Implementation of Outdoor Learning Method in Environmental Learning at the College of Teacher Training and Education, South Sulawesi, Indonesia

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Abstract: Students as sub-systems of the educationcommunityplay an important role in improvingenvironmentalquality. The purpose of thisstudyis to elaborate on the implementation of outdoorlearningmethods in environmentallearningatuniversities. From the results of interviews thatresearchers have done on lecturers in the subject of environmentalknowledge, the results show thatmoststudents, especiallystudents of biologyeducation, have lowunderstanding and environmental attitudes. The researchsubjectwas 50 studentsat the Biology Education Study Program STKIP MuhammadiyahBonewhotook the EnvironmentalKnowledge course. The outdoorlearning model includesthreematerials, namelyecosystems, naturalresources and pollution. This studyused a pre-experimental design with One group pre-test and post-testdesing. The data collection methodused in thisstudywas to use a questionnaire where the questionnaire wasused to see the effectiveness of the application of the model by comparing the results of the pretest and posttest assessment. The resultsshowedthatincreasingknowledge of studentecosystemsafter the application of outdoorlearningwas 0.214. Whileknowledge about naturalresourcesis 0.242 and knowledge about pollution is 0.144. sothatitcanbeconcludedthat the overalleffectiveness of outdoorlearning in the subject of environmentalknowledgeis effective with an averageincrease in studentknowledge of 0.2.

Keywords: ecosystems, environment,learning, natural resources, pollution

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I. INTRODUCTION

The urgency of environmental education in higher education is the development of environmental issues both locally and locally. Students as sub-systems of the education community play an important role in improving environmental quality. However, the burden of core courses is the focus of thought for students so that environmental material tends not to be considered (Stubblefield, J. and Bouma, J.J., 2019). By him, then environmental education in higher education must be designed in such a way and in accordance with the needs of students.

The main component in learning planning is the ability of lecturers. Lecturers have a strategic role in building student behavior, both in terms of knowledge, attitudes, and actions of student skills (Semionova, E., et al. 2018). Changes in knowledge, attitudes, and actions can be carried out mainly through examples, role models, real activities that can be tried, experienced, and endeavored by students that will benefit the lives of the students themselves and their environment (Haris, R., et al. 2018). Lecturers have wide opportunities and important roles in forming caring behaviors for quality and environmental sustainability. This is because the quantity and quality of the lecturer and student interaction is getting more intense.

Achieving the success of a learning is largely determined by the strategy built by the knowledge provider or lecturer who acts as the information delivery agent to students, namely students (Mustapha, S.S., 2018). The strategy built is based on the characteristics of the object or target of the lesson carried out by considering various things according to the needs of the student, so that the knowledge provided can be easily accepted and understood by students that is applied based on awareness and will (Haris, R., et al. 2018). Planning learning methods requires innovation that facilitates the transfer of information and knowledge. The learning process that develops direct experience and is not monotonous can produce active and effective learning (Altunoğlu, A., et al. 2018).

Referring to the importance of the student's growth and development, it is necessary to have an integrated learning model of learning (Outdoor Learning) with environmental subjects. The learning model is one of the innovations that can provide a vehicle for students in activities that suit their interests and needs. This learning model is also expected to provide a creative and innovative thinking pattern for lecturers in concocting

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the learning process so that students feel happy and do not feel bored with the atmosphere in the room and can deal directly with the surrounding environment (Gray, T., 2018).

Learning with an outdoor learning approach according to Nugroho, A.A. and Hanik, N.R., (2016), show various characteristics: Firstly, such as the development of the potential for students to find meaningful relationships between abstract ideas and practical applications in the real world context. , the concept is understood through the process of discovery, empowerment and relationships. Secondly, outdoor learning is an off-campus activity that is or in other outdoors so that it develops students' motivation in finding solutions to problems. Thridly, a broader learning environment allows students to think creatively compared to traditional classes.

The outdoor learning model is an alternative in emphasizing the learning process based on real facts and building meaning or impression in memory or remembering it. Students naturally develop in an integrated manner, so an outdoor learning is needed to develop students correctly. Intellectual, social, emotional, and physical aspects of students must be developed at the same time. The outdoor learning approach is a strategy that provides opportunities for students to develop their potential in a balanced, optimal, and integrated manner.

According to Purnomo, A., (2017) the concept of learning using the outdoor learning method has several advantages, namely: 1) Students are brought directly into the concrete world about planting learning concepts, so that students can not only fantasize about the material; 2) The environment can be used at any time, anytime and anywhere so that it is available at any time, but depends on the type of material being taught; 3) The concept of learning by using the environment does not require costs because everything has been provided by the natural environment; 4) Easy to digest by students because students are presented with material that is concrete rather than abstract; 5) Students will be more flexible in thinking and tend to think about the material being taught because the material taught has been presented in front of the eye (concrete).

This study outlines the analysis of the effectiveness of learning in outdoor learning in environmental learning at college. The results of the study are useful as an effort to develop the quality of learning in college.

II.METHOD
This study uses a quasi-experimental approach with the "pre-test and posttest" model. This approach was carried out twice, namely before and after the experiment. First, the measurement (pre-test) is done by using a questionnaire, then given treatment in a certain period of time using the method of outdoor learning. Then do the re-measurement (post-test) with the same questionnaire that has been done. Involving 50 students at the Biology Education Study Program STKIP Muhammadiyah Bone who took the Environmental Knowledge course. The outdoor learning model includes three materials, namely ecosystems, natural resources and pollution. The effectiveness of the application of the model is done by comparing the results of the pretest and posttest assessment.

III.RESULTS AND DISCUSSION
Outdoor Learning Learning Model
The components of the outdoor learning integration environment learning model developed consist of the following:

Learning Model Syntax
The syntax of the Environmental Learning Model with the Outdoor Learning Approach consists of six phases, namely: (1) Submission of learning objectives and motivation to students, (2) Submission of environmental education material, (3) Facilitating discussion to students, (4) Development of learning experiences , (5) Disclosure of problem solving, and (6) Drawing conclusions. Each phase describes the sequence of activities of lecturers and students in the learning process.

Social System
The social system in the Environmental Learning Model with the Outdoor Learning Approach describes the role of lecturers and students, the relationship between the two, and the norms recommended during the application of this model. The most prominent social system is the role of lecturers in appreciating students to realize how important environmental learning is. Students will focus on the explanation of the lecturer, so that one-way interactions from lecturers to students occur. In this case the lecturer acts as a facilitator and director. In addition, lecturers also play a role in directing students to form groups to discuss.

Another prominent social system is the activity of students in forming groups to find the search for knowledge resources, record and document the source of knowledge according to the location of outdoor learning. Group discussions that occur develop student learning experiences in exploring learning resources.

This discussion also allows students to develop their own knowledge and ideas, but in groups students must be able to draw conclusions about solving environmental problems discussed.

The interaction that occurs in the learning model with the outdoor learning approach is a combination of one-way, two-way, and multi-directional interactions. In phases one, two, and three, namely in the lecturer phase to convey the learning objectives and material delivery, one-way interactions from lecturers to students are more dominant. In phases four, five, and six there are interactions, both two-way between lecturers and students, also multi-directional interactions from lecturers to students, from students to lecturers, and students to other students. In detail the activities of lecturers and students at each phase of the Environmental Learning Model with the Outdoor Learning Approach can be seen in the following table 1.1.

TABLE 1.1 ACTIVITIES BY LECTURERS AND COLLEGE STUDENTS

Phase	LecturerActivity	Studentactivity
Phase1 Submission of Learning Objectives to Students	1. Explain the purpose of learning from learning activities. 2. Directing students to get involved and be active in activities.	1. Listening to lecturers' explanations. 2. Prepare yourself to receive the material to be delivered.
Phase 2 Submission of Environmental Education Materials	1. Discuss the material. 2. Submit a number of questions related to the material that has been given.	1. Listen and record important things from the material presented by the lecturer. 2. Answering the questions given.
Phase 3 Facilitation of Discussions to Students,	1. Give students the opportunity to form groups according to the target components to be studied. 2. Towards the stages of observation and assessment of outdoor learning methods, as well as making portfolios. 3. Provide opportunities for students to choose the location of outdoor learning.	1. Establish a working group in accordance with the national ecosystem to be studied. 2. Look at the stages and assessments submitted by the lecturer. 3. Form group discussions to determine the location of outdoor learning.
Phase 4 Development of Learning Experience	1. Directing students to compile portfolios in outdoor learning locations. 2. Directing students to find sources of knowledge in accordance with ecosystem components at the location of outdoor learning. 3. Provide opportunities for students to conduct group discussions related to portfolio planning. 4. Direct students to draw conclusions on the results of discussions and prepare presentation of portfolio results.	1. Look at the way the portfolio is prepared. 2. Searching for sources of knowledge, recording, and documenting sources of knowledge in accordance with ecosystem components at the location of outdoor learning. 3. Conduct group discussions related to portfolio planning. 4. Make conclusions on the results of the discussion and prepare a presentation on portfolio results.
Phase 5 Problem Solving Disclosures	1. Submit a number of questions related to the material that has been given. 2. Provide opportunities for other students to respond to their friends' answers	1. Students take turns expressing opinions about the solutions to the problems given. 2. Other students listen to the opinions of their friends and respond back by expressing their opinions
Phase 6 Conclusion	Concluding material.	Listen to the conclusions explained by the lecturer

Source: Results of Primary Data Processing (2018)

Principle of Reaction
The principle of reaction known as the principles of response is to observe students and provide enough. This means that the principle of reaction is related to how the lecturer cares for and treats students. The way the lecturer responds to stimuli that come from students can be questions, answers, responses, or other activities. In addition, lecturer support can be in the form of providing conditions, facilities, and learning resources for students.

Based on the description of the reaction principle above, the involvement of students as guides and facilitators in the Environmental Learning Model with the Outdoor Learning Approach is very important. Lecturers are needed in terms of: (1) creating learning conditions for students through disclosure of environmental problems in the location of outdoor learning, (2) facilitating students in collaborating to solve problems, (3) showing or providing learning resources for students.

In terms of observing students, as stated in the principle of reaction, it can be done not only by lecturers who are teaching, but also by some observers in the model of environmental learning with an outdoor learning approach. The results are expected that students feel the stimulus to be active in learning, conducive learning conditions, and intensive learning activities.

Supporting System
The support system for a learning model is that everything that allows the model to be applied can be in the form of facilities, infrastructure, learning materials / tools, and learning tools / media. The support system for the Environmental Learning Model with the Outdoor Learning Approach is basically the same as the other learning model support systems, which can be in the form of Learning Plans (RP) and learning devices and other learning tools / media. RP Environmental Learning Model with Outdoor Learning Approach combines lecturer-centered learning and student-centered learning and learning activities conducted outside the classroom or outdoor so that students are more active in exploring the environment. Learning devices in this learning model are in the form of learning modules developed. This learning module contains material about ecosystems, natural resources (SDA), and environmental pollution.

Instructional Impact
1). Mastery of PLH Teaching Materials
The environmental learning model with an outdoor learning approach developed for PLH learning is different from this learning model that is commonly used by lecturers so far. The thing that distinguishes is mutual learning and sharing among students in their groups. In this model also occurs the process of forming discussion groups to create a portfolio of environmental problems at the location of outdoor learning. If students have been able to make a detailed portfolio of environmental problems, facts, and causes and solutions to the problem, the material studied is well understood.
2). Development of Environmental Attitudes
The impact of instruction in learning PLH is also directed at the affective aspect. In particular this course requires the existence of an environmental attitude that grows on students after following this course. The arguments described by students both in class and in outdoor learning locations mean the growth of students' attitudes to participate in environmental protection.

Companion Impact
1). Self-learning ability;
Student's independent learning ability grows from the habits of students in solving problems given by lecturers. Lecturers always stimulate students to learn to start giving problems about the environment that must be solved by students.
2). Motivation to learn;
Through the provision of problems by lecturers to make students active to solve or solve environmental problems. This occurs in phase 2 in the syntax of the environmental learning model with an outdoor learning approach.
3). Ability to collaborate;
Student collaboration ability grows from the habit of solving environmental problems in outdoor learning locations according to the ability of each student. Students are not required to obtain answers that must be the same as their friends as in cooperative learning.
4). The ability to listen and express opinions;
The ability to listen and express opinions from students grows from giving the opportunity to each student to express his opinion about environmental issues. On the other hand, other students listened to the opinions of their friends who were talking.
5). Lecturer professionalism;

Lecturer professionalism will develop when the lecturers collaborate, both in preparing learning plans for fellow lecturers.

Description of student learning outcomes

Improving student learning outcomes is an embodiment of increasing environmental knowledge and learning module material. The thing that supports this is that in every learning module material is always integrated environmental knowledge with an outdoor learning approach. The results of the quantitative descriptive analysis as the SPSS output for the three modules are presented in the following tables and histograms;
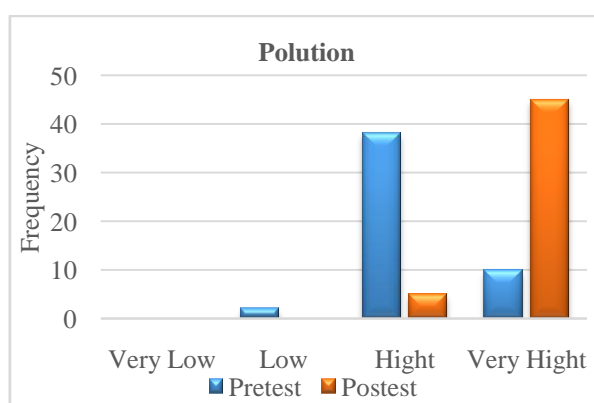
Pollution Material

Based on the results of the Pre-test on the pollution material, the students are given treatment or treatment in the form of group guidance using the outdoor learning method. Next is the post-test using a questionnaire. The aim is to measure the level of knowledge of students in learning outcomes after using the outdoor learning method, is there an increase after being given treatment before being given treatment. Below will be explained the results of the pre-test and post-test scores of students who were the subjects of the study after getting treatment or treatment that there was an increase in learning outcomes. like the table below:

1.2 TABLE OF POLLUTION

	PRETEST	POSTEST
Valid	50	50
Missing	0	0
Mean	0.7900	0.9340
Std. Error of Mean	0.01079	0.00931
Median	0.8000	0.9000
Std. Deviation	0.07626	0.06581
Variance	0.006	0.004
Range	0.30	0.20
Minimum	0.60	0.80
Maximum	0.90	1.00

Source: Results of Primary Data Processing (2018)

Based on the results of the assessment of the table above, the comparison of the results of the Pre-test and Post-test in the pollution material can be seen through the following graph:

Figure 1.1 Histogram Distribution Frequency of learning outcomes students about Pollution material.

Based on the results of the pretest questionnaire that the researcher has that the students' knowledge of pollution material has a value between 0.6 - 0.9, then the next action the researcher treats or treats students with group guidance activities using the outdoor learning method and can be seen from the given treatment increasing in accordance with the previous goal, namely the outdoor learning method can improve student

learning outcomes about pollution. Those who will be re-measured after the treatment or treatment are completed using a pest-test questionnaire which gets a value between 0.8 - 0.10.
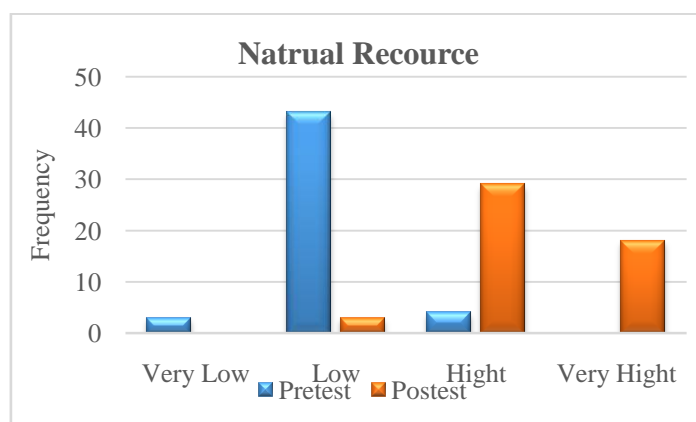
Material of Natural Resources
    Based on the results of the Pre-test on natural resource material, students are given treatment or treatment in the form of group guidance using the outdoor learning method. Next is the post-test using a questionnaire. The aim is to measure the level of knowledge of students about natural resources using the outdoor learning method, is there an increase after being given treatment before being given treatment. Below will be explained the results of the pre-test and post-test scores of students who were the subjects of the study after getting treatment or treatment that there was an increase in learning outcomes. like the table below:

Table 1.3 Natural resources

	PRETEST	POSTEST
Valid	50	50
Missing	0	0
Mean	0.5660	0.8080
Std. Error of Mean	0.01015	0.01587
Median	0.6000	0.8000
Std. Deviation	0.07174	0.11220
Variance	0.005	0.013
Range	0.30	0.50
Minimum	0.40	0.50
Maximum	0.70	1.00

Source: Results of Primary Data Processing (2018)

Based on the results of the assessment of the table above, the comparison of the results of the Pre-test and Post-test on natural resource material can be seen through the following graph:

Figure 1.1 Histogram Distribution Frequency of learning outcomes students about natural recource material.

    Based on the results of the pretest questionnaire that the researcher has that the student's knowledge of natural recource material has a value of between 0.4 - 0.7, the next action the researcher treats or treats students with group guidance activities using the outdoor learning method and can be seen from the treatment getting results which increases according to the previous goal, namely the outdoor learning method can improve student learning outcomes about natural recource. Those who will after the completion of treatment or treatment of students will be measured again using a pest-test questionnaire which has a value between 0.5 - 0.10.
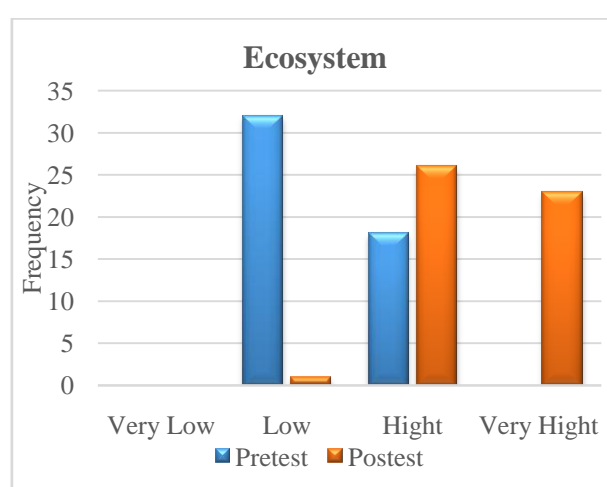
Ecosystem Material
    Based on the results of the Pre-test on the ecosystem material, the students are given treatment or treatment in the form of group guidance using the outdoor learning method. Next is the post-test using a questionnaire. The aim is to measure the level of student knowledge about ecosystems using the outdoor learning method, whether there is an increase after being given treatment before being given treatment. Below will be explained the results of the pre-test and post-test scores of students who were the subjects of the study after getting treatment or treatment that there was an increase in learning outcomes. like the table below:

Table 1.3 Ecosystems

	PRETEST	POSTEST
Valid	50	50
Missing	0	0
Mean	0.6280	0.8420
Std. Error of Mean	0.00859	0.01740
Median	0.6000	0.8000
Std. Deviation	0.06074	0.12304
Variance	0.004	0.015
Range	0.20	0.40
Minimum	0.50	0.60
Maximum	0.70	1.00

Based on the results of the assessment of the table above, the comparison of the results of the Pre-test and Post-test on the ecosystem material can be seen through the following graph:

Figure 1.1 Histogram Distribution Frequency of learning outcomes students about ecosystem material.

Based on the results of the pretest questionnaire that the researcher had that the student's knowledge of ecosystem material has a value of 0.5 - 0.7, then the next action the researcher treats or treats students with group guidance activities using the outdoor learning method and can be seen from the given treatment. increasing in accordance with the previous goal, namely outdoor learning methods can improve student learning outcomes about the ecosystem. Those who will after the completion of treatment or treatment of students will be measured again using a pest-test questionnaire which has a value between 0.6 - 0.10.

The results of this study are in accordance with the research produced by Derman, A., et al. (2016) that Outdoor Education Make Any Difference in Environmental Literacy. That is to know the effects of various teaching methods and activities, which are used in environmental education lessons. Comparing traditional teaching methods (lecture method), then using treatment with outdoor and indoor teaching methods. Based on the score after being given the treatment showed a significant difference in satisfaction, giving very positive feedback. so, understanding of the material of environmental knowledge in learning environmental education using group guidance with the method of outdoor learning.

IV.   CONCLUSIONS

Thusit can be concluded that there is a significant increasein student environmental knowledge between before and after being given group guidance treatment with outdoor learning methods. Knowledgeinquestionis knowledge about pollution, knowledge of natural resourcesandknowledge of ecosystems. Thusits hows that the outdoor learning method isable to improve students' under standing of learning environmental educationintea chertraining and education in Bone, South Sulawesi, Indonesia.

ACKNOWLEDGEMENTS

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