The Effect of Exploring the Natural Surroundings Approach on Students Cognitive Learning Outcomes in the Material of Biodiversity Class X at MAN 3 Bantul

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ARTICLE INFO	ABSTRACT
	The surrounding natural environment is an alternative learning resource that can be utilized in the biology learning process. To measure the success of the learning process, it is necessary to do an assessment. One aspect of the assessment is the cognitive aspect. This study aims to determine the effect of the Exploration of the Surrounding Nature approach to student learning outcomes in the subject of biodiversity. The population in this study were students of class X MAN 3 Bantul with the research sample being class X B and class X C with a total of 32 students in each class. This research is a quasi-experimental research. The research instrument used was a post-test sheet. The research instrument has been validated by experts, namely supervisors who are then used for data collection. Data analysis techniques used the Shapiro-Wilk normality test, Levene's homogeneity test, and hypothesis testing used the Mann-Whitney U Test. Based on the research results obtained a significance value of 0.000 <0.005 with a significance level (α) of 5% which indicates the influence of the Natural Exploration Surrounding learning approach on cognitive learning outcomes of class X MAN 3 Bantul in the sub-material biodiversity at the gene, species and ecosystem level.

Introduction

Learning activity is an arrangement of a system by several components consisting of learning content, learning activities, learning objectives, media or learning resources, humans to the environment[1]. In addition, Fathurrohman explained that the definition of learning is the activity of interaction between students and educators as well as with learning resources[2]. Learning achievement is the result of the implementation of learning activities. The quality of learning is one of the factors that can be the cause of the success of an achievement. There are

several factors that can affect the quality of learning carried out during the learning process, these factors are interrelated such as learning models, learning media used, material characteristics, and the psychological state of students[3]. In addition, other factors that determine the success of a learning process are learning resources. Learning resources mean all sources can be in the form of data, methods, people, media, and places that can be used for the learning process to take place in order to facilitate the learning process[4].

Assessment in the learning process should be mandatory to be implemented. The assessment process aims to enable an educator to know the level of achievement of the learning activities that have been implemented. Assessment of learning itself includes aspects of cognitive or knowledge, psychomotor or skills, and affective or attitudes. In this study using cognitive aspects to measure student learning outcomes. The definition of "Cognitive" comes from the word "Cognition" which has similarities with "Knowing" which means to know. In a broad sense, cognition is the acquisition of structuring, the use of knowledge[5]

One alternative source of learning that can be utilized in learning biology is the environment around the school or the environment around where students live. Utilization of the environment as a source of learning biology is considered to be able to improve student learning outcomes to be more optimal because students can learn concrete or real experiences and can observe objects directly. Another alternative that can be used when using the environment as a learning resource is to apply the Exploring the Surrounding Nature (JAS) approach. The JAS approach is considered appropriate when applied to environment-based learning materials because some of the material in the JAS concept contains about the environment. Exploration of the Surrounding Nature (JAS) approach is a learning approach that focuses on the use of the natural environment around life, including the physical, social, and cultural environment as biological objects whose phenomena can be studied through scientific work[6].

This study aims to determine the effect of the Exploration of the Surrounding Nature approach to students' cognitive learning outcomes on biodiversity material for class X MAN 3 Bantul. This research was conducted for the reason that there is still a lack of innovative and interesting approaches in the biology learning process, especially in the subject of biodiversity. Most schools still apply conventional learning in biology subjects, where conventional learning tends not to provide real learning experiences to their students. So the researchers chose to apply the natural exploration approach so that students could observe directly the state of the environment associated with biological diversity material. The choice of the nature exploration approach is also supported by the environmental conditions around the school which have many varieties of plants and trees. This approach is carried out with the hope that students can gain understanding more easily and improve learning outcomes. This is in accordance with Hamzah's opinion that learning is actually an activity that creates an interaction between students and their environment[7].

The aspect that distinguishes this research from previous research is the selection of biodiversity material, especially in the biodiversity sub-material at the gene, species, and ecosystem level. Material in biodiversity consists of the basic concepts of gene diversity, species or species diversity and ecosystem diversity. The concept of gene diversity itself includes variations in similar living things, species or species diversity encompasses various variations in creatures and ecosystem diversity is a variation of ecosystems as living things' habitat. Biodiversity material has been considered difficult to understand when studying it by explaining the object being studied without direct observation. Even though biodiversity can be found in everyday life, namely in the environment around students by exploring the natural surroundings directly.

Method

This research was conducted at MAN 3 Bantul. The type of research used in this research is quasi-experimental or quasi-experimental. In quasi-experiments, there is a quantitative method which has its own characteristics, especially the control group in the research[8]. The population in this study included all students of class X MAN 3 Bantul. Then in this study there were two sample groups studied, namely one control group (class X C) and one experimental group (class X B). Between the experimental class and the control class were given different treatment. The experimental class was given treatment with a learning approach to Explore the Surrounding Nature, while the control class was given conventional learning treatment. The sampling technique was carried out by means of simple random sampling. The data collection technique used is in the form of a test. The instrument used in this study was in the form of post-test sheets in the form of multiple choice of 10 questions to measure students' cognitive biology learning outcomes on biodiversity material. Data analysis techniques used the Shapiro-Wilk normality test, Levene's homogeneity test, and hypothesis testing used the Mann-Whitney U Test. The design of this study is using the Posttest-only Control Group Design. In this design there are two groups, namely the experimental group and the control group[9]

Table 1. Research Design

Category	Treatment	Post Test
Experiment	X	Q_1
Control	-	Q_2

Description :
X : Experimental class treatment with the Explore Nature Around learning approach
Q_1 : The final test given to the experimental class at the end of the study in the form of a posttest
Q_2 : The final test given to the control class at the end of the study in the form of a posttest

Results and Discussion

The results of the data obtained from the post-test were processed using SPSS, descriptively presented in the following table:

Table 2. Research Result Data

	Category	N	$\bar{x}$	SD
Post-test	Explore the surrounding nature	32	59.06	16.917
	Conventional	26	38.85	14.786

The next analysis is the normality test analysis of the data with the Shapiro-Wilk test. The results are as follows:

Table 3. Results of Data Normality Test

	Learning Approach	Shapiro-Wilk		
		Statistic	df	Sig.
Learning results	Explore the surrounding nature	.916	32	.016
	Conventional	.909	26	.025

Based on Table 3, using a significance level (α) of 5%, the significance value is obtained, which means that it is smaller than 0.05, so the data is not normally distributed. Furthermore, the analysis was carried out with Levene's homogeneity test. The results are as follows:

Table 4. Results of Homogeneity Test Data

		Levene Statistic	df1	df2	Sig.
	Based on Mean	1.285	1	56	.262
	Based on Median	1.405	1	56	.241
Learning results	Based on Median and with adjusted df	1.405	1	55.892	.241
	Based on trimmed mean	1.261	1	56	.266

Based on Table 4, at the 5% significance level (α), the significance value is greater than 0.05, which means that the data is declared homogeneous. Then, because the data is not normally distributed and homogeneous, the next hypothesis test is carried out using the Mann-Whitney U Test. The results are as follows:

Table 5. Results of Mann-Whitney U Test

No	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Hasil Belajar is the same across categories of Pendekatan Pembelajaran	Independent-Sampel Mann-Whitney U Test	.000	Reject the null hypothesis

Based on Table 5, using the significance level (α) 5%, the significant value of 0.000 is smaller than 0.05, which means that H0 is rejected and H1 is accepted. Thus, there is an influence between the Explore Nature Around learning approach on the biology learning outcomes of MAN 3 Bantul students.

Learning outcomes as conveyed by Nawawi can be defined as the level of success of students when pursuing material studied at school, in this case it can be expressed in the form of scores that have been obtained from certain test results[10]. Learning outcomes break down into 3, namely cognitive learning outcomes or knowledge, affective learning outcomes or attitudes, and psychomotor learning outcomes or skills. According to Purwanto cognitive learning outcomes themselves are abilities that can improve changes in aspects of behavior that are included in the cognitive domain, so it is not just a single ability[11]. Cognitive learning outcomes in the assessment in this study are taken from the post-test score. The post-test was carried out after the end of learning in the control class and experimental class. The average value in the experimental class was 59.06, while the average value in the control class was 38.85. When viewed from the average value of students' cognitive learning outcomes, it states that the learning outcomes of students in the experimental class are higher than the learning outcomes of control class students. This can be caused because the two classes have been given different treatments, namely the experimental class using the JAS learning approach, while the control class is given treatment with conventional learning.

The use of the Explore Nature Around (JAS) approach has a significant effect on the cognitive learning outcomes of grade X students of MAN 3 Bantul. This is indicated by the results of hypothesis test analysis. The value of the hypothesis test analysis with the Mann-Whitney U Test at a significance level of 5% there is a significant difference that can be seen

from the sig. value of 0.000 <0.005 so that it can be concluded that the application of the Explore Nature Around learning approach affects the cognitive learning outcomes of students in class X MAN 3 Bantul on the subject matter of biodiversity at the gene, species, and ecosystem levels.

Significant differences were seen in the control class and experimental class because students in the experimental class with the JAS learning approach tended to look more active in learning activities. In addition, in JAS learning students are not only asked to master the subject matter but are required to learn to use their potential so that they can develop their thinking skills optimally. Whereas in the control class that uses conventional learning, students look more passive and are not actively involved when learning activities because they are only fixated on the teacher's explanation of the material being taught[12].

The learning applied to the control class is conventional learning and it can be seen that in the learning process students do not participate actively, because learning is centered on the teacher. In accordance with the opinion according to Ahmadi that conventional learning models only rely on memorization, the delivery of learning material is mostly done by the teacher, students participate passively in receiving information, learning is very abstract and theoretical and not based on the reality of everyday life, more likely to focus on certain fields, only provide certain information to students, listen to teacher lectures, and do exercise questions (individual work)[13]. Conventional teaching methods have been more focused on the educator's duty to convey instructions during learning, while students only play a passive receiving role in learning[14].

The learning applied in the experimental class is using the Jelajah Alam Sekitar (JAS) learning approach. In learning activities, students actively participate in solving problems according to the LKPD, then make presentations in front of the class. Learning activities using JAS invite students to continue to play an active role in learning. The Jelajah Alam Sekitar (JAS) approach leads students to be able to develop information obtained in accordance with biological concepts after passing the exploration and investigation stages, so it does not require students to memorize material[15].

The JAS approach is more optimal when applied in learning activities because in the learning process students are led to observe objects directly around the school such as parks and gardens by exploring them with the group so that they work well together with the group. This is in accordance with the results of a research by Yuni that student learning outcomes in biodiversity material occur because students have gained knowledge and observation experience about biodiversity material directly[16]. Through JAS learning, students are also able to connect the material in the textbook or material book with the reality in the surrounding environment. One of the successes of the JAS approach is that the environment used as a learning resource can be a park or garden.

The nature exploration approach has a significant influence on students' cognitive learning outcomes. This can be because the Explore Nature Approach allows students to be directly involved and play an active role in the field in exploring their curiosity about biodiversity learning. In biology learning activities, students should be emphasized to learn directly with the help of nature and the surrounding environment such as exploring nature scientifically. With the help of nature, students can find understanding through the results of their observations and are expected to be able to develop a variety of competencies that students already have through these learning activities. In accordance with Suriasumantri's statement that the JAS learning approach emphasizes learning activities that are related to real-world situations, so as to open diverse thinking insights from all students[17]. This approach allows students to learn various concepts and how to relate them to the real world so that their learning outcomes are more effective.

Conclusion

Based on the research that has been carried out, the results of hypothesis testing with the Mann-Whitney U Test can be seen with a significance level of 5% there is a significant difference known from the sig. value of 0.000 <0.005. This means that it can be concluded that the application of the Explore Nature Around learning approach affects the cognitive learning outcomes of grade X students of MAN 3 Bantul on the sub-material of biodiversity at the gene, species, and ecosystem levels.

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