Outdoor learning method as an effort to improve the spatial thinking skills of students of geography teachers candidate in university of pgri palembang

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Abstract. This study aims to analyze the application of the Outdoor Learning Method in improving the spatial thinking skills of Geography Education students at the Palembang PGRI University on location and condition indicators. The research method used was Classroom Action Research. The subjects in this study were 27 students of geography education. The results of the analysis of research data indicate that the Outdoor Learning Method can improve students' spatial thinking skills at the concept of location which consists of two aspects, namely conditions and connections. This can be seen from the percentage of spatial thinking ability test results in the first cycle that got above 76 as many as 59.26% or 16 students. Whereas in the second cycle, the students got above 76 were 74.07% or 20 students. As a result, there was a significant increase from cycle I and cycle II of 14.81%. Thus, it can be concluded that the environment outside the classroom is a substantial source of learning and is a very important source of learning, especially to improve spatial thinking skills.

1. Introduction

In the learning process, the method is an important aspect so that students are able to understand what has been delivered by educators. The learning process should not only be done indoors, especially in geography learning which must apply theory to conditions in the field to provide direct experience of geographic phenomena. If they are directly involved in finding the subject matter, the knowledge they get will last longer when compared to when they get information just from listening or paying attention to the material that is provided by educators in class, thus students are expected to be able to interact in the learning process, so that independence and understanding of geographic concepts can be improved [1]. In the learning process, the method is an important aspect so that students are able to understand what has been delivered by the lecturer. The geography learning process should not only be done indoors or in the classroom. With learning outside the classroom, the learning process can be right on target and directly practice in the field. In addition, learning outside the classroom can foster the character of caring for the environment and developing the potential of students [2]. The choice of method should adjust the learning objectives, activities and initial knowledge of students, student character, material to be taught, number of students, and duration. The right method will produce results that match the learning objectives.

Spatial thinking skill is a characteristic in learning geography. Spatial thinking ability is one of the activities in the learning process of geography so that students are able to analyze the geosphere symptoms that occur in the surrounding environment. Spatial thinking is the most important part of daily life. [3] describe spatial thinking as a constructive combination of three mutually reinforcing components: the nature of space, the method that represents spatial information, and the process of
spatial reasoning. With spatial skills, it provides an opportunity for students to learn various disciplines and be associated with the real world through interactions with one another related to phenomena that exist on earth. In addition, geography is a science related to space so that spatial ability is one indicator of success in the learning process of geography.

However, students' spatial thinking ability is still low, it is seen from the score of courses related to the understanding of location and mapping that is still low, as happened in basic cartography courses because so far the learning is only done in the classroom/laboratories while learning outside of the classroom is rarely done. Therefore, it is necessary to apply appropriate learning methods with learning material so that learning objectives can be achieved. Previous research related to the characteristics of students' spatial abilities showed that it was known that the characteristics of students' spatial abilities from the cognitive assessment were for the criteria of remembering questions; students answered questions thoroughly, then for the criteria of understanding and applying the results decreased [4].

The Outdoor Learning Method is considered as a method that can hone students' spatial abilities. Outdoor learning provides an opportunity for students to learn the interdisciplinary of geography with other sciences. Based on these problems, suitable methods are needed to improve the spatial thinking of geography education students. One way is to apply the outdoor learning model. From a geographical perspective, outdoor learning has the potential to stimulate children's interest in the environment [5]. This allows children to know the area in which they live and to develop a sense of what is unique about their place. Outdoor learning drives a question, a critical approach to geography. Children are stimulated to ask questions, recognize and investigate patterns, and develop critical thinking skills. Being outside provides a real situation where geographical capabilities seem necessary and relevant. Outdoor learning encourages a critical foundation on which environmental care is based and can be used to integrate many elements of the main curriculum, including history, science, languages, and mathematics, especially geography.

Based on those problems, the researcher applies a method that is suitable for increasing the spatial thinking of geography education students by applying the outdoor learning model.

2. Methods

2.1. Location and Research Subjects

The research was conducted at the PGRI University of Palembang, at Ahmad Yani street, Lorong Gotong Royong Seberang Ulu II, Palembang City. The subject of the study was the even semester students 2018/2019 Learning Year of the Geography Education Study Program at the PGRI University of Palembang in the basic cartography courses, 27 students in total.

2.1.1. Research Procedure

This research is a type of Classroom Action Research. This approach is carried out to improve education through change, by encouraging lecturers to think about their own teaching practices, to be critical of these practices and to change them [6]. Following are the steps of this research:
Figure 1. Flowchart of Classroom Action Research Mode

In this Classroom Action Research, the factors under study or the dependent variable are students' spatial thinking ability using the outdoor learning method as an independent variable. This research was conducted at the University of PGRI Palembang in the even semester students (2) 2018/2019 academic year. Indicators of spatial thinking ability that are the focus of this study are location and condition measured using essay questions compiled to measure the success of students' understanding of the concept of location and condition.

This class action research was conducted in two cycles where in one cycle carried out in three meetings. The steps taken in each cycle are as follows:
1. Preparation
   Activities carried out at this stage are preparing learning tools, spatial thinking skills instruments, tools that will be used such as meters, GPS, rulers, cardboard, and maps of PGRI Palembang University which will be used in implementing outdoor learning.
2. Implementation phase
   In this implementation phase, the lesson is conducted the learning material about the simple mapping of the Palembang PGRI university environment by means of learning in class followed by making a simple map directly in the PGRI Palembang University environment.
3. Observation
   Observations are conducted openly by observing and recording the activities carried out by students during the learning process. This observation was carried out by two partner lecturers.

Some obstacles during the learning activities observed in cycles I and II include: because learning is done outside the classroom, there are many disturbances from other student activities that pass so that in explaining, the lecturer must increase his voice volume so that it can be heard by all students, the hot weather is also sufficient to become an obstacle because this learning is done at 01.00 pm.
4. Reflection
   Activities at this stage are discussions between supporting lecturers and partner lecturers/
observers regarding the course of learning that has been completed. The constraints found must be immediately sought for a solution and the existing deficiencies must be immediately corrected so that learning in the next cycle can be better in line with the target to be achieved.

3. Results and Discussion

Contextual learning can use real and existing media in the surrounding environment. Related to this, one method that can be used in learning is the Outdoor Learning method. It is a method that uses nature as a medium in the learning process. It is a learning method that provides a new atmosphere for students with the learning process in the wild, an effort to encourage students closer to the source of real learning. The method of teaching outside the classroom is an effort to get closer to the real learning resources, namely nature and society [7].

Outdoor learning invites students to study outside the classroom to see firsthand the conditions in the field so that students can learn the environment, especially those related to the concept of location and conditions. Spatial thinking skills can be improved after students learn directly outside the classroom when practicing basic cartography courses. Based on the results of the analysis of research data, it can be concluded that Outdoor Learning can improve the concept of location and conditions. This can be seen from the results of the analysis of the instruments in cycle one and cycle two. There is an increase in value for assessing the concept of location and conditions.

![Graph analysis results of students' spatial thinking skills per cycle](image)

Figure 2. Comparison graph of the value of critical thinking skills per cycle
In the first cycle, there were 16 students who got above 76 or 59.26% of the total number of students. In cycle II, students who got above 76 were 20 or 74.07%, so it can be concluded that there was an increase in the value of cycle I and II for the concept of location and conditions. The improvement at the end of this cycle was due to improvements made from the shortcomings that were seen in the first cycle of learning and more increased assistance to each group of students who were taking measurements in the environment around the campus and accurate location based on GPS so that obstacles experienced by students could be immediately resolved.

Based on the results of data analysis, it can be concluded that the method of outdoor learning can improve students' spatial thinking abilities on location and condition indicators. In general, curriculum materials tend to focus on maps as the world in and of themselves, rather than on relationships between what is represented in the map and external reality [8]. They rarely discuss the relationship between the mapped space and some larger frame of reference, for example, orienting the classroom map in relation to regional landmarks, to distant physical features (e.g., a mountain range). Therefore, learning outside of the classroom is needed which directly blends with the real conditions in the surrounding environment to practice understanding of the relationships between spaces based on the ones drawn on the map. Learning in the classroom becomes the basis for students' knowledge while learning outside the classroom will provide an experience of "learning by doing" learners acquire skills and abilities by having other knowledge from feeling, and direct interaction with nature and the environment at close range to guide performance and provide feedback [9]. In addition, outdoor learning methods can create a creativity, cognitive abilities, and understanding concepts [11] [12].

4. Conclusion

Based on the results of classroom action research and the discussion that has been explained, the conclusion is outdoor learning methods can improve the spatial thinking ability of geography education students at PGRI Palembang University on location indicators. This can be seen from the change in the value of students who meet the criteria of 59% in the first cycle and 74% in the second cycle or there is an increase of 14.81%. Thus, this method can be applied so that the learning process is better and can improve students’ spatial ability.

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