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Effect of Tsunami Monument Utilization of PLTD Ship Apung as a Source of Learning to Improve Students Understanding of Mitigation Earthquake and Tsunami Disaster

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Abstract. Tsunami Monument Floating PLTD Ship is a ship from the 2004 Aceh earthquake and tsunami, the ship that used to function as a power plant that fell to the coast after the Aceh earthquake and tsunami that occurred in 2004. After various repairs were carried out by the local government it was finally made as a tsunami monument and education center for the surrounding community. This study aims to analyze outdoor study methods and conventional learning methods. This research is a quantitative approach with a quasi-experimental method. The population in this study consisted of two classes in class XI of SMAN 6 Banda Aceh, where the study sample consisted of 33 students. The results showed, 1) there was an increase in understanding about earthquake and tsunami disasters to students after learning to use the outdoor study method using the Floating Monument PLTD as a learning resource, 2) there was an increase in understanding about earthquake and tsunami disaster mitigation using conventional learning methods by utilizing the Monument Floating PLTD Tsunami Ship as a source of learning, 3) there is a difference in understanding of earthquake and tsunami mitigation in students after learning between outdoor study methods and conventional learning methods in utilizing Floating Monuments PLTD learning Ship Floating sources.

Keywords: Tsunami Monument, Learning Resources, Earthquake and Tsunami Disaster Mitigation

INTRODUCTION ~ Education is a human need. Education always changes, developments and improvements in accordance with developments in all fields of life. Changes and improvements in the field of education that includes all components involved here both the implementers of education in the field (teacher competencies and the quality of educators), the quality of education, curriculum design, educational facilities and infrastructure and the quality of education, including in the methods and learning strategies that are more innovative. In order to educate the life of the nation, improving the quality of education is very important for sustainable development in all aspects of human life. National education systems must be developed in accordance with the needs and developments that occur at the local, national and global levels (Mulyasa, 2006). In recent decades the view of instructional instruction has shifted, changing learning patterns from teacher-centered patterns to student-centered or often called the constructivism approach.Related to the teacher's professional competence in the learning process and its relation to the use of learning resources, teachers who are creative, professional and fun must have a variety of concepts and ways to boost the quality of learning, among others by developing emotional intelligence (emotional quotation), developing creativity (creativity quotient) in learning, disciplining students with affection, arousing the desire to learn, solving problems, utilizing learning resources and involving the community in learning

(Mulyasa, E., 2009). Geography teachers can utilize and design certain environments as learning resources by adjusting them to the material in the school curriculum.

Utilization of the environment as a source of learning geography, namely: The existence of the natural environment can be used as a source of learning in learning geography can be done in several ways, namely bringing class into the environment means students are brought to the environment, through indirect observation, namely through a learning model, bringing the community or the environment into the classroom and utilize the environment as a source of learning verbally without presenting the environment (Ningrum, E., 2004).

Aceh Province is one part of the Republic of Indonesia which has great potential to be affected by the earthquake and tsunami, with an astronomical location 01^0 58' 37,2" - $6^0$04' 33,6" LU dan94^0 57' 57,6" - 98^0 17' 13,2" BTand geographically bordered by the sea, namely: the north and east bordering the Strait of Malacca and the west by the Indian Ocean. Geologically Aceh is traversed by two active plates in the world, Indo-Australia and Eurasia.

One of the major earthquake events that occurred in Aceh was the earthquake on December 26, 2004. The earthquake and tsunami fatalities in Aceh reached more than 237,448 people while the total was estimated at no less than 300,000. An earthquake that has a strength of 9.3 on the Richter Scale resulted in the devastated region of Sumatra, which was further exacerbated by the tsunami aftershocks that were still unfamiliar to the Acehnese people at that time (Tedjakusuma, G.I., 2008).

Geography is one of the disciplines that is felt to be appropriate in providing information, understanding of earthquake and tsunami disasters that can increase students' preparedness and reduce the risk of disasters for students. Basically, geography is the study of which studies do not only study living things, but inanimate objects which are symptoms on the surface of the earth with a major emphasis on troposphere, which means that every symptom on the surface of the earth is related to human interests (Kamil, Pasya., 2002). Phenomena and symptoms of disasters will have a profound effect on human life, disaster is one of the geographical studies, this is increasingly evidenced by the inclusion of disaster mitigation material in BC. 3.7 Analyze mitigation and adaptation to natural disasters by geography study on Curriculum 2013.

One source of learning that has the potential to be used by students in providing an understanding of the earthquake and tsunami disaster is the floating tourism tourist ship monument. The function of the monument is not made to commemorate a person or event that is considered important by a social group as

part of warning events in the past, but the monument also serves as education for the community and to increase knowledge and obtain various information

This floating PLTD ship was brought to Banda Aceh to supply electricity needs in the city. Because at the time of the conflict, electricity towers from PLN were torn down by irresponsible parties which caused electricity supply to be hampered. Aceh's powerful tsunami power can lift any object such as being lifted and carrying a floating PLTD ship from the port of UleeLheeu to the village of PungeBlang Cut. When a tsunami occurs, this ship is not spared from the waves, which drags it to the mainland which then afflicts whatever is underneath. After the tsunami, PLN intends to return this ship to the sea again, due to the condition of the engine not experiencing severe damage.

But the local government wants to make it a historical tour. Finally, PLN only revoked the power generating machines and this ship was finally made a tourist attraction. After the Banda Aceh city government freed land and building residents residing around the location of the ship, now the location of the Floating PLTD vessel monument has an area of about 2 hectares. Development continues to be done to beautify this tourist location. Such as the construction of a guardrail along the ship's location, the construction of a parking area, the construction of a park, the construction of a tsunami monument containing records and photos after the tsunami occurred at that time, the government also replaced the contents of the floating PLTD ships with various educational media about the tsunami disaster. carried out with the aim that the floating PLTD ship became a center for tsunami education for the community.

From the discussion above, the problem formulation includes: 1) What is the effect of the outdoor study method on increasing students' understanding of earthquake and tsunami disaster mitigation by utilizing the Floating Monument PLTD Ship Floating Monument as a learning resource? 2) What is the effect of conventional learning methods on increasing students' understanding of earthquake and tsunami disaster mitigation by utilizing the Floating Monument Tsunami Ship PLTD as a source of learning? 3) Is there a difference in the increase in students' understanding of earthquake and tsunami disaster mitigation between the outdoor study method and the conventional learning method in utilizing the Tsunami Monument of the Floating PLTD Ship as a source of learning?

METHOD

The study was conducted using quantitative descriptive with quasi experimental methods. Quasi experimentation is a type of research that researchers limit the influence and control on the selection of research participants. The design of this study has a control group but can not function fully to control the external variables that affect the

implementation of the experiment (Levy, Y, dan Timothy J. E., 2011).

RESULTS AND DISCUSSION

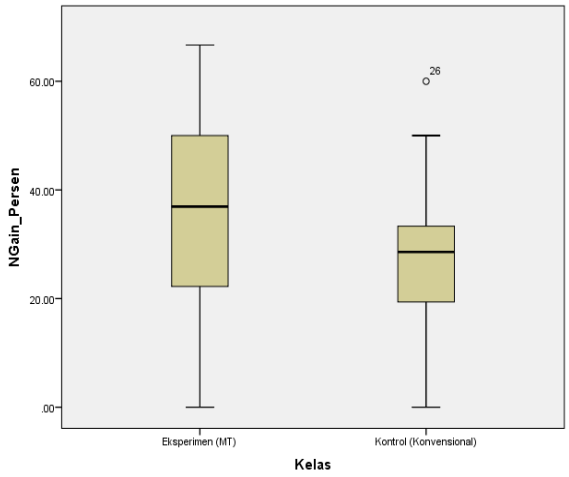
Based on the results of the hypothesis test showed that both the experimental and control classes both experienced an increase in students' understanding of earthquake and tsunami disaster mitigation after being given treatment. In testing Hypothesis 1, the class that applies the outdoor study method can be seen that there are differences in understanding of earthquake and tsunami disaster mitigation of students before being given treatment, the average value obtained is 64.66 and after being given treatment becomes 78 with an average percentage increase of 36.05%. The average Gain value obtained in the experimental class is 0.36 which belongs to the medium category.

In hypothesis 2, the class that uses conventional learning methods can be seen the average value before being given treatment is 44 and after being given treatment it becomes 60 with an average percentage increase of 28.12%. The average Gain value obtained by the control class is 0.28 which is included in the low category.

Learning by using conventional learning methods can increase understanding of earthquake and tsunami disaster mitigation by giving students indirect experience but the improvement obtained by classes using conventional learning methods is not comparable to classes that visit directly to the Tsunami Monument Ship PLTD Apung.

In hypothesis 3, namely the difference in students 'understanding of earthquake and tsunami disaster mitigation between the experimental class and the control class by comparing the posttest scores of each class, the results obtained were in the form of differences in students' understanding of earthquake and tsunami disaster mitigation between the experimental class compared to the control class, where the class the experiment was superior with an average posttest score of 78 while the control class got a value of 60. The average gain in the experiment was 0.36 in the medium category, for the control class the gain in the score was 0.28 in the low category.

The percentage increase in the average experimental class was 36.05%. while the control class was 28.12%.



By using the outdoor study method students gain direct experience that cannot be created in the classroom. This confirms the theory of Dale Cone's Exposure. People will generally remember 10% of what they read 20% of what they hear 30% of what they see 50% of what they hear and see, (Tedjakusuma, G.I., 2008). Direct experience will activate the senses of students in a congress compared to conventional learning which only activates the sense of sight and sense of hearing and is carried out in the classroom, this will have an influence on the reception of teaching content or messages.

CONCLUSION

There is an increase in understanding of earthquake and tsunami disaster mitigation for students after learning in the experimental class using the outdoor study method by utilizing the Floating Monument Tsunami Ship PLTD as a learning resource. This shows that the outdoor study method influences students' understanding of earthquake and tsunami disaster mitigation. 2) There is an increased understanding of earthquake and tsunami disaster mitigation in the control class that uses conventional learning methods by utilizing the Floating Monument Tsunami Ship PLTD as a learning resource. This shows that conventional learning methods affect the understanding of earthquake and tsunami disaster mitigation in students. 3) There is a difference in understanding of earthquake and tsunami disaster mitigation in students after learning between the experimental class using the outdoor study method and the control class using conventional learning methods in utilizing the Tsunami Monument Ship PLTD Floating learning source. Classes that use outdoor study methods are better at increasing understanding of earthquake and tsunami disaster mitigation in students compared to classes that use conventional learning methods.

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