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Effectiveness of Cooperative Learning Picture to Picture Plant Organ Material for High School Students

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Abstrak

Practical learning still focuses on theory alone. Biology learning requires continuous cooperation and practice. The aim of this research is to determine the effectiveness of cooperative learning picture to picture on learning outcomes in Biolagi, plant organ material in class XI high school students. This research method is an experimental method with one group pretest and posttest. The respondents who took part in this research were 31 class XI high school students located in Bogor Regency. Data collection was carried out by documentation and pretest and posttest. Process the data using SPSS version 26 with data normality and homogeneity tests. The test continues with the T paired sample test. The research results show that cooperative learning methods can improve student learning outcomes.
Key words: *metode kooperatif, picture to picture, hasil belajar Biologi*

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INTRODUCTION

Technological developments such as the use of learning media which previously used conventional learning or the use of books as learning resources. Learning media is one of the communication tools that is very important in conveying material delivered by the communicator or teacher to students to be able to provide the same stimulation in teaching and learning activities to achieve learning goals. The use of learning media is one way to support the effectiveness of a learning process. One interesting learning media that can be used to overcome the problem of low student understanding and students' way of thinking is the development of mobile learning (M-Learning) based media. Mobile learning is also unique learning because students can access materials, directions and applications related to learning anytime and anywhere Widiyarto, S., & Purnomo, B. (2023).

The presence of mobile learning is intended as a complement to learning and provides students with the opportunity to study material they have not mastered. The development of mobile learning-based learning media allows students to learn independently and makes the learning process more interesting. Widiyarto, S. (2017). And what's even more interesting is that mobile learning is made in the form of an application. The development of a media will not be successful if the content of the material contained is not effective and cannot be understood, therefore there is a need for techniques in preparing the material so that it can help students understand the content of the material.

The learning method is cooperative learning type picture to picture. The method can make it easier for students to understand and study the structure of plants. If students are involved in learning by looking at a picture of a learning object, then memory determines student learning outcomes, Mansur. The current fact is that many teachers use learning media as a means of delivering conceptual material, especially biology subjects. Biology is the science of life with theories and scientific writing that students need to know.

Therefore, time, effectiveness and practicality in the teaching and learning process are the main factors in whether teachers use learning media or not (Mansur, 2022).

Most biology lessons are delivered in the form of PowerPoint or directly without using learning media (Natalina, 2012). The focus of the observations that have been made is the use and utilization of biology learning media in the classroom which has an impact on student understanding and the effectiveness of the teaching and learning process (Baransano, 2012). If we analyze the use of learning media in teaching and learning activities, the efforts made by the teacher regarding students' understanding of the material have an impact and engagement. Therefore, if the use of biology learning media in the classroom is less innovative and creative, it will have an impact on the students in terms of cognitive, affective and psychomotor (Fauzi, et al, 2011)

Based on the description above, the research question asked is how effective is the picture to picture type cooperative method on biology plant organ material for class XI high school students? Meanwhile, the aim of the research is to determine the effectiveness of the picture to picture type cooperative method on biological plant organ material for class XI high school students

METHOD

This research uses a type of experimental research, a pre-experimental design research method with a one-group pre-test-post-test design type. According to (Saputra, 2017:79) the experimental method with a pre-experimental method design type one-group pre-test-post-test design is an experimental method carried out by only one treatment or one group without any comparison group. The following is a pre-experimental research method design with a one-group pre-test-post-test design type.

Table 1. Disain eksperiment

O1	X	O2

Information :
X = Treatment (Picture type Cooperative Learning)
O1 = Pre-test (before treatment)
O2 = Post-test (after treatment)

Data is taken by means of tests and documentation. The data was processed using SPSS version 26. The data was tested for normality and homogeneity of the data as well as the paired sample t test. The data that has been processed will be concluded.

RESULTS AND DISCUSSION

The data that has been collected is put together. Data from interviews in the form of written and recorded interviews were reduced and concluded. The test result data is processed into SPSS version 26. The data processing results are displayed as follows,

Table 1 . Descriptives

Descriptives

			Statistic	Std. Error
pretes Kooperatif	Mean		74.1613	1.34811
	95% Confidence Interval for Mean	Lower Bound	71.4081	
		Upper Bound	76.9145	
	5% Trimmed Mean		74.6398	
	Median		75.0000	
	Variance		56.340	
	Std. Deviation		7.50598	
	Minimum		54.00	
	Maximum		85.00	
	Range		31.00	
	Interquartile Range		10.00	
	Skewness		-1.084	.421
	Kurtosis		1.052	.821
postes kooperatif	Mean		87.5484	1.77245
	95% Confidence Interval for Mean	Lower Bound	83.9286	
		Upper Bound	91.1682	
	5% Trimmed Mean		87.8835	
	Median		91.0000	
	Variance		97.389	
	Std. Deviation		9.86860	
	Minimum		68.00	
	Maximum		100.00	
	Range		32.00	
	Interquartile Range		19.00	
	Skewness		-.380	.421
	Kurtosis		-1.104	.821

In the descriptive table above, the average pretest result is 76.91 while the posttest is 87.54. The maximum score on the pretest is 85 and the minimum score is 54. The maximum posttest score is 100 and the minimum score is 68.

In the Normality assumption test there is a Shapiro wilk sig value. 0.013 > 0.005 which means the data is normally distributed. Likewise with the Kolmogorov value of 0.006. 0.005 which means the data is normally distributed.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
pretes Kooperatif	.190	31	.006	.910	31	.013
postes kooperatif	.179	31	.013	.920	31	.024

a. Lilliefors Significance Correction

In the homogeneity table, there is a Sig value> 0.005. Sig value. 0.023> 0.005 which means the data comes from homogeneous data. Data can be continued in the t sample paired test.

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Hasil Belajar siswa	Based on Mean	5.485	1	58	.023
	Based on Median	4.910	1	58	.031
	Based on Median and with adjusted df	4.910	1	46.945	.032
	Based on trimmed mean	5.462	1	58	.023

In the Paired sample test table, the sig value. 0.000 < 0.005 which means there is a difference in pretest and posttest scores. The value experienced a difference of 13.38 points. Based on the data above, it can be concluded that the effectiveness of the cooperative picture to picture learning method can improve Biology learning outcomes regarding plant structure.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Sebelum - Sesudah	-17.36667	6.11095	1.11570	-19.64853	-15.08480	-15.566	29	.000

DISCUSSION

Picture to picture cooperative learning is an alternative method effective learning. Students can collaborate well. Through photos or drawings of the material, students understand the material better. This research is in line with Yusuf, M. (2023). Increasing Class XI Students' Learning Motivation through the Picture and Picture Type Cooperative Learning Model in Class Research from LA Biru,. (2023). With the title improving students' biology learning outcomes, excretory system material using the picture and picture learning model in class Xi Mia 5, SMA Negeri 2 Buru also believes that group practice and habituation can provide motivation and results in learning Biology. Muharram, et al, 2023, argue that the use of learning models is very important important in relation to the implementation of the learning process.

The learning model makes the teaching and learning process easier and more interesting for students(Leksono,et all, 2020). However, in reality, the learning model applied by teachers to students is less effective, resulting in the learning process resulting in students not being able to think critically and lack of student motivation in learning Fiqh. Apart from that, teachers are more active than students so that students can only listen and take notes back on what the teacher has said, this impact results in students' lack of critical thinking skills and low student motivation to learn.

The picture and picture type cooperative learning model can also influence students' learning motivation for class II fiqh subjects at Ma'had Ibnu Katsir Bukittinggi. This is proven by a significance value smaller than 0.05, namely 0.000 < 0.05. The application of the picture and picture type cooperative learning model can influence students' critical thinking skills and learning motivation towards class II fiqh subjects at

Ma'had Ibnu Katsir Bukittinggi. The research above is similar to this research, because it is a cooperative method picture to picture can improve Biology learning outcomes.

CONCLUSION

This research concludes that the cooperative picture to picture learning method can improve Biology learning outcomes. Students are more motivated and collaborate with other students to understand plant structure material.

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