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An Analysis of Outdoor Learning towards Students' Outcomes in Learning Biology

Yuliana Arianti^{1,a}, Tien Aminatun^{2,b}

¹Post Graduate Biology Education, Yogyakarta State University
Karangmalang Complex, Yogyakarta, 55281. Indonesia.

²Biology Education Department, Faculty of Mathematics and Natural Science,
Yogyakarta State University, Karangmalang Complex, Yogyakarta, 55281, Indonesia

^ayulianaarianti5@gmail.com, ^btienaminatun@gmail.com

Abstract. This study aims to determine the extent to which the use of non-classroom learning methods in high school. The environment is a natural laboratory that is available which must be utilized maximally in learning. By learning outside the classroom students will be faster in understanding the material to be studied because they are directly dealing with objects. The method used in this study is a meta-analysis. Data is collected from various literature relating to outdoor learning. Data collection techniques are using primary and secondary data. Conclusions can be shown after the data is analyzed. The results of this study are to determine the effectiveness of the use of outdoor learning that is adapted to the subject matter that is suitable for outdoor learning. The environment is a real object and can be used directly by students in learning. Many objects found in the environment can be used as a source of learning for students.

1. Introduction

The development of science and technology in the 21st century is very rapid. Curriculum changes that occur continuously provide great consequences for the development of education in the future. Especially at this time the curriculum 2013 requires students to be independent in learning. One way to realize these goals is to improve learning methods and apply learning models that are fun to help students in the learning process. The learning process is basically a reciprocal relationship between the environment, teachers, students and learning methods. The environment is a real object that can be used directly by the teacher in applying the subject matter. In the environment students are faced directly with objects and can interact or relate directly so that students do not feel bored in the learning process.

Environment is very important role in the growth and development of children. In the environment students can interact with living objects, inanimate objects including humans. Learning activities allow students to be more attractive because the environment provides diverse learning resources and many choices. The environment offers school teachers the convenience to strengthen concepts and can explain the concept naturally.

Biology as a science is different from other sciences. The uniqueness of biology is that things are living things. Biology as part of the science that refers to providing direct experience to develop



competencies so that students can explore nature in a scientific manner, a kind of learning that combines scientific process experience and understanding of scientific products. In the process of learning biology means trying to provide an introduction to living things and the processes that occur in life in the environment, so that the application requires the right approach and the appropriate method that provides the characteristics and basis of work in the process of developing the concept.

Outdoor learning is a learning method in biology subjects carried out by going directly to the field in the surrounding environment directly which is accompanied by observing in detail and carefully. The results of the student's observations are transferred to the worksheet.

The main object in learning outside the classroom is the available natural environment. The universe is a very important learning resource and rich in knowledge and there are problems that can be used as sources of study in the study of teaching and learning. Nature can be said to be a very real and large laboratory in which there is a lot of knowledge so that its use as a learning resource is very mandatory for use in learning biology.

Outdoor learning provides contribution to students to develop their abilities. Nature as a learning media provides a solution in applying outdoor learning. Every student must have initial knowledge, this knowledge will be used by students and related to what will be known. Learning outside the room can be used in various ways, making learning fun, meaningful and relevant for students.

In science, especially biology education has a lot to do with real concepts that we often encounter in real life. Therefore biology learning will be more effective if done outside the classroom, so students will be easier to observe directly the problems around them. The purpose of this study is to describe and find appropriate teaching methods in biology learning, one of which is learning outside the classroom.

Learning methods outside the classroom are learning methods that make maximum use of the surrounding environment and the surrounding environment as the main source of learning. Biology is a science that defines concepts or theories based on natural events. In the process of learning here is very expected not only to discuss the material in the textbook or simply transfer knowledge information to students, but more emphasizing the experience of giving directly to students to understand the symptoms that occur.

Biology learning that applies outdoor learning that uses the surrounding environment as an object in learning. Outdoor learning is an out-of-school activity that contains activities outside the classroom or school and in other outdoors, such as playing in schools, parks and other activities that are adventurous, and developing relevant aspects [4].

Detailed knowledge of biology is needed and it is important for students to understand the concept of biology correctly. The students' concept of biology teaching and learning is that 'teaching biology is an interactive process and learning biology is a visual process. As is generally known, biology is the science that lives a creature and cares about issues such as nature, living organisms, life and the environment.

The learning process carried out outside the classroom has a very important meaning in the development of students, because in the learning process can provide directly that allows the subject matter to be more concrete and tangible so that it will produce a more meaningful learning process.

Through activities carried out in "outdoor" it is expected that all aspects of student development can increase. This happens because activities outside the classroom involve many aspects of a child's development. Activities outside the classroom are more instrumental in integrating sensory and various talents and the potential possessed by students. This includes physical and emotional development, social skills, cultural and intellectual knowledge [9].

Learning outcomes are abilities possessed by students after passing through their learning experiences [14]. Learning outcomes are something that can be achieved by students after learning activities in an effort to achieve learning goals that have been determined and are learning achievements that show the results of changes in student behavior [4]. Learning outcomes are something that is generated after going through the learning process through positive change. Positive changes in this case are cognitive aspects.

Learning learning outcomes are efforts that have been achieved by a person after learning activities. Learning outcomes are also a value that is achieved by a student to recognize the extent to which the ability of students to catch learning material has been received, so to be able to determine whether or not the learning objectives are achieved an attempt is made to assess learning outcomes. This assessment is conducted to find out the progress of students in mastering the subject matter that has been submitted.

2. Methods

In this study, researchers used a meta-analysis which is an activity carried out by analyzing a number of major studies from various literatures that discuss similar problems to get conclusions from the journal. Research data was collected through literature study on outdoor learning learning in biology learning in high schools, and learning outcomes of outdoor learning methods. The collected data are analyzed about the locations available around the school environment that can support the learning process of outdoor learning in biology learning, the relationship between the school environment that can be used in the learning process adapted to the learning material and then can be drawn general conclusions from various studies.

3. Result and Discussion

3.1 Implementation of Outdoor Learning

Table 1. Implementation of Outdoor Learning in Senior High School

No.	School	Percentage of the implementation outdoor learning
1	SMA A	85,16%
2	SMA B	70,00%
3	SMA C	92,00 %
4	SMA D	79,41%
5	SMA E	92,00%
6	SMA F	79,00%
7	SMA G	82,22%
8	SMA H	81,64%
9	SMA I	97,00%
10	SMA J	92,00%

Teaching is "art" but the success of a teacher lies in making the subject so simple that it makes it understandable to its students. To make students learn effectively, the teacher must adopt the correct method of teaching. According to Archibong (2), the interest shown by students in science and biology subjects in particular and the mastery they show at the completion of a study program depends on teaching methods and material.

Based on the table above in schools C, E, I, J the implementation of classroom learning goes well where the teacher provides guidance to students in carrying out learning. In the process of applying learning outside the classroom in this school combined with problem-based learning, students use cases or problems to define their own learning goals. Next they carry out independent, self-directed studies before returning to the group to discuss and reaffirm the results of the knowledge they obtained. Students also look active in following the learning process that takes place both in discussion and presentation. Outdoor learning if used in various ways will make learning more meaningful, fun and relevant for students.

The table also shows learning outside the classroom has a positive impact on the student learning process, with the learning students will be easier to do communication and more physical activity). Learning outside the classroom will provide convenience in understanding and providing different benefits such as direct learning and becoming more physically active. It also benefits students' behavior

Schools A, G, H In biology education, the chosen teaching method must support biology learning, learn to do biological science and learn about biological sciences [15]. Some biological topics require approaches that promote problem solving skills and experimental based processes [1]. The focus is on the process of scientific inquiry and the aim is to achieve valuable learning outcomes, and therefore students need important knowledge of science content and autonomous learning [16]. But at school B, D, F during outdoor learning there were still students lacking concentration during the learning process because of the crowded atmosphere so that students looked more closely at the surrounding environment. In addition, teachers also pay less attention to the allocation of time, especially when making observations. Teachers should also pay attention to the KD used and learning resources available in the school environment when carrying out outdoor learning so that all material can be learned by students. Explains that outdoor learning certainly has drawbacks, including requiring careful preparation of coordination, difficulty managing students during activities, students often lacking concentration because they are in an open environment.

3.2 Learning Outcomes in Biology Topics

Table 2. Learning Outcomes Biology Topics in Senior High School

No.	School	Percentage of the implementation outdoor learning
1	SMA A	77,55%
2	SMA B	83,39%
3	SMA C	76,00%
4	SMA D	93,35%
5	SMA E	84,00%
6	SMA F	87,80%
7	SMA G	82,67%
8	SMA H	84,00%
9	SMA I	90,00%
10	SMA J	84,00%

Table 2 above shows that by using outdoor learning the resulting learning outcomes are an increase in students' cognitive learning outcomes because students with outdoor learning have understanding so that students can answer the questions in the test properly and correctly. Outdoor-based learning activities on the biological field, for example, field and field trips, provide students with authentic and interactive experiences and experiential learning opportunities, which increase student interest and improve their learning outcomes.

Student involvement in field-based activities plays an important role in studying biological issues. Fieldwork gives students the opportunity to observe nature and the environment and try to get requests for information and understand what is happening in the classroom. In biology education, the chosen teaching method must support biology learning, according to Hart and Nolan [5.7], field work has a positive effect on student knowledge, attitudes and behavior, an important factor also in promoting sustainability. learn to do biology and learn about biological sciences [12].

Some topics in biology require an approach to the experimental learning process [1]. The implementation of problem-based active learning models has a positive effect on students' academic achievement and their attitudes towards science subjects. Other important results of outdoor learning are, for example, connectedness with nature [2], positive environmental attitudes [11], and environmental awareness [7]. Outdoor experience is once again the most important factor related to interest in biology. The results of outdoor learning will provide students with authentic and interactive experiences and experiential learning opportunities, which increase student interest and enhance their learning. Student involvement in field-based activities plays an important role in studying biological issues. Fieldwork gives students the opportunity to observe nature and the environment and use scientific inquiry to test the concepts and concepts they have learned in class.

Different places of visit, such as museums, parks and natural parks, are the third most common learning environment (mentioned in 11 articles). Such places seem to be good learning environments because student learning outcomes are significantly better when they gain first experience and study in authentic learning environments [6,13].

Sujaya et al [13], one of the external factors that influence learning outcomes is the factor of teaching methods. To get optimal learning outcomes, the teacher must be able to determine and choose the right teaching method and manage it properly. Thus, the teacher must be able to choose a learning model that is appropriate to the characteristics of the material being studied, so that the learning objectives or competencies that have been set can be achieved. Outdoor learning is one way to improve student learning capacity. Students can learn more deeply through the objects they face than if they study outside the classroom. Outdoor learning is more challenging for students and bridges the theory in the book and the reality in the field, so that it can process the concepts it receives well.

4. Conclusion

This study aims to identify and describe appropriate teaching methods in biology subjects. The analysis carried out in this journal is about the method and evaluation of student learning outcomes. All teaching methods but depend on the context and subject used and therefore cannot be referred to as a list of the most effective and ineffective methods. But the analysis gives the idea of how to use these methods together to evaluate the whole process for the purpose of further curriculum development. This study emphasizes inductive teaching with a student-centered approach to the environment.

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