Experiential Learning Methods to Increase Knowledge of Landslide Disaster Mitigation

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ABSTRACT

Indonesia has a diverse topography with rainfall intensity ranging from low to high. In addition, the density of the population living in hilly areas is also increasing which can be an illustration that the country of Indonesia has a high potential for landslides with the threat of economic, social and even loss of life. Galengdowo is a village in Wonosalam District, Jombang Regency, East Java Province which is at the foot of Mount Anjasmoro which has experienced several landslide disasters. This study aims to determine the effectiveness of the experiential learning method for increasing knowledge of landslide disaster mitigation. The sample of this research was 24 third grade students of SD Negeri 2 Galengdowo, Wonosalam. The data analysis technique used is the Paired Samples t-Test. The results of the analysis show a value of $t = 14{,}100$ with $p = 0.00$ ($P < 0.05$), which means that there is an increase in knowledge of the third graders of Galengdowo 2 Public Elementary School before and after being given the experiential learning method related to landslide disaster mitigation.

Keywords: Disaster; Experiential Learning; Land Longitudinal; Mitigation

INTRODUCTION

Indonesia is one of the countries that is prone to disasters both geographically, geologically and socio-demographically. Geographically, Indonesia is an area that consists mostly of sea and is also located right between the equator so that Indonesia is heavily influenced by a tropical marine climate (Daljoeni, in Fernalia, 2023). The tropical marine climate conditions make rainfall in Indonesia relatively high, making it vulnerable to floods due to high rainfall and tidal floods due to sea tides, as well as landslides due to rain in the highlands (Lubis, in Fernalia, 2023). Overall, Indonesia is a country with a tropical climate. The tropical climate has two seasons, rainy and dry seasons, with the characteristics of having more rain intensity, having high mountains on several major islands.

Every season also has a positive impact and a negative impact. The rainy season can provide blessings for people who may have a clean water crisis during the dry season, and can also reduce the impact of forest fires that often occur in Indonesia. However, some areas are also prone to landslides due to frequent rains. This is because during the long dry season, the soil will dry out and form cracked cavities or pores. During the rainy season, rainwater will enter and seep into the cracked soil and fill the voids, causing soil shifts to occur. The shifting soil causes soil erosion and then landslides. Not

only that, the piles of garbage are out of place, or the heavy weight that is at the edge of the cliff will also result in an avalanche (Jesita & Wahyuni, 2023).

In recent years, many natural disasters have occurred in Indonesia. The National Disaster Management Agency (BNPB) reported that there were 3,544 natural disasters in Indonesia that occurred throughout 2022. Floods were the most frequent natural disasters last year, namely 1,531 incidents. Extreme weather is also a frequent natural disaster that occurred throughout last year reaching 1,068 incidents. After that there were landslides which recorded 634 incidents (BNPB, 2022).

Galengdowo is a village in the Wonosalam District, Jombang Regency, East Java Province which is at the foot of Mount Anjasmoro. In December 2022, a landslide disaster occurred in Galengdowo Village, Wonosalam District as a result of heavy rains causing the shoulder of the road in the village to collapse. It is known that the shoulder of the road that collapsed was 15 meters long and three meters high. The landslide also had an impact on the disconnection of the residents' water pipes and the landslide almost closed the entire road so that temporarily only two-wheeled vehicles could pass. Several efforts to handle this have also been carried out by community service work and the Jombang District Government (Achmad, 2022).

From the occurrence of landslides it can be concluded that landslides occur in mountainous areas, hills, and densely populated activity centers. Landslide disaster is also a serious threat to society which can cause damage to public and private property, economic loss to loss of life. To reduce risks or losses to humans, knowledge and understanding of preparedness skills are needed to prevent, detect and deal with various kinds of disasters earlier, especially in places prone to natural disasters (Muslikah & Suwarno, 2022). One of the efforts that can be made in dealing with landslides in Galengdowo Village, Wonosalam District is to provide counseling using the experiential learning model. Just as with the contextual learning process that connects and involves students with the real world, this model also emphasizes the connected knowing model (connecting knowledge with the real world), thus learning is considered an integral part of life.

Learning that is integrated with disaster mitigation is one of the efforts to develop the soul (character) so that you have disaster preparedness (Saraswati et al., 2021). The experiential learning model provides opportunities for students to experience success by giving students the freedom to decide what experiences they focus on, what skills they want to develop and how they conceptualize from the experiences they experience (Wulandari et al., 2023) . By implementing the experiential learning method, students are able to understand and apply information about disaster management when the disaster in Galengdowo Village occurs because it is based on their experience after being given counseling.

Based on the explanation above, the researcher is interested in examining the effectiveness of giving experiential learning methods to students to increase knowledge of landslide disaster mitigation in Galengdowo Village. The provision of this experiential learning is also supported by using the MenTaL module (Knowing Landslides) which aims to provide elementary school students with knowledge related to landslides, as well as the need to be self-aware of natural disasters. The hope is that the provision of this experiential learning method can equip students at Galengdowo 2 Public Elementary School Wonosalam District, regarding how to prevent and prepare themselves when a landslide or natural disaster occurs.

METHOD

This research uses experiential learning method with use module MenTaL (Landslide Recognition) which given to grade 3 students at Galengdowo 2 Public Elementary School Wonosalam, totaling 24 student. Stages in this research consists of :

1. Stage Preparation

    Stage preparation done through a number of stage, that is with carry out (1) Observation, (2) Manage implementation permits and MoU, (3) Socialization program to school partners that is School Base Country 2 Galengdowo, (4) Preparation materials mitigation landslide disaster.

2. Stage Implementation

    In this stage, the activity carried out is to provide knowledge of landslide disaster mitigation with the experiential learning method which is supported by the use of the module MenTaL (Landslide Recognition) which is given to grade 3 students at Galengdowo 2 Public Elementary School Wonosalam. The material provided includes the definition of landslides, causes of landslides, signs of landslides, important things to do when a landslide occurs, and landslide prevention. In addition, the students were also given ice breaking and interesting games.

3. Stage Evaluation

    At the evaluation stage, the instruments used were given a pre-test as an initial evaluation and a post-test as a final evaluation. In providing evaluations, researchers also carried out follow-up material on landslides using the "Alert Bag". The standby bag aims to evaluate students' understanding of important items that must be carried when a landslide occurs.

The data analysis used in this research is the Paired Sample t-Test. The t-test with the Paired Sample t-Test is used to evaluate certain treatments for the same sample in two different periods (Pramana, 2012). So that from this treatment two different types of sample data will be obtained, namely pre-test data and post-test data. The pre-test and post-test data that have been obtained are then tested for normality to find out that the data obtained is normally distributed. The normality test used is Kolmogrov Smirnov.

RESULT

This experiential learning method is followed by all third grade students of Galengdowo 2 Public Elementary School Wonosalam. The implementation of the activities carried out consisted of six sessions, namely:

a. Session 1: Building rapport between researchers and students through introductions and giving pre-tests

b. Session 2 : Doing *ice breaking*

c. Session 3 : Providing materials for landslides disaster

d. Session 4 : Giving games for group division

e. Session 5 : Follow up on the material explained by sticking it "Alert Bag"

f. Session 6 : Giving a post-test and giving souvenirs.

The purpose of this study is to increase students' knowledge regarding landslide disaster mitigation. All grade 3 students at SD Negeri 2 Galengdowo looked very enthusiastic while participating in each learning session related to landslide disaster mitigation. This can be seen from the open attitude of the students when welcoming the presence of researchers in class by returning greetings in a loud voice. The students also seemed enthusiastic when expressing their opinions and answering questions posed by the research team. The students also looked enthusiastic while participating in the game until the end of the event. When carrying out the activity of sticking important items in the standby bag, the students enthusiastically participated in the activity starting from forming groups, taking turns sticking pictures on the blackboard.

DISCUSSION

The pre-test and post-test data that have been obtained are then tested for normality using the one sample Kolmogrov Smirnov test. According to Santoso (2014), the data is said to be normally distributed if the sig. greater than 0.05. The following table shows the normality test for pre-test and post-test data:

One-Sample Kolmogrov Smirnov Tets

Kolmogrov-Smirnov Z	.156
Asymp. Sig. (2-tailed)	.134

Based on the SPSS output table, it is known that the significance value of Asymp. Sig (2-tailed) is $0.134 > 0.05$. So it can be concluded that the data is normally distributed. Thus, the assumption of normality is met.

Test Homogenity of Variance

Bases on Mean	.002
Based on Median	.006

Based on the SPSS output table above, it is known that the Sig. based on the mean for the pre-test and post-test results is $0.002 < 0.005$. This means that the variance of the pre-post data is not the same (not homogeneous).

Paired Samples Statistics

		Means	N	std. Deviation	std. Error Means
Pairs 1	Pre Test	5.75	24	1.359	.277
	Post Test	9.13	24	.612	.125

Based on the results of the output above, it can be seen that the Pre Test value obtained the Mean of 5.75. As for the Post Test score, the Mean is 9.13, meaning that descriptively there is a difference in the Mean between the Pre Test and the Post Test results.

According to Singgih Santoso (2014), Guidelines for decision making in the paired sample t-test are based on a significance value (Sig.) If the value of Sig. (2-tailed) < 0.05, then HO is rejected and Ha is accepted. 2. Conversely, if the value of Sig. (2-tailed) > 0.05, then HO is accepted and Ha is rejected. SPSS output results are as follows.

Paired Samples Test

| | | | | | Paired Differences | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	Df	Sig. (2-tailed)
Pair 1	Pre Test - Post Test	-3.375	1.173	.239	-3.870	-2.880	-14.100	23	.000

Based on the "Paired Samples Test" output table above, it is known that the t value is 14,100 with Sig. (2-tailed) is 0.000 <0.05, then HO is rejected and Ha is accepted. So it can be concluded that there is an average difference between the learning outcomes of the Pre Test and Post Test, which means that there is an influence of experiential learning in increasing disaster mitigation knowledge in third grade students of Galengdowo 2 Public Elementary School Wonosalam.

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