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The effect of ethnography-based outdoor learning methods on elementary students' activities and learning outcomes

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ABSTRACT

The cultural approach as a social studies learning resource can be carried out using ethnography-based outdoor learning methods for elementary school students. It adopts a quantitative research methodology employing experimental techniques. The population used is class V (fifth-grade) students in a sub-district. The number of students identified was 172. The sampling technique used was purposive sampling. Purposive sampling was utilized to select participants, dividing them into experimental and control groups. The quasi-experimental approach employed a posttest-only design with a nonequivalent group procedure. Hypothesis testing was selected to further examine the relationship between the independent and dependent variables. Multivariate analysis of variance (MANOVA), was employed to analyze questionnaire responses and learning results, yielding a significant value of 0.000, which is less than 0.005, thus accepting the alternative hypothesis (H_a). The findings indicate statistically significant influence of ethnography-based outdoor learning activities for both students' engagement and academic performance in fifth-grade classrooms. These results underscore the potential of integrating indigenous knowledge-based learning innovations into elementary education.

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1. INTRODUCTION

Delivery of learning within the classroom must evolve to cultivate competencies aligned with the future demands of society 5.0 [1]. Academics' concerns about the world of education are becoming increasingly tangible due to the diminishing opportunities for experiential learning resulting from an overreliance on statistical methods via online networks [2]. The application of learning methods delivered by teachers has an important role according to needs and in accordance with class activities to achieve harmony with high standard values [3]. Learning methods can be learning innovations that are based on searching for ideas for determining learning steps by utilizing the social environment of the surrounding community to discuss existing uniqueness, cooperation between students, class beliefs, student skills and developing students' knowledge abilities [4].

Teachers should utilize the latent qualities of the surroundings as one of sources with rich learning materials while attracting students' attention [5]. The school environment in the northern region of Surabaya, where the majority of the population is Javanese and Madurese, generally uses learning activities assisted by media and technology. On average, learning activities in city center schools use technology-assisted media and methods. Teachers in this context are also equipped with the skills to use various learning models that

utilize digitalization and concrete media [6]. Furthermore, internet access serves as a facilitator of learning, providing a reliable means for accessing educational resources [7], [8].

Conventional social studies learning typically involves rote memorization of terms related to social conditions among communities. However, this approach often presents challenges such as excessive content, difficulty in comprehension, feelings of confusion, and boredom [9]. What was discovered from the school's policy regarding learning resources was the availability of textbooks and supporting books that students were not required to have. However, students need multidisciplinary social sciences that come from sources other than textbooks, namely in the environment outside the school as students actualization of students in society in the future [10].

Overcome these challenges, research suggests that adopting constructive, critical, creative, and collaborative learning methods can enhance student engagement and academic outcomes in social studies [11]. Methodology plays a crucial role in shaping the learning process, with organized and systematic approaches yielding better long-term knowledge retention, particularly when learning takes place outside the classroom [12]. The form of learning that is organized in an orderly manner explains that students who study outside of school show better long-term knowledge retention [13]. Systematic literature provides information that learning in a large class environment by utilizing the environment is very effective in utilizing learning resources [14]. There are opportunities for environmental conditions to draw students' attention closer so that students become more motivated, get to know the environment and play recreationally while learning [15].

The implementation of outdoor learning methods necessitates a shift in teaching practices, with educators no longer occupying the central role but instead facilitating learning through interaction with the environment [16]. Outdoor teaching is viewed as an opportunity to engage students in experiential learning, often referred to as learning in the wild or nature-based learning [17]. Likewise, another term that refers to outing class learning is learning that involves nature as the main learning material [18]. This is also related to environmental education which has the term outdoor education which influences the behavior, interpretation and role of educators [3]. Through outdoor learning methods, student achievement is to increase student joy and activeness with the principle of learning while having recreation [13]. Integration of learning taken from several fields of social science studies will clearly affect the competence of students [19].

To foster an ethical society, social studies education can utilize the beach environment within a school's vicinity as a valuable learning resource. This setting provides students with a conducive space to explore social knowledge, especially if they have not previously visited a beach for educational purposes. Moreover, the welcoming attitude of the surrounding community towards student visits further enhances the potential for meaningful learning experiences [20]. Understanding community activities as cultural concepts is essential for comprehending group behaviors and ways of life, which involves exploring aspects such as language, social systems, living arrangements, livelihoods, religion, and artistic expression [21]–[23].

An ethnographic approach will form an extraordinary appreciation from students through learning about community culture [24]. Ethnographic research involves learning about seeing, hearing, speaking, thinking, and acting in different ways. So, ethnography does not only study society but also learn from community sources [25]. An idea that states a learning strategy includes and combines all potential differences in classrooms, schools and potential differences in society can be used as a medium and source of learning [26]. Student activities and learning outcomes through an ethnographic approach will provide the best experience for students in learning [27]. These two variables are used as a reference for participating students to understand how far the child has progressed in understanding the material presented [28].

Thematic learning is the beginning of a certain theme as the core of teaching in understanding symptoms, concepts in the relevant field of study or other fields of study [29]. Social studies learning using the method applied is characterized by process skills that deepen learning of the geography and culture of coastal communities. The research formulation discussed is related to finding out whether the ethnography-based outdoor learning method possesses strong influences on various activities and learning observations of fifth grade elementary school students.

2. METHOD

The experimental method was carried out with a quantitative approach, using a quasi-experimental design. Specifically, the research design adopted was the posttest only design with nonequivalent groups, which falls under the quasi-experimental design category. Table 1 illustrates the design chosen to avoid pretreatment measurements, which could potentially sensitize subjects, thereby influencing post-test scores. Instead, the design focuses solely on measuring post-action outcomes, involving a disproportionate control group. The research variables included ethnography-based outdoor learning activities in the experimental class, along with questionnaire activity scores and post-test learning outcomes scores [30]. The time of the

research was held in the 2nd semester of June of the 2022-2023 academic year according to the material used, namely the geographical location of Indonesia for social studies subjects.

The research design entails assigning one group to receive treatment and another group to serve as a control, allowing for a comparison between the two. Actions in the experimental class were facilitated by ethnography-based outdoor learning methods. This method aimed to provide direct learning experiences in an outdoor setting, integrating cultural aspects such as language, knowledge systems, social organization systems, technology, livelihood systems, religion, and art. Without even going through a pretest, the researcher ensured that the two groups were similar to increase the internal validity of the research. Classes without treatment, or control classes, are given conventional methods that equate learning materials and filling out research instruments.

Table 1. Design of posttest only design with nonequivalent group

Subject	Treatment	Post-test
Experiment	X	O_1
Control		O_2

X=the treatment uses ethnographic-based outdoor learning methods
O_1=answering questionnaire and post-test to the experimental class
O_2=filling out the questionnaire and giving the control class post-test

2.1. Data collection and sampling

The research site is situated in the northern area of Surabaya, Indonesia, which is also part of the coastal region. The population in this study refers to the entirety of individuals, objects, or events possessing specific characteristics or traits that are the focal point of the research. The population used in this study was 172 students of fifth grade elementary school at SDN Sidotopo Wetan IV and Sidotopo Wetan V in the Kenjeran sub-district, Surabaya, East Java, Indonesia. Table 2 depicts the participants of the experimental research, who were students of Surabaya City during the 2022-2023 academic year. The Kenjeran coastal area is the object of ethnographic study to be applied in outdoor learning for social studies subjects.

Sampling was carried out using the purpose sampling technique. This sampling tells a determination technique based on certain considerations that do not come from individuals or generalize the objects in the research, instead, it is from groups falling under certain considerations shown in the sampling that are relevant to the research objectives. The sample used by researchers consisted of two classes, first was class VA, which consisted of 20 male and 18 female, while the other was class VB with 15 male and 23 female. The total includes 76 children from both classes. A total of 76 respondents will fill out a questionnaire as a learning activity and post test questions for 10 minutes, then the data will be collected at Microsoft Excel to be collected and then analyzed quantitatively with the SPSS 25.0 program.

Table 2. Population of research subjects

School	Class	Gender		Total
		Male	Female	
SDN Sidotopo Wetan IV	VA	18	14	32
	VB	19	15	34
	VC	20	19	30
SDN Sidotopo Wetan V	VA	20	18	30
	VB	15	23	38
Total population				172

2.2. Data techniques and analysis

In order to test the hypothesis of the research, a multivariate analysis of variance (MANOVA) test, or multivariate analysis of variance, was conducted. Additionally, a validity and reliability test was performed on the designated instrument. Initially, the researcher conducted prerequisite hypothesis tests to analyze the distribution of data obtained through trials in testing analytical instruments. These tests included the normality test and homogeneity test. Next, a hypothesis test was carried out using the MANOVA test to calculate the certainty variable [31].

The validity test used in this research is product moment, using SPSS 25.0 to decide from 20 questionnaire questions which were tested on 32 respondents by calculating the r table (r critic)=0.435. The decision-making criteria is $r_{count}>r_{table}$ then the question item is said to be valid. So, setting 10 number questions is declared valid. The reliability test carried out produced a value of 0.921, meaning it is considered as the very high category. A total of 30 post test questions were tested on 32 respondents using r table

calculations (r critic)=0.361. So, setting 15 post test questions is declared valid. The reliability test shows a value of 0.841, meaning it is considered as the very high category. Based on the validation of research instruments, different data collection was carried out by distributing questionnaires to students to measure learning activity, while to measure the effectiveness of learning outcomes using post-test.

3. RESULTS AND DISCUSSION

This research was conducted from May 1st to June 15th, 2023, in accordance with a partnership agreement between the Faculty of Elementary School Education, Surabaya State University and schools in coastal areas, precisely in the north of Surabaya, Kenjeran sub-district, Surabaya, East Java, Indonesia. The study focuses on the integration of cultural elements into learning methods, which, through in-depth examination, takes the form of an ethnographic study serving as a source of learning within elementary education. Cultural aspects of coastal communities are becoming a new paradigm within social studies learning happening in elementary levels. Learning provides long-term memories for children because they learn outside of school and have the experience of being part of a coastal community by gaining social studies knowledge from indigenous communities. Teaching materials sourced from the environment can be explored from the multicultural aspects presented. Teachers, students and the community apply customs and instill local wisdom [32]. The principles applied in the outdoor learning method apply seven cultural values identified as important for strengthening multicultural education: religion or belief, technology system, language, knowledge system, art, livelihood system, and social organization [33].

Aspects of learning activities and student learning outcomes are obtained from the delivery of learning resources that are guided by innovative learning methods combined with basic cultural theories in facing the challenges of globalization and bringing local elements into the global [34]. The cultural values conveyed by teachers as a means of learning have the aim of preserving the cultural values of community activities that are suitable for elementary school students [35]. The concept of developing social studies in elementary schools through learning methods based on cultural elements and cultural development will answer things that are not yet known and become known in discussing about indigenous knowledge [36].

In this research, the measurement of variables was conducted through various methods including observation, documentation, questionnaires, and tests. Observations carried out were conducting a survey of the location of outdoor learning activities in the Kenjeran Beach area at Surabaya to ensure security and an ethnography-based strategy through thematic material on objects around us, concentrating on social knowledge of Indonesia's geographical location. Additionally, post-tests were administered to align with the objectives of social studies learning. For instance, students were tasked with observing the map of East Java Province, Indonesia, to accurately identify the geographical locations of various regions within the province.

3.1. Classroom pre-research test

Figure 1 displays the average in value of students' abilities, while in the data, class VA is treated as the control class while class VB is the experimental class. Analysis of the average scores from the two classes produces data in the form of a total score for class VA of 82.63%, while VB is 86.68%. The difference between the two values obtained from the experimental and the control class shows 4.05%.

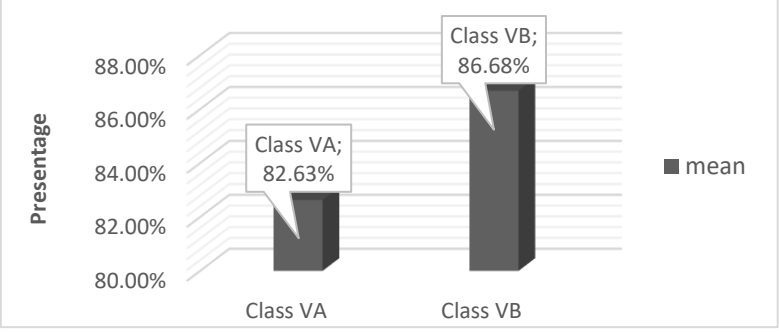

Figure 1. Final semester assessment results from experimental class and control class

Table 3 displays the homogeneity test calculations for the two different classes in this research samples. First, homogeneity is tested to find out the answer to whether the two classes used are homogeneous or not. The score results obtained by the research sample in this study were based on the annual assessment

score for social studies subjects. Following the SPSS 25.0 analysis principle in the homogeneity test, a sig. value of 0.105>0.05 was obtained for both score data, so it can be assumed that the score data in this class is the same for further investigation. Obtaining distributed data states that the two classes have a relative level of similarity and are worthy of treatment based on class selection through the experimental method.

Table 3. Test of homogeneity of variances

	Indicator	Levene statistic	df1	df2	Sig.
End of year evaluation	Based on mean	2.700	1	74	0.105
	Based on median	3.051	1	74	0.085
	Based on median and with adjusted df	3.051	1	72.831	0.085
	Based on trimmed mean	2.907	1	74	0.092

3.2. Prerequisite test

Hypothesis testing will be carried out by carrying out hypothesis prerequisites. Carry out quantitative tests by distributing questionnaires and post-tests according to procedures in classes whose equality has been tested. The steps in this research are prerequisite tests consisting of normality tests and homogeneity tests.

3.2.1. Normality test

Figure 2 shows the scores obtained from distributing questionnaires and post-test research samples with the average value in percentage form. This research retrieves the data from the questionnaires about learning activity given to the students and post test scores as learning results. The learning activity questionnaire score data obtained by the control class in Class VA was worth 75.47%, while class VB received a worthy 81.18% score; with a difference of 5.71%. The learning outcome score on the control class post test showed a value of 72.63% and the experimental class score was 82.05%, so there was a difference of 9.42%.

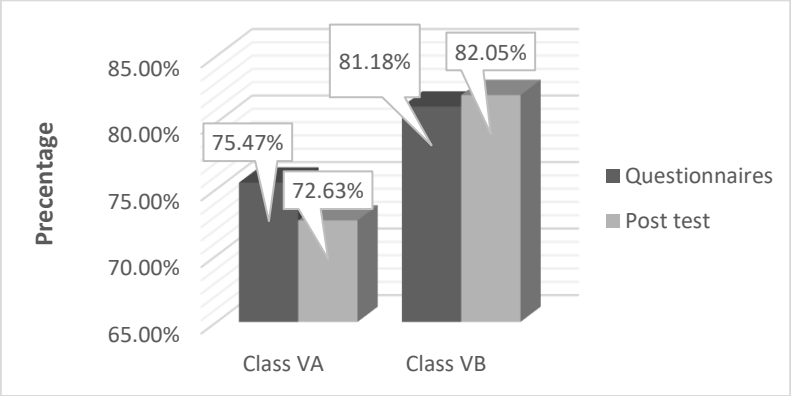

Figure 2. Percentage of questionnaires and post-test scores

Tables 4 and 5 explain the data on the questionnaire and posttest instrument values which will be calculated for the normality test on the questionnaire using the SPSS 25.0 program. Next, the score results are entered in stages to test the prerequisites for hypothesis testing, namely the normality test, as a condition for the MANOVA test. Data is normally distributed once the significance level is >0.05, in the other hand, whereas the significance level is <0.05, the data will be considered an abnormal distribution. To test normality, the Kolmogorov-Smirnov test was used on two dependent variables, namely learning activities and learning outcomes.

Based on the results, the normality test output of the questionnaire yielded an Asymp. sig. (2-tailed) value of 0.200, indicating that 0.200>0.05. Consequently, it can be concluded that the questionnaire data is normally distributed. Regarding the observed learning activities, students' attitudes during outdoor learning sessions were assessed. It was noted that students demonstrated orderly and positive behavior during these sessions, indicating their engagement and adherence to guidelines for learning outside the classroom.

Learning activities are related to student behavior to be changed into good actions. Good conditioning from behavioristic theory based on environmental conditions can create personal experiences [37]. Every stimulus given, the individual will respond through reinforcement. The teacher will provide attention and focus in the learning process.

Table 4. One-sample Kolmogorov Smirnov learning activity questionnaire

N	Indicator	Unstandardized residual
Normal parameters[a,b]	Mean	0.0000000
	Std. Deviation	7.33005957
Asymp. Sig. (2-tailed)		0.200[c,d]

Table 5. One-sample Kolmogorov-Smirnov post-test

N	Indicator	Unstandardized residual
Normal parameters[a,b]	Mean	0.0000000
	Std. Deviation	8.30221815
Asymp. Sig. (2-tailed)		0.200[c,d]

The post-test score data on learning outcomes obtained by the control class in class VA was worth 72.63%, different from the results obtained by the experimental class in class VB which was worth 82.05%. So there is a difference of 9.42%. Outdoor learning method the learning process carried out is centered on students with the teacher's function as facilitator or mediator [38]. Learning is supported by constructivist learning theory which includes the ability to learn skills so that they are achieved in accordance with the learning objectives of the social studies material regarding Indonesia's geographic location [39].

3.2.2. Homogeneity test

Tables 6 and 7 show that the data used in this homogeneity test are questionnaire data and post test scores which are the same for the normality test as the output produced by the SPSS 25.0 program. The homogeneity test is a requirement before carrying out the MANOVA test. MANOVA can be carried out if the homogeneity meets a requirement or it is said that it is homogeneous. Data is normally distributed once the significance level is >0.05, in the other hand, whereas the significance level is <0.05, the data will be considered an abnormal distribution. To test the homogeneity of the questionnaire and post test results, a homogeneity test was used on two dependent variables, namely learning activities and learning outcomes.

The homogeneity test table for the questionnaires distributed gives a sig value of 0.904. For the value itself (0.904) is >0.05, it is safe to claim that the questionnaire is homogeneous. Based on the results from the Output table for the homogeneity test of the post test questions which is printed in the sig value. 0.126. With a value of 0.126>0.05, it is stated that the post-test question data is homogeneous. Through normality test results distributed from the questionnaire and post-test data, both data were valued as normally distributed, from the homogeneity test results of the questionnaire data and the post test data were homogeneous. All research data has hypothesis testing requirements in continuing the MANOVA test.

Table 6. Output of the learning activity homogeneity test questionnaire

		Levene statistic	df1	df2	Sig.
Questionnaire	Based on mean	0.015	1	74	0.904

Table 7. Post test homogeneity test results

		Levene statistic	df1	df2	Sig.
Post_test	Based on mean	2.397	1	74	0.126

3.3. Hypothesis testing

The MANOVA test was carried out to determine the correlation between two dependent variables that have a tendency. The results of applying MANOVA will determine significant differences in one of the independent variables. MANOVA is a 2-way test that looks at the influence of ethnography-based outdoor learning methods on the activities and learning outcomes of class V students at SDN Sidotopo Wetan V, Surabaya. In this study, the pre-research class pre-research tests met the requirements so that the requirements for implementing the MANOVA test could be carried out [40].

The advantages of this method are strengthened by understanding the context of the context of social science material which is easier to understand [41]. Research on assessing activities and learning outcomes on students' abilities after gaining an understanding of indigenous knowledge according to social insight from the variables assessed [42]. According to research, the activities and learning outcomes analyzed in using ethnography-based outdoor learning methods are how a student becomes part of society with the problems they experience.

Table 8 shows changes in the attitudes of the learning methods used towards the environment by showing the hypotheses carried out. This is in line with the findings of strengthening research by involving ethno aspects in collaborative learning [43], [44]. The learning method tested in this research is suitable to be used to measure the variable of understanding in the instrument for implementing the ethnography-based outdoor learning method [45]. Using the MANOVA test in the SPSS 25.0 program to answer the research hypothesis of the dependent variable, namely learning activities and learning outcomes with quantitative analysis. MANOVA hypothesis testing analysis has the following with two conditions.

H_a: It shows a significant effect of the application of outdoor learning methods on the activities and learning results of Class V in social studies.
H_0: It shows no significant effect of applying the outdoor learning method on the activities and learning outcomes of Class V students.

Decision making is carried out if the Sig. Value. (2-tailed)>0.05. So, H_o is accepted and H_a is rejected. Meanwhile, if the value (2-tailed)<0.05 then H_o is accepted and H_a is rejected.

Table 8. Multivariate tests variable learning activities and learning outcomes

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	0.993	5,143.567[b]	2.000	73.000	0.000
2	Wilks' Lambda	0.007	5,143.567[b]	2.000	73.000	0.000
	Hotelling's Trace	140.920	5,143.567[b]	2.000	73.000	0.000
	Roy's Largest Root	140.920	5,143.567[b]	2.000	73.000	0.000
Class	Pillai's Trace	0.230	10.915[b]	2.000	73.000	0.000
	Wilks' Lambda	0.770	10.915[b]	2.000	73.000	0.000
	Hotelling's Trace	0.299	10.915[b]	2.000	73.000	0.000
	Roy's Largest Root	0.299	10.915[b]	2.000	73.000	0.000

The results of the analysis using the F test have a significance value smaller than 0.05, namely 0.000. This provides a decision that the F values on Pillai's Trace, Wilks's Lamda, Hotelling's Trace, Roy's Largest Root are all significant with a sig value. 0.000<0.005. Based on the results, the alternative hypothesis (H_a) is accepted. Therefore, it can be inferred that there are significant differences in the activities and learning outcomes of participants who received instruction through the application of ethnography-based outdoor learning compared to those in conventional classes. The positive impact of ethnography-based outdoor learning on social studies subjects is evident through increased activity and improved learning outcomes. This significant influence of the learning method suggests its potential as a model for exploring indigenous knowledge within a region.

4. CONCLUSION

The research results demonstrate a significant and positive impact of ethnography-based outdoor learning methods through the cultural elements discussed in learning activities. Analytical data indicate a substantial effect of applying these methods on both learning activities and outcomes. This assertion is supported by hypothesis 2, which examines the relationship between activities and learning outcomes, yielding a significance value of 0.000. Ince the probability threshold value is lower than 0.005 it results in a decision value (0.000<0.005), decision that the null hypothesis (H_a) is rejected, and the alternative hypothesis (H_0) is accepted. Based on data analysis calculations that outdoor learning methods implemented during social studies lessons influences both student activities and learning outcomes. Considering the perspective of student engagement and academic achievements, this method serves as a valuable reference or guideline for addressing groups that may exhibit deficiencies in terms of activities and learning outcomes.

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