

# ELEMENTARY SCHOOL CHILDREN'S BEHAVIOR RELATED TO PREPAREDNESS IN TSUNAMI DISASTER EVACUATION AS A RESULT OF EDUCATION THROUGH "ECAMI" ANIMATION VIDEO

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## ELEMENTARY SCHOOL CHILDREN'S BEHAVIOR RELATED TO PREPAREDNESS IN TSUNAMI DISASTER EVACUATION AS A RESULT OF EDUCATION THROUGH "ECAMI" ANIMATION VIDEO

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### Abstract

The hazard and impact of catastrophes extend to people of all ages, including young ones. Children are a group that is vulnerable to calamities, so it is necessary to make attempt to alert children. One of these attempts is providing education on alertness in tsunami evacuation to elementary school children using the animated video ECAMI. The objectives of this research were to determine the effect of education through the animated video ECAMI about readiness in tsunami evacuation on the behavior of elementary school children. The research design was a quasi-experimental with pre-post test design with the control group. The research sample amounted to 44 people consisting of 22 people in the intervention group and 22 in the control group. The sampling technique used is simple random sampling. Analysis using t-test within  $\alpha \leq 0.05$ . The results of the analysis showed there was a difference in behavior with a *p-value* of 0.000. The educational animation video ECAMI can improve the behavior of readiness in tsunami evacuation. It is recommended to use this animated video in order to the elementary school children can improve preparedness for tsunami evacuation.

**Keywords:** Tsunami, Evacuation, Behaviour, Animated Video, Elementary School Children, Preparedness

### INTRODUCTION

Disaster is any event that causes damage, ecological disturbance, loss of human life, or deterioration of health or health services on a certain scale that requires a response from outside the affected community or area (World Health Organization, 2018). Some countries that are prone to disasters include Japan, Turkey, Mexico, Pakistan, El Salvador, India, Ecuador, and Indonesia. Japan is located in the ring of fire area which makes Japan the country with the most earthquake records and the most frequent tsunamis. Besides Japan, Indonesia is also a country prone to disasters. Indonesia is located at the confluence of 3 plates, namely, Indo-Australia, Eurasia, and the Pacific. The meeting of these plates is what causes regions in Indonesia to be prone to natural disasters. Among them are prone to earthquakes, tsunamis,

and volcanic eruptions along the ring of fire area from <sup>26</sup> Sumatra, Java-Bali-Nusa Tenggara, North Sulawesi-Maluku, to Papua (BNPB, 2016).

Bengkulu Province is one of the provinces that is also prone to disasters. This province is located on the southwest coast of Sumatra Island which is directly opposite the Indian Ocean. The process of continuous tectonic <sup>25</sup> movement can cause Bengkulu Province, especially Bengkulu City to have a high risk of earthquake and tsunami disasters. Data from <sup>25</sup> the Bengkulu City BPBD, states that many schools in Bengkulu which are located on the coast are vulnerable to earthquakes and have the potential for a tsunami. They are SMP Negeri 12, SD Negeri 38, SD Negeri 04, SMP 07, and SD Negeri 08 (BPBD Bengkulu City, 2020). Based on the Indonesian Tsunami Catalog Per Region Year 416-2018, from 1770 - 2020 there have been 8 earthquakes that caused a tsunami in Bengkulu. The most recent earthquake that ever occurred in Bengkulu was on November 29, 2020, with a magnitude of 5.1 (BMKG, 2019).

The large number of victims caused by the earthquake & tsunami disaster was due to a lack of knowledge about disasters and preparedness in tsunami evacuation. Knowledge about disaster and preparedness can not only be obtained from schools but can also be obtained through informal education. In addition, knowledge of tsunami evacuation routes is also important for community safety. The existence of a tsunami evacuation route, it is expected to minimize losses and the number of victims that can be caused by the tsunami disaster. The raised awareness of disasters and tsunami evacuation readiness, it is necessary to provide education to the public. Family is one part of society that consists of a husband, wife, and children. Based on Law Number 24 of 2007 <sup>16</sup> Article 26, children are included in groups that are vulnerable to disasters (Law of the Republic of Indonesia Number 24 of 2007, 2007). Research conducted by Sabri (Emami, 2015), explains that most elementary school students have low knowledge of disaster preparedness.

One of the efforts to provide <sup>15</sup> education itself can be through audio-visual media (Lestari et al., 2019). Audio-visual media is media that is a combination of audio and visual or commonly called hearing-view media (Saparwati et al., 2020). A study revealed that the highest level of absorption of the message conveyed came from visual and audio messages (93%) while only 7% of the writing and 90% of one's learning outcomes were obtained through the sense of sight (Anggrainy, 2016). One type of audio-visual media is animation because there is the movement of images and sound.

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Research conducted by Meidiana (2018), entitled <sup>19</sup> *The Effect of Education through Audio Visual Media <sup>31</sup> Knowledge and Attitudes of Overweight Adolescents*, it was found that the results of the Wilcoxon rank test statistical test on the pre-test and post-test knowledge obtained a p-value of 0.003 this means that there is an effect of education through audio-visual media on knowledge and for an attitude p-value of 0.001 this means <sup>21</sup> that there is an influence of education through audio-visual media on adolescent attitudes before and after being given education at SMP Negeri 04 Bengkulu City in 2018. The results of another study conducted by Saparwati (2020), with the title *Increased Knowledge of Disaster Preparedness with Animated Videos for School Age Children* on the results of statistical test analysis using Wilcoxon <sup>3</sup>, obtained a z value of -5.712 with a p-value of 0.000. It can be seen that the p-value of  $0.000 < (0.05)$ , indicates that there is a significant difference between knowledge of disaster preparedness before and after being given learning using audiovisuals to students of SMA Tunas Patria Ungaran.

Based on the previous description, it can be seen that there is an effect of education through animated videos on the behavior of elementary school children regarding disaster preparedness. Previous research related to education through animated videos has been widely studied, but research on the effect of education through animated videos on the behavior of elementary school children regarding preparedness in tsunami evacuation has not been widely studied. This is the basis for conducting research on the behavior of elementary school children related to readiness in tsunami evacuation as a result of education through animated ECAMI videos.

## **METHOD**

### **Research Design and Subject**

Jenis penelitian yang digunakan merupakan penelitian kuantitatif dengan pendekatan *quasi eksperimen* menggunakan rancangan *pre-test and post-test with control group design*. Penelitian ini dilaksanakan pada bulan maret sampai mei 2021. Penelitian dilakukan pada SD yang termasuk ran bencana yaitu SD Negeri 38, SD Negeri 04, dan SD Negeri 08 Kota Bengkulu. <sup>22</sup> sampel diambil dengan menggunakan teknik *Simple Random Sampling*, sebanyak <sup>27</sup> 44 responden yang terdiri dari 22 kelompok kontrol.

### **Instruments and Data Analysis Procedures**

Data were first obtained, and then T-paired and T-Independent analyses were performed on them.

## FINDING

### 1. Overview of Respondents Characteristics

Numb.	Variable	Group	
		Intervention	Control
1	<b>Age</b>		
	Mean	11	11,09
	Min	10	10
	Max	12	12
	SD	0,816	0,750
	SE	0,174	0,160
	CI 95%	10,64;11,36	10,76;11,42
2	<b>Gender</b>		
	Men	11 (50%)	12 (54,5%)
	Women	11 (50%)	10 45,5%)

### 2. The Difference in Average Behaviour

Behaviour Variable	Mean	SD	p-value in group	p-value between group
	<b>Pre-Intervention</b>			
Intervention	74,09	4,994		0,726
Control	74,64	5,178		
<b>Post-Intervention</b>				
Intervention	92,45	5,343	0,000	0,026
Control	87,64	8,180	0,000	

The results of the pair t-test statistic show that the p-value in the intervention group is 0.000 (p-value 0.05), which means that there are differences in the average knowledge, attitudes, and actions before and after the intervention and at the time of the intervention. The control group obtained a p-value of 0.000 (p-value 0.05) meaning that there was a difference in the average attitude before the intervention was given.

In comparison between the two groups based on the results of the independent t-test, the p-value of 0.000 (p-value of 0.05) means there is a difference in the average value of knowledge between groups after the intervention. When compared between the two groups based on the results of the independent t-test, it shows a p-value of 0.026 (p-value 0.05), meaning that there is a difference in the average value of attitudes between groups after the intervention. When compared between the two groups based on the results of the independent t-test, the p-

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value of 0.000 (p-value 0.05) means that there is a difference in the average value of the actions between groups after the intervention. The intervention provided was in the form of education through the animated video ECAMI.

#### **DISCUSSION**

The results of this study indicate that there is a difference in the average difference in attitudes between groups of 10.273, in the intervention group the average increase is 18.36, while in the control group the average increase is 8.09. This means that there is an increase in the attitude value after being given intervention in the intervention group, which means that there is an effect of education through the animated video ECAMI on changes in children's attitudes about preparedness in tsunami evacuation with a p-value of 0.000 (p-value = 0.05). This is in line with research conducted by Harsismanto (2019), which informed that there was an effect of education through video media on increasing children's attitudes toward preventing diarrhea from 52.67 to 80.93, an increase of 28.26 (p-value 0.000). Another study conducted by Lingga (2015), also informed that there were differences in children's attitudes before and after being given an intervention using video media (p-value = 0.000).

The results of this study also indicate that the initial attitude of the respondents in the intervention group is in the positive category with an average value of 74.09 and an SD of 4.994. Children's positive attitude towards tsunami disaster preparedness can be shown by realizing the importance of being prepared for tsunami disaster prevention. Stimulus Organism Theory (SOR) explains that behavior can change only if the stimulus (stimulus) given really exceeds the original stimulus. The stimulus provided can be accepted or rejected. If the stimulus is received, it means that there is attention from the individual. After that, the stimulus will be processed so that there is a willingness to act because of the stimulus it has received (attitude) (Notoatmodjo, 2010)

Efforts to improve children's attitudes about preparedness in tsunami evacuation need to be carried out by providing education about preparedness in tsunami evacuation using animated video media. Videos can increase children's knowledge which has a positive impact on attitudes that are formed. Changes in attitude are influenced by factors of knowledge and belief obtained from sensing results, one of which is obtained during the

learning process. An attitude that is based on knowledge will be more lasting than an attitude that is not based on knowledge.

The desired attitude in this study is the attitude at the first level, namely receiving. Receiving means that the person is willing to pay attention and accept the stimulus given by the object. The attitude of the first level can be seen in the desire of children to receive education about preparedness in tsunami evacuation. Changes in attitude at the first level in this study are easier to change because the material provided in this study is close to their daily lives and uses online methods so that it can be easily accessed by respondents

### **CONCLUSIONS AND SUGGESTIONS**

Based on the results of this study, proves the educational intervention through the animated video ECAMI on the behavior of elementary school children regarding preparedness in tsunami evacuation. It is recommended to use this animated video in order to the elementary school children can improve preparedness for tsunami evacuation.

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