to determine the basic abilities of students. After the pre-test results were calculated, the average pre-test value was 57.33 while the Standard Deviation was 9.05. Furthermore, the researcher gave treatment to students using Poster Session media so that the average post-test student learning outcomes score was 71.47 or there was an increase in the average score, while the Standard Deviation was 9.77.

The increase in learning outcomes can also be seen in the calculation of normality test and homogeneity test, it is known that the data of learning outcomes are normally distributed and homogeneous. Furthermore, the t test of the pre-test and post-test results showed that the use of Poster Session media had a significant effect on Biology learning outcomes on Environmental Pollution material at MAS AL-Washliyah 22 Tembung. With the provisions of t count > t table (13.27 > 3.320) then Ha is accepted and Ho is rejected. The existence of this influence is because Poster Session media really helps students to improve learning outcomes and requires students to be able to reason and understand the material so that high student concentration is needed.

From these results, it shows that Poster Session media can improve Biology learning outcomes, especially on Environmental Pollution material. This is because Poster Session media is a media that uses media given by the teacher to students when a teacher is delivering learning using the lecture method, with this media students become more active in the learning process and this media can also stimulate students' cognitive abilities in the teaching and learning process so that this media can improve student learning outcomes.

The increase in Biology learning outcomes by using Poster Session media is because this media has advantages in its application. The advantages of this Poster Session media are that it can increase students' sense of interest in the material being studied, so that students are more active in the learning process by using this Poster Session media, because this media provides opportunities for students to be able to develop themselves, focus on media and lecture material, students are also able to solve their own problems by finding discovery and this media can spur students to be able to learn optimally and it will be easier to understand the material, for example on the subject matter of environmental pollution.

Poster Session learning media is an alternative presentation medium that is a great way to quickly inform students, capture their imagination, and invite an exchange of ideas among them. It is also a storytelling and graphic way of allowing students to express their perceptions and feelings about the topic currently being discussed in a non-threatening environment.

This media is considered by researchers to be able to improve students' ability to learn Biology. This is based on the fact that Poster Session media is a media that allows students to play an active role in the learning process both in the form of interaction between students and students with teachers in the learning process and also stimulates students' cognitive abilities.

CONCLUSION

Based on the results of the analysis conducted in this study, the following conclusions can be drawn:

1. The average value of student learning outcomes in the initial test, namely the pre-test before teaching, was 57.33 and the standard deviation was 9.05.
2. While the average of the final test, namely the post-test after teaching taught with Poster Session learning media on Environmental Pollution material at MAS Al-Washliyah 22 Tembung is 71.47 and the deviation is 9.77.
3. The results of the research in this study are Ha accepted and Ho rejected with the value of t count > t table, namely (13.27 > 3.320). So from the results of the analysis of the formulation of the hypothesis shows that there is an increase after using Poster Session learning media on student learning outcomes on Environmental Pollution Material at MAS Al-Washliyah 22 Tembung.

ACKNOWLEGMENT

Thank you to all those involved in writing this article, including the principal and teachers who have given me permission to take data to the school for completeness in this article.

AUTHOR CONTRIBUTION STATEMENT

Based on the discussion that has been stated, the authors suggest the following things.

1. Biology teachers should be able to apply various learning media such as Poster Session learning media in teaching Biology, especially on Environmental Pollution material to further improve students' biology learning achievement in particular.
2. It is recommended to other researchers to further examine this learning media on other materials, so that it can be used as a comparative study of teachers in improving the quality of education, especially Biology lessons.
3. Teachers should not make the lecture method the main choice in the learning process so that Biology concepts, especially Environmental Pollution, are more easily understood by students.

REFERENCES

Agustari, F., Usmaidar, & Fuadi, A. (2022). Penerapan Strategi Pembelajaran Poster Session Dalam Meningkatkan Kemampuan Metakognisi Siswa Pada Mata Pelajaran Fiqih Siswa Kelas VIII Di Madraah Tsanawiyah Negeri 1 Langkat. *Journal Pusat Studi Pendidikan Rakyat*, *2*(4), 84–96.

Arikunto, S. (2014). *Prosedur Penelitian : Suatu Pendekatan Praktik*. Rineka Cipta.

Cikka, H. (2020). Konsep-Konsep Esensial Dari Teori Dan Model Perencanaan Dalam Pembangunan Pendidikan. *Scolae: Journal of Pedagogy*, *3*(2). https://doi.org/10.56488/scolae.v3i2.81

Harahap, A. Ii. H., Radeswandri, & Vebrianto, R. (2023). Pengembangan E-Poster sebagai Media Alternatif dalam Meningkatkan Keterampilan Berpikir Kreatif : Systematic Literatur Review. *Journal for Teachers and Learning*, *4*(1), 16–22.

Hasan, M., Milawati, Darodjat, Khairani, H., & Tahrim, T. (2021). Media Pembelajaran. In U. Khasanah (Ed.), *Tahta Media Group* (Pertama). Tahta Media Group.

Holilah, E. R., Asmahasanah, S., & Sutisna, S. (2022). Studi Deskriptif Efektivitas Metode Poster Session dalam Pembelajaran PPKn Kelas III SDN Nanggewer Mekar Cibinong. *Jurnal Pendidikan Tambusai*, *6*(2), 16089–16097.

Mayasari, N., Arifin, M. M., Purnomo, D., Dumiyati, Suyitno, M., Hikmah, N., Arjuna, Lestari, M. Z., Rachman, R. S., Ependi, N. H., Loilatu, S. H., Maryani, D., Rijal, S., Sholihannisa, L. U., & Sari, F. (2022). *Perencanaan Pendidikan* (A. C. Ma'arif (ed.)). Sada Kurnia Pustaka.

Mukarromah, A., & Andriana, M. (2022). Peranan Guru dalam Mengembangkan Media Pembelajaran. *Journal of Science and Education Research*, *1*(1), 43–50. https://doi.org/10.62759/jser.v1i1.7

Nawawi, M. I. (2020). Pengaruh Media Pembelajaran terhadap Motivasi Belajar: Tinjauan berdasarkan Karakter Generasi Z. *Jurnal Penelitian Dan Pengkajian Ilmu Pendidikan: E-Saintika*, *4*(2), 197. https://doi.org/10.36312/e-saintika.v4i2.216

Nurgiansah, T. H. (2020). Filsafat Pendidikan. In Nisa Falahia (Ed.), *Filsafat Pendidikan* (1st ed.). CV. Pena Persada.

Sari, K. E., Setiawan, R., Ritonga, S., & Bengkalis, S. (2023). PENGGUNAAN METODE PEMBELAJARAN POSTER SESSION (Membuat Poster) DALAM PEMBELAJARAN PAI DI SEKOLAH. *Jurnal Penelitian Pendidikan Indonesia*, *1*(1), 192–195.

Sudjana. (2016). *Metode Statistika*. Tarsito.

Yamin, M., & Syahrir, S. (2020). Pembangunan Pendidikan Merdeka Belajar (Telaah Metode Pembelajaran). *Jurnal Ilmiah Mandala Education*, *6*(1), 126–136. https://doi.org/10.58258/jime.v6i1.1121