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The Influence of Outdoor Learning Method Towards Learning Outcomes and Interests

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Abstract

This study aims to analyze using outdoor learning methods on learning outcomes and interest in learning physics. This study uses a quasi-experimental method. This study involved 60 students from two classes, namely class XA and XB. The instruments used in this study were the pretest-posttest questions and the interest in learning questionnaire. Data analysis techniques used independent sample t-test, N-gain, and multivariate analysis of variance (MANOVA). The analysis results show that the treatment has a significant effect on learning outcomes and can improve learning outcomes compared to conventional learning. The outdoor learning method makes students more interested in learning physics. The conclusion that can be drawn is the outdoor learning method has a significant effect on learning outcomes and interest in learning physics in high school.

Keywords: learning interest; learning outcomes; outdoor learning

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INTRODUCTION

The learning method is an essential aspect in the world of education. The learning method significantly affects learning interest and the achievement of students' understanding of the teacher's material (Prihartini, 2017). Therefore, education always requires innovation in the use of learning methods to increase the achievement of learning outcomes and interest in learning (Dewita, Sumarni, & Armiati, 2016)

Physics subjects are closely related to natural phenomena and their applications in everyday life. Students need to study physics because every human being can not be separated from all events, phenomena, forms, properties, and symptoms in this universe. Learning physics aims to master the concepts of physics and their relationships, solve and discover why and how natural phenomena can happen (Fitriya, Lesmono, Si, & Wahyuni, 2013). Baran (2016) stated physics itself is a science lesson that discusses natural phenomena in everyday life. A journal of the outdoor study said that studying Physics by applying the concept of learning from nature brings several benefits: (1) Able

to improve understanding the material, (2) Has systematic steps so that it is easy to apply, and (3) Overcoming the limitations of teaching aids in the laboratory so that it uses nature as an experimental tool(Hakim, Suparmi, & Masykuri, 2017). The explanation above concluded that studying Physics by applying to learn from natural surroundings brings a positive advantage of learning Physics matter.

Physics lesson is a branch of Natural Sciences that has a paradigm that is difficult to understand. In the latest PISA results published by the Organization For Economic Co-operation and Development (OECD), Indonesia scored a score in the science category below the average standard set. According to the OECD, the average score for the science category is 489. Meanwhile, Indonesia is ranked 71, with a score of 389 (PISA, 2015). The fact above proves that the science skills of Indonesian students still need to be improved.

Furthermore, a preliminary observation has been conducted in SMAN 5 Yogyakarta to understand its problem. After the preliminary observations were made, the authors looked at the learning achievement of class X students. It was seen that 80% of the students got an average daily test score below the minimum completeness rate. When the authors made observations during the learning process in the classroom, it was seen that there were still many students who did not show a high interest in learning physics. Some examples of student behaviour that show a lack of interest in learning physics include less attention to the teacher who is teaching, difficulty or even reluctance to try to answer questions in front of the class, so they don't want to do the exercises given by the teacher. Overall from the observations made by the author, it was found that there was a lack of interest in learning physics and the learning outcomes of physics were still below the minimum completeness value. Also, Yusuf (2015) found that 33.3% of students in class XI-IPA at SMAN 5 Yogyakarta were less interested in learning physics, while 96.7% stated that they were quite interested in learning physics. The preliminary observation and research result above prove that the physics subject is still less attractive to students because it is considered abstract material and must use various equations and formulas (Adeyemo, 2010).

Trianto (2010) also suggests that the main problem in formal (school) learning today is the poor understanding of students' material. The learning process in the classroom still applies teacher-centred learning. Materials delivered by lectures, the delivery of physics materials only as a product, and students only memorizing the materials are called teacher-centred learning. Nasution, Bukit, & Ginting (2016) stated that the learning models that are widely applied today are still ineffective in inviting students to understand the concept of the material. Teachers in schools often explain concepts conventionally so that students only need to listen and record what the teacher says. This condition causes students to be passive and tend to learn by memorizing. Therefore, it is necessary to update the learning process that can increase understanding of the material in students and increase interest in learning physics.

The process of delivering material not only occurs in the classroom but can also be carried out outside. Outdoor learning means learning that applies projects or experiments, environmental studies, recreation, and adventures carried out outdoors (Vera, 2012). The outdoor learning method itself does not have a definition or patent rules. Still, the outdoor learning method has the characteristic of learning directly from

natural phenomena outside the classroom(www.outdoor-learning.org).

In this research, the outdoor learning study was being held in the school environment. Husamah (2013) stated that the outdoor learning method is an effort to get closer to real learning sources, namely nature and society. Outdoor learning is moving lessons outside the classroom but is done by inviting students to unite with nature. The research results related to outdoor learning studies conducted by Emilia & Blom (2013) show that the outdoor learning method can improve cognitive and affective abilities. Based on the opinion above, this research needs to be done to prove its truth.

According to Haryati (2016), she stated in her journal that there are several advantages in utilizing the environment as a learning resource, they are: (1) learning from the source of natural sciences can make the students understand more concrete materials (2) students will be more active during learning session (3) outdoor learning method is better to understand the concept other than only memorizing it from the textbook (4) the concept of science becomes easier to understand following the problems faced in everyday life. Nana & Ahmad (2010) also state that some of the benefits of learning outside the classroom are a clearer mind, more fun learning, more varied learning, more creative learning, more real learning, and familiarity with the real world. With such conditions, it is hoped that learning will be fun and not boring. Following the opinion above, the outdoor learning method applied to learn from natural phenomena in the surrounding environment is expected to increase understanding of physics material and attract learning interest.

On the other hand, teachers' learning methods that are still appropriate and widely used by teachers are the conventional learning method. Conventional learning methods are traditional learning methods or lecture methods. This method has always been used to communicate oral communication between teachers and students in the learning process. According to Zulyadaini (2016), the conventional method is a teacher-centred learning process. The student only needs to listen to what the teacher said, following the teacher's pace, taking notes on the teacher's explanation, and memorizing the materials. In practice, this method applying the form of lectures, assignments, and questions and answers. Therefore, this research involved the conventional method in giving an oral lecture in front of the class using a textbook as the learning media as the comparison from the outdoor learning method.

Student learning outcomes are essentially changes in behaviour due to learning in a broader sense or after learning something new that includes cognitive, affective, and psychomotor fields(Suryani, 2014). This study aims to seek learning outcomes in cognitive aspects only. Two factors, internal and external, influenced according to to Nurhasanah & Sobandi (2016) learning outcomes. Internal factors are including psychologist factors such as intelligence, talent, motivation and interest. Meanwhile, external factors are family support, school facilities, and social condition. In this research will examine learning interest as a factor that influenced learning outcomes.

Slameto (2010) said that interest is a sense of liking, a sense of more interest on a specific subject, and more attention. Interest and motivation are two different things (Wang & Adesope, 2016). Interest is affecting three important aspect, attention, goals, and learning level. On the other hand, motivation is only a booster aspect of learning. Therefore, a high interest in learning is directly

proportional to the learning achievement of students.

Based on the explanation above, applying an appropriate learning method is essential to increase student learning outcomes and interest. This outdoor learning method considered capable of being a solution to these problems. The outdoor learning method also provides opportunities for students to see and feel first-hand natural phenomena by following the concept of physics, which studies natural phenomena and phenomena (Vera, 2012). By looking directly from nature, it is expected to increase class X students' interest and learning outcomes at SMA Negeri 5 Yogyakarta.

METHOD

This study used the quasi-experimental research method because the available samples were already grouped according to the school's classes (Sugiyono, 2010). This research design is a pretest-posttest control group design. The two selected classes were given a pretest to determine the student's initial abilities (O1-O3). Then each class was given treatment (X1-X2). The experimental class was given learning with the outdoor learning method, and the control class was given learning using conventional methods. After the learning process is complete, a posttest is given to both the class to determine the students' condition after being given a treatment (O2-O4) (Sugiyono, 2010). The overview of the research design is stated in Table 1.

Table 1 Research design

Group of Class	***Pretest***	***Treat-ment***	***Post-test***
Experiment class (EC)	O_1	X_1	O_2
Control class (CC)	O_3	X_2	O_4

The study was conducted from January to March 2019. The population of this study was taken from the students of SMA Negeri 5 Yogyakarta. The researcher chose two classes to consist of 30 students in each class as the sample of this research—the first class for the experiment group and the second class for the control group. The sample was chosen using a technique of random cluster sampling. Based on Sugiyono (2003), random sampling is a technique in which every individual in the population is given an equal chance to be the sample. Because the population has the form of a class, therefore the sampling technique is cluster random sampling.

Collecting the research data was using instruments in the form of pretest-posttest questions and interest in learning questionnaires—the students in both class samples filled both the instruments. The type of data to be collected in this study is quantitative data. This data results from the implementation of the pretest and posttest to determine the increase in learning outcomes and the answer scores of the interest in learning questionnaire.

The data analysis methods used were: (1) Calculating the differences in students' physics learning outcomes using outdoor learning methods and conventional methods. The calculation of the difference in learning outcomes used the independent sample t-test at SPSS 16. The quantitative data processing is carried out in two main stages, namely statistical prerequisite testing (data distribution normality test and variance homogeneity test) and hypothesis testing using independent sample t-test (Anas, 2012).

The test criteria for the t-test are as follows: (a) If p (significance) ≤ 0.05 then the null hypothesis (H_0) is accepted and the alternative hypothesis (Ha) is rejected, and (b) If p (significance) ≥ 0.05 then the null hypothesis (H_0) is

rejected and the alternative hypothesis (Ha) is accepted.

The hypothesis of this research are as follows:

H_0 = there is no significant difference in the calculated data results between the two sample classes

Ha = there is a significant difference in the calculated data results between the two sample classes

After knowing the difference in learning outcomes from the samples, a gain analysis was then carried out. In this study, the gain analysis used refers to the equation proposed by Hake (1998).

The last step is calculating the effect of learning using the outdoor learning method on learning outcomes and student interest in learning. The calculation of how much influence is using multivariate analysis of variance (MANOVA) analysis. MANOVA has understanding as a statistical technique used to calculate testing the significance of concurrent differences between groups for two or more dependent variables (Sutrisno & Dewi, 2018).

RESULT AND DISCUSSION

After the research has been done, it is obtained data on the experimental class's learning outcomes and the control class. The average pretest and posttest data of students from the two classes can be seen in Table 2.

Table 2 The average score of *pretest-posttest*

Group of class	Pretest	Posttest
Experimental	51,57	78,00
Control	54,53	72,83

Table 2 shows that the two classes have the same initial knowledge (pretest). However, a quite large difference can be seen in the posttest column. The experimental class that received outdoor learning turned out to have a higher average learning outcome of 5.17 points than the control class learning average using conventional methods. Based on the data in Table 2, it can be concluded that the learning outcomes from the experiment class are higher than the control class. It attested the experiment done by Emilia & Blom (2013), which says that outdoor learning method can improve students' cognitive and affective skills.

Moreover, to find out how much the increase in the value of learning outcomes has occurred, the N gain is calculated. From the calculation results using the formula above, the average gain value for the experimental class is 0.54, while the average gain value for the control class is 0.36. Both of them get an average category. Even though both of the N gain scores got the same category, the experimental class's N gain score is still higher 0.18 points than the control class. It proves that the experimental class which learned using outdoor learning method reached higher learning outcome score than the control class.

The next analysis is to determine whether the N gain score of the learning outcomes is significantly different. The analysis was done using t-test. Before carrying out the t-test, the normality and homogeneity test of the data first performed as a prerequisite test for the analysis. The normality test is carried out to determine students' character to fulfil the normal distribution. The standard for determining normality is based on the Kolmogorov-Smirnov sample test because the sample tested was 30 students for each class. Based on the analysis, the normality test data was obtained, as shown in Table 3.

Table 3 Normality test result

Data	Significance	Conclusion
Pretest	0.229	Data Normal
Posttest	0.096	Data Normal

Based on Table 3, the results of normality tests performed, it can be read that the significant value of each class is

> 0.05. So, it can be concluded that the pretest and posttest data are normally distributed. Thus, the further prerequisite test is a homogeneity test. The homogeneity test was carried out to determine whether the data came from a homogeneous or heterogeneous sample. The homogeneity test was using the Levene test. The results of the homogeneity test are presented in Table 4.

Table 4 Homogeneity test result

Data	Significance	Conclusion
Pretest	0.283	Data homogen
Posttest		Data homogen

Based on Table 4, the significance value obtained shows that the two types of data have a significance > 0.05. Thus, both types of data are homogeneous. It can be interpreted that the samples used, the experimental class and the control class, have a normal distribution and come from a homogeneous sample. So, the calibration of the data can be continued with the t-test.

The next step is to test whether the increase in average gain score is significant or not. An independent sample t-test analyzed the N-gain data from each student. The result of the t-test shows that the significance value is 0.013. Based on the t-test results criteria on the data analysis method, the significance value of 0.013 is ≤ 0.05, so that H_0 is rejected and Ha is accepted. So it can be concluded that there is a significant difference in learning outcomes between the experimental and control classes.

The increase in learning outcomes in the cognitive aspect is influenced by the understanding of students who are helped by independent experimental activities in groups outside the classroom. The outdoor learning activity can give students a real picture of the application or examples of the real phenomena around them. The concept of physics that they could only imagine could feel and discover for themselves. Therefore, students will remember the concepts of physics stronger and better understanding. This result is proven the opinion from Sardiman (2005), which says that learning from the environment could trigger a better understanding of knowledge.

The next analysis was to calculate the score on the student's interest in learning physics questionnaire. Filling the questionnaire is conducted after the learning process has been completed. Then the results of the questionnaire charging by each student are calculated and taken its total score average value score interests of students. This data is presented in Table 5.

Table 5 Questionnaire result

Group of classs	The average questionnaire score
Experimental	66.37
Control	63.20

Based on the result in Table 6, it can be seen that the two classes have quite significant differences in learning interest. These results revive the teachers to be more creative and innovative in implementing the learning method in schools. Fun learning, such as the outdoor learning method, is proven to attract higher interest in learning physics compared to conventional learning.

The next stage of analysis is to see how much influence the use of outdoor learning methods to both the dependent variables is the learning result and the learning interest. The analysis used was MANOVA using SPSS 16. The results of this analysis are presented in Table 6.

Table 6 The result of MANOVA analysis

Class group	Variables	
Experiment Control	Learning outcomes	Learning interests
Significancy score	0.013	0.042

Table 6, in the column of learning outcomes, it can be seen as a significance value of 0.013. This value is ≤ 0.05 so that it fulfils the first test criteria, which is, H_0 is rejected, and Ha is accepted. In conclusion, there is a significant difference or influence by the learning method on the learning outcomes.

In the column of the learning interests, it can be read that the significance value is 0.042. This value is less than 0.05 so that it fulfils the first test criteria, which is, H_0 is rejected, and Hais accepted. In conclusion, it can be interpreted that learning using the outdoor learning method has a significant effect on the level of learning interest of the students.

The result of all the analysis above is that studying Physics using the outdoor learning method can significantly increase students' learning outcomes and interest in SMA N 5 Yogyakarta. This result proves that the opinion from Nurhasanah & Sobandi (2016) says learning interests and learning outcomes could be influenced by the learning method. It is because an appropriate method can make the teacher explanation clearer and understandable. An research result from (Emilia & Blom (2013)which says that outdoor learning method can improve cognitive and affective abilities is also proven by this result.

CONCLUSION

The use of the outdoor learning method affects learning outcomes in the experimental class. The increase in learning outcomes in the experimental class was still higher than the control class. Learning with the outdoor learning method significantly affects learning outcomes and interest in learning physics in high school. Therefore, a teacher must be creative and innovative in educating students. A teacher can occasionally use various methods such as outdoor learning methods to understand better, learn, and create fun physics learning.

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