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The Effect of Learning with Bamboo Dancing Learning Methods on Biology Learning Outcomes of Students of IX SMP Negeri 1 Bambel on Biotechnology Materials

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Abstract

This study aims to determine the effect on using the Bamboo Dancing Learning Methods on the Biology learning outcomes of IX students of SMP Negeri 1 Bambel on biotechnology materials. Sample were taken 80 students from 104 students. The research design used in this study was one-group pre-test and post-test design. In collecting data, a multiple-choice biology learning outcome test was used. The data analysis technique in this study used the calculation of the mean, median, mode, and variance according to Sudjana's theory and continued with the t-test. From the research that has been done on the bamboo dancing learing methoods, the average pre-test is 61.44, the median is 62.5 and the mode is 60, while the average post-test score on the post-test is 80.75, the median is 80 and the mode is 80. It can be seen that the student's scores on the post-test were much higher than the pre-test scores, the t-count value was greater than the t-table (13.76>1.67), so Ho wa rejected and Ha was accepted. So, student learning outcomes after being given teaching with bamboo dancing methods increased, in other words: there is an effect of using the bamboo dancing learning methods on student learning outcomes on the subject matter of biotechnology in class IX of SMP Negeri 1 Bambel.

Keywords: Learning method; bamboo dancing; learning outcomes.

1. Introduction

Education is one of the efforts to educate the nation's children, in this case schools as formal educational institutions. Each individual has the responsibility and authority to educate and develop a complete human being, namely a man who is faithful and responsible. Improvements in the quality of education are also continuously carried out, both in the school curriculum, teaching staff as well as strategies and learning methods in the classroom that involve teacher preparation in carrying out the learning process (Darman, 2017).

There are several types of education, including formal education and non-formal education. Formal education is education carried out in schools. Formal education is one of the forums for the realization of these educational goals. In formal education students get various kinds of lessons, including Biology lessons. According to Saktiyono (2007), biology taught in schools plays an important role in the development of knowledge. Biology is part of science (science) that discusses life and is the subject of subjects in schools around the world. In education in Indonesia, biology is introduced starting from elementary school to high school, although elementary school uses another term or it is called integrated science (integrating the basics of science). By studying bilogy, humans can learn about themselves as living beings with their environment and a sense of care/ love for the environment.

Learning is the key term, the most vital 'key term' in any educational endeavor, so that without real learning there can be no education. As a process, learning always has a wide place in various disciplines related to educational efforts, such as educational psychology and learning psychology. Because of the importance of learning, the lion's share of research efforts and learning psychology experiments are directed at achieving a broader and deeper understanding of the process of human change (Umam, 2019).

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The learning process is a process in which there are interaction activities between teacher-students and reciprocal communication that takes place in educational situations to achieve learning goals (Rustaman & Rustaman, 2001). In the learning process teachers and students are two components that cannot be separated. Between these two components, mutually supportive interactions must be established so that student learning outcomes can be achieved optimally.

In teaching a science to students, ideally in accordance with the nature of a separate science and how students learn. Likewise with teaching Biology, it should be based on its essence. Biology learning and the learning theory that underlies it refers to 3 essences: Process, product and scientific attitude. Biology is seen as a process meaning that in learning science skills need to be developed. The scientific process, for example, observing, collecting data, analyzing data and experimenting must be able to develop a scientific attitude so that it can shape the personality of students, for example an objective and honest attitude when conducting experiments. Learning Biology must be directed towards three aspects, namely: cognitive, psychomotor and effective.

The low achievement in learning biology is caused by the activity in learning biology is still very low. Students are rarely active in learning biology even though the material is very close to students, namely around humans, animals and plants and many teachers directly teach the material without paying attention to the basic knowledge of students so that students find it difficult to understand the lesson and cannot apply the concepts taught in different concepts. In addition, student activity in listening, reading and understanding the material is still cursory because the concepts taught by the teacher cannot be constructed with students' basic knowledge and working on practice questions is still low. In the learning process so far, in general the teacher always dominates the activities and all initiatives come from the teacher, while students as objects to receive what is considered important and memorize the material presented by the teacher and cannot develop concepts during learning. In this regard, the same problem also occurs in SMP Negeri 1 Bambel where learning activities are only teacher-centered so that most of the students become passive.

To complete the various meanings and meanings of learning, it is necessary to put forward the principles related to learning. According to Slameto (2015), a teacher or prospective teacher needs to know the principles of learning, namely the principles of learning that must be implemented in different situations and conditions and by each student individually.

The learning that takes place at SMP N 1 Bambel uses the lecture learning method, with continuous conditions like this it can make students bored, so the results obtained by students are not in accordance with the MCC (Maximum Completeness Criteria). With the rapid development of technology and education, and science, there are also rapid changes in the field of education. One of the problems faced by education in Indonesia is the problem of weak learning. In the learning process, children are less encouraged to develop thinking skills.

Learning methods are very diverse. By considering whether a learning method is suitable for teaching certain learning materials, so that teachers can choose effective learning methods to deliver students to achieve the expected learning goals (Rahmat, Redjeki, & Purwianingsih, 2021).

Learning the Bamboo Dancing method is the same as the inside circle model. Learning begins with the introduction of the topic by the teacher. The teacher can write the topic on the board or the teacher can also hold a question and answer session with students about what they know about the material.

Learning with the bamboo dancing method is very good for teaching related to initial information in order to learn the next material. By using the bamboo dancing method, it is hoped that there will be an even distribution of information or topics that are known to students. The bamboo dancing method is certainly very useful for learning in the classroom to be more varied so that it does not bore students (Sarumaha, 2020).

Assessment is an effort or action to find out the extent to which the goals that have been set have been achieved or not. In other words, assessment serves as a tool to determine the success of the process and student learning outcomes. In the national education system, the formulation of educational goals, both curricular and instructional goals, uses the classification of learning outcomes from daily activities (Muchtar, 2010).

Benjamin Bloom, who broadly divides it into three domains, namely the cognitive, affective, and psychomotor domains. One of the basic principles that must always be considered and adhered to in the context of evaluating learning outcomes is the principle of unanimity, with the principle of evaluators in carrying out evaluations of learning outcomes that are required to thoroughly evaluate students, both in terms of their understanding of the material or learning materials that have been given (cognitive aspect), as well as in terms of appreciation (affective aspect), and practice (psychomotor aspect). The three aspects or the psychological realm are very close and even

impossible to be separated from the activities or process of evaluating learning outcomes (Darmawan & Sujeko, 2013).

Based on this background, the authors are interested in researching: is there any effect of learning with the Bamboo Dancing learning method on the biology learning outcomes of IX students of SMP Negeri 1 Bambel on bioctechnology material?

2. Methods

This research was conducted at SMP Negeri 1 Bambel in the academic year 2021/2022 starting from March 7 to 25, 2022. The population in this study were all grade IX students of SMP Negeri 1 Bambel in the academic year 2021/2022, totaling 3 regular classes, with a total of 3 students class IX A has 30 students, class IX B has 34 students and class IX C has 40 students. From a population of 3 classes is 104, the sample is taken from 80 students from 104 students, the sample is taken according to the sampling technique.

The research design used in this study was "One-Group Pre-test and Post-test Design". According to Arikunto (2011) the steps of data analysis use the Pre-test Post-test Design model.

Data collection was carried out to obtain information in order to achieve the research objectives, the instrument was used as a tool to obtain the necessary data. In this study, a data collection instrument was used, namely the test.

The test material used in this study is a test of biology learning outcomes. The form of the question used is multiple choice. To measure the learning outcomes of Biology which will consist of 20 questions with 4 options with a score of 5 if the answer is correct and 0 if the answer is wrong, so that the maximum score obtained by students is 100 and the question get from the book of examiner of IX class, so it's not required validity and reliability tests.

The data analyzed is quantitative data. Quantitative data obtained from the results of pre-test scores and post-test scores. The research data were then processed using the mean, median, mode, quartile, decile, percentile, and variance formulas by Sudjana (2005).

In carrying out research at SMP Negeri 1 Bambel, researchers made observations first of the situations and conditions at the school. After observing the data, it was obtained that the number of class IX students at SMP Negeri 1 Bambel was 104 students consisting of 3 regular classes. Overall student data was used as a guide in taking samples for research, so the sample in this study was 80 students.

3. Results and Discussion

In this study, the researcher gave a pre-test to students before learning with the Bamboo Dancing learning method and post-test after the students were taught the Bamboo Dancing learning method. This is carried out to determine or measure the effect of the model on student learning outcomes. While the questions used in this study are multiple choice (multiple choice). After the data or scores are collected, the pre-test and post-test scores are then processed using the formulas for the mean, median, mode, standard deviation formula, and t-test so that the data is obtained as attached to the formulas attached. Based on the results of data processing, based on data processing, the value of $\sum x_1$ for the pre-test is 4915 and $\sum x_1^2$ = 324275 and the mean value of the pre-test is 61.44, the median is 62.5, and the mode is 60. While the standard deviation value of post-test = 8.98 and pre-test = 16.72.

Then, the value of $\sum x_2$ in the post-test is 6460, and $\sum x_2^2$ = 528350, and the post-test mean is 80.75, the median is 80, and the mode is 80. Thus, the standard error in the post-test is obtained at = 1.01 and pre-test = 1.88. From the two standard errors, the combined standard error = 1.404.

Based on table 1, it can be interpreted that the average pre-test or $\bar{x}_1 = 61{,}44$, post-test $\bar{x}_2 = 80{,}75$, which indicates that the average post-test score is higher than the pre-test. The average score of pre-treated students was below the school's MCC, which was 70, while after being taught the Bamboo Dancing learning method, the students' scores were in accordance with the MCC. This shows that students are able to improve learning achievement after learning with the Bamboo Dancing learning method. Likewise, when viewed from the explanation technique and group assessment based on the middle value (median) and the value that occurs frequently (mode). In the pre-test, the median value is 62.5, and the most frequent value is 60. As for the post-test score, the mean is 80 and the mode is 80.This data is very helpful in proving that the scores of students before using the Bamboo Dancing learning method are more likely to appear not to reach the minimum passing criteria determined by the school.

Based on other statistical evidence, it was found that the standard deviation of the post-test = 8.98 and pre-test = 16.72. After knowing the explanation by measuring the central tendency (mode, median, mean) and standard deviation of the group, the group explanation that often The level of variation in the group is not known by using this average alone. For this reason, it is necessary to follow the combined standard error of the two groups. It was found that the standard error of both the pre-test and post-test groups was 1.404.

Table 1. Analysis Data

Variasi	DF	Mean	Me	Mo	JLH	JK	S^D	SE_{gab}	t_{count}	t_{tabel} 0,05
Group of Pre-test (n1)	158	61,44	62,5	60	4915	324275	16, 72	1,404	13,76	1,67
Group of Post-test (n2)		80,75	80	80	6460	528350	8, 98			

Then to answer this research problem, it is necessary to do further proof by testing hypotheses that can provide information whether there is an effect of the Bamboo Dancing learning method or not on students' biology learning outcomes. In testing this hypothesis, the researcher uses a significant level α = 5% (0.05) obtained in the calculations on the t-table test it is shown that $t_{1-1/2}$ α is the price of $t_{0.975}$ with *df* = n_2 – 2 = 80 - 2 = 78 (taken closest). In the distribution list t, *df* 78 is not found correctly, so df is taken (60) it is found that the t-table is 1.67 with (0.05) and t-count 13,76.

Then the value of t-count is 13.76. The criteria for research testing is the value of t arithmetic is greater than t table (13.76 > 1.67) so that Ha is accepted and H0 is rejected. So there is a significant difference, student learning outcomes before being taught with the Bamboo Dancing learning method and after being taught using the Bamboo Dancing learning method. After being taught or given treatment with the Bamboo Dancing learning method, student learning outcomes increase. In other words: "There is an effect of using the Bamboo Dancing learning method on student learning outcomes on the subject matter of biotechnology in class IX of SMP Negeri 1 Bambel."

One of the learning models that can be used in learning biology is the Bamboo Dancing learning method. This learning model is proven to affect student learning outcomes, this is evident from the average student before and after being taught the Bamboo Dancing learning method is $\bar{x}_1$ =61.44, post-test $\bar{x}_2$ =80.75. After receiving treatment, the score is more and it meets the biology.

In statistical evidence, the other tendencies also showed a very significant difference, namely the mode and median of the post-test group were higher than the pre-test group, namely 62.5 (median pre-test) < 80 (media post-test, and 80 (post-test mode) > 60 (pre-test mode) Likewise, the t-test also stated that there was a significant difference between the groups before and after learning with the Bamboo Dancing learning method.

With datathe Bamboo Dancing learning method effective in teaching biology especially class IX SMP Negeri 1 Bambel.This model prioritizes the active role of students in learning to build students' thinking processes and teamwork as well as liveliness so that students can think more creatively, namely students are required to solve problems on their own and in groups by exploring or looking for appropriate data, active, namely through teamwork or group work, students become more enthusiastic and are not afraid to ask questions, have opinions and talk to each other. other and innovative. This method is a new method that is very good to use for the teaching and learning process, especially teaching Biology.

4. Conclusion

Based on the results and discussion, it can be concluded that: (a) the Bamboo Dancing learning method affects by significant to student learning outcomes on the subject matter of biotechnology in class IX SMP Negeri 1 Bambel; (b) there is an effect of using the Bamboo Dancing learning method on student learning outcomes on the subject matter of biotechnology in class IX of SMP Negeri 1 Bambel.

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