

THE EFFECT OF USING COMIC MEDIA TOWARD STUDENTS PREPAREDNESS IN ENCOUNTERING LANDSLIDE DISASTER AT SDN 1 SUKAWANA KARANGASEM REGENCY

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Abstract

The aim of this research is to know the effect of educational learning through comic media towards elementary students' awareness in encountering disaster. The type of this research is Pre-Experimental Design with One-Group Pretest-Posttest design using total sampling. There are 57 samples and the data collection was done by fill the questionnaire of landslide disaster preparedness. The result is showing the average of awareness before the students was given an awareness education is 69,68 and after they were given the education the average of awareness is 76,63 with difference average before and after treated is 6,94. Hypothesis testing is implemented by paired t statistic test with p-value of 0.001 ($\alpha = 0.05$). It can be concluded that, there are effect occurred of the awareness education given to the student through comic media in SDN 1 Sukawana.

Keywords: Landslide disaster; Preparedness; Comic media

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1. Introduction

The Indonesian archipelago is located between the continents of Asia and Australia, and is at the confluence of four tectonic plates of the world, namely the Euro-Asia plate in the north, the Indo-Australian plate in the south, the Philippine plate and the Pacific Ocean in the east. The meeting of the four plates creates an interaction that affects the seismotectonic conditions of Indonesia's territory, one of the consequences of making most areas in Indonesia have a high level of vulnerability to natural disasters such as volcanic eruptions, earthquakes, tsunamis, floods, landslides, and so on ⁽¹⁾.

The incidence of disasters from 2012-2016 in Indonesia has increased the incidence of disasters by 35%. In 2016 there were 2,369 disasters, 2015 (1,732 disasters), 2014 (1,967 disasters), 2013 (1,674 disasters), and 2012 (1,811 disasters). Of the total 2,369 disaster events in 2016, around 92% were hydrometeorological disasters which were dominated by landslides, floods and tornadoes ⁽¹⁾.

Landslides are annual disasters that always hit parts of Indonesia. Landslides are events of sudden or gradual movement of large amounts of material in the form of soil or rock due to the disruption of the stability of the material that makes up the slopes. The characteristics of Indonesia's territory consisting of high and low plains, high rainfall and being in a series of "ring of fire" make Indonesia prone to landslides ⁽²⁾.

According to 2016 BNPB data, in Indonesia there was an increase in landslides by 19% in 2016, namely as many as 662 incidents. The high vulnerability of landslides causes landslides to become disasters that cause many victims, namely 186 people died, 600 people were displaced and caused damage to 191 houses and public facilities. However, currently there are still 40.9 million people who are still exposed to the dangers of landslides or live in areas prone to landslides ⁽³⁾.

The occurrence of landslides can have a very large impact on both life and the environment. If a landslide occurs in an area that has a high population density, the resulting fatalities will be very large, especially landslides that occur suddenly without starting any signs of landslides ⁽⁴⁾. Landslides can also cause economic losses due to damage to buildings, public infrastructure and damage to land, as well as leave psychosocial impacts on the community such as the emergence of trauma, stress and mental disorders in the community ⁽²⁾.

Based on data from the Center for Volcanology and Geological Disaster Mitigation (PVMBG), there are 918 landslide-prone locations scattered in various regions in Indonesia ⁽⁵⁾. Bali Province is one of the areas prone to landslides. Of the nine districts / cities, five districts in Bali are prone to landslides including Buleleng, Tabanan, Klungkung, Singaraja and Bangli. In 2017 Bangli Regency was the area that experienced the most landslide incidents in Bali. 34 times in February

2017, which occurred in a number of points in Kintamani District, Bangli Regency, namely Songan Village, Awan Village, Sukawana Village, and Subaya Village, which resulted in 16 fatalities, seven people suffered serious injuries, six people suffered minor injuries, 528 people were displaced and material losses reached 69 billion ⁽⁶⁾.

The many impacts of landslides that have occurred have reminded various parties to always improve their preparedness for landslide hazards, in order to reduce the impact of these disasters. Preparedness is a series of activities carried out to anticipate disasters through organizing and through appropriate and efficient steps. (7). Preparedness is a part of the disaster management process, which basically consists of all efforts and activities carried out before a natural disaster occurs to quickly and effectively respond to the situation / situation during a disaster and immediately after a disaster ⁽⁸⁾.

The government has made efforts in overcoming landslide disasters such as providing warnings about weather conditions, monitoring rain intensity, and mapping areas that are prone to landslides (4). One of the efforts made by the government in terms of disaster preparedness within the scope of schools, namely the Implementation Strategy for Disaster Risk Reduction in schools as stated in circular No.70a / MPM / SE / 2010 includes integrating disaster risk reduction knowledge into the school curriculum ⁽⁹⁾.

Children are one of the vulnerable groups most at risk of being affected by disasters. The vulnerability of children to disasters is triggered by a limited understanding of the risks around them, which results in the absence of disaster preparedness (10). Knowledge and learning about disaster risk reduction must be provided to all levels of society including children in schools ⁽¹¹⁾.

At the age of seven to 11 years the child is in the final period called the elementary school age which is the concrete operational age period. At this time, late age children like to play constructively, explore, collect things, play sports and entertainments such as reading comics, listening to radio, watching movies / television, and fantasizing. Children can already answer and solve various problems, but still with the help of concrete objects ⁽¹²⁾.

Learning about disaster risk reduction in the school environment will be more effective if its delivery is assisted by using the media. The use of media in learning is to help accelerate students in understanding the material presented (13). One of the visual-based media that is suitable for providing information related to landslide disaster preparedness is comics ⁽¹⁴⁾.

Comics are a form of silent visual media in the form of images modified with writing. Comics are an arrangement of images in a sequence, intended to facilitate the delivery of messages and create an aesthetic value in their appearance so that learning

through comic media will be more attractive among children (15). Edgar Dale's theory known as the Cone of experience states that 75% of a person's learning experience is obtained through the sense of sight (eyes), 13% through the sense of hearing (ears), and the rest through other senses. Learning using comic media composed of pictures and writing can activate the sense of sight so that children's understanding of the material presented will be easier and more interesting ⁽¹⁶⁾.

This study aims to determine the effect of the use of comic media on students' preparedness in facing landslides. Based on the results of interviews conducted with the principal of SD Negeri 1 Sukawana, Kintamani District, this area is prone to landslides, especially during the rainy season. by hills with soil texture conditions which are dominated by loose material, making this area prone to landslides. The head of the school also explained that SDN 1 Sukawana had never carried out any activities to improve landslide disaster preparedness for students.

2. Method

This type of research used in this study was a pre-experimental design with a pre-post test design in one group (one-group pre-post test design) without involving a control group (17). The subject group was observed before the intervention was carried out, then it was observed again after the intervention ⁽¹⁸⁾.

This research was conducted at SDN 1 Sukawana from April to May 2018. The population of this study were 173 students at SDN 1 Sukawana in the 2017/2018 school year with the target population being grade IV and V students of SDN 1 Sukawana in the academic year 2017 / 2018. The sample of this study was taken from a population of 57 elementary school students who sat in grade IV and class V SDN 1 Sukawana, who met the inclusion and exclusion criteria.

The sampling technique in this study was total sampling. The reason for taking total sampling was because the total population was less than 100, the entire population was used as the research sample ⁽¹⁷⁾. The data collected in this study include primary data and secondary data. The instrument in this study used a student preparedness questionnaire in the face of landslide disasters made by researchers referring to four parameters of school community preparedness in anticipating natural disasters including knowledge and attitudes, emergency response plans, disaster warning systems and resource mobilization based on the LIPI-UNESCO / ISDR (2006) with a total of 40 question items.

3. Results and Discussion

After the data is processed and analyzed, the characteristics of the research subject are described. The results of the research can be described as follows:

Table 2. Respondent Frequency Distribution Based on Gender at SDN 1 Sukawana in 2018

No.	Gender	Frequency (n)	Percentage (%)
1	Male	33	57,9
2	Female	24	42,1
	Total	57	100,0

Based on table 2 above, the results of the analysis were obtained from 57 students, mostly male, as many as 33 people (57.9%).

Table 3 Respondent Frequency Distribution Based on Age at SDN 1 Sukawana in 2018

Variable	Mean	SD	Min-Max	95% CI
Age	9,75	0,71	9 – 11	9,56 - 9,94

Based on table 3 above, it was found that the average age of students was 9.75 years (95% CI: 9.56 - 9.94), with a standard deviation of 0.71 years. The youngest was 9 years old and the oldest was 11 years old.

Table 4. Distribution of Pre-Test Scores for Student Preparedness in Facing Landslide Disasters Before Comics are Given at SDN 1 Sukawana in 2018

	N	Mean	Min	Max	SD	95% CI
ScorePre-test	57	69,68	45,81	91,81	12,76	66,30-73,77

Based on table 4 above, the results showed that of the 57 students, the average score of students' preparedness in facing landslides before being given comics was 69.20 (95% CI: 66.30-73.77) with the highest score of 91, 81 and the lowest score is 45.81, and the standard deviation is 12.76. From the results of the interval estimation, it can be concluded that 95% is believed that the average preparedness of students before being given comic strips is between 66.30 to 73.77.

Table 5. Distribution of Post-Test Scores for Student Preparedness in Facing Landslide Disasters After Being Given Comics at SDN 1 Sukawana in 2018

Variable	N	Mean	Min	Max	SD	95% CI
Score Post-test	57	76,63	55,19	91,81	9,56	74,07-79,19

Based on table 5 above, the results of the study show that of the 57 students the average score of students' preparedness in facing landslides after being given comics was 76.63 (95% CI: 74.07-79.19), with the highest score of 91, 81, the lowest score is 55.19 and

the standard deviation is 9.56. From the results of the interval estimation, it can be concluded that 95% is believed that the average preparedness of students before being given comics is between 74.07 to 79.19.

Table 6. Analysis of the Influence of Using Comic Media on Student Preparedness in Facing Landslide Disasters at SDN 1 Sukawana in 2018

Variable	N	Average ± s.b.	Mean Difference ± s.b.	IK95 %	P
Preparedness of Students Before Being Given Comics	57	69,68±12,76	6,945±14,36	10,75-3,13	0,001
Preparedness After Being Given Comics	57	76,63±9,65			

Based on table 6 above, the average result of student readiness before being given comics is 69.68 with a standard deviation of 12.76. The average readiness of students after being given comics was 76.63 with a standard deviation of 9.65. The mean difference between the readiness of students before being given comics and after being given comics was 6.945 with a standard deviation of 14.36. The statistical test obtained p-value in the Sig column. 2-tailed = 0.001 (alpha <0.05) so it can be concluded that there is an effect of using comic media on students' preparedness in facing landslides at SDN 1 Sukawana in 2018.

The results showed that from 57 students, the average score of student readiness before being given comics was 69.69 with the highest score 91.81, the lowest score was 45.81 and a standard deviation of 12.76. This study is in line with the research entitled the effect of flood disaster education on preparedness for students at Soegiyo Pranoto Catholic Elementary School, Manado, showing that the average score of students before counseling was 60.26⁽¹⁹⁾.

Referring to LIPI-UNESCO / ISDR, 2006 preparedness is one of the important elements of proactive disaster risk reduction control activities, before, during and after a disaster. The preparedness concept used is more emphasized on the ability to take preparatory actions to face emergencies. disaster quickly and precisely. However, the results of the study show that the average score of student preparedness has not yet reached the maximum score (100). This is because some students do not know what actions to take when a landslide occurs, how to protect themselves, and what items must be prepared. Learning about disaster preparedness is very important to include in the school curriculum so that students get to know more about disaster preparedness so that the child preparedness target reaches 100% or a score of 100. Thus it is hoped that

it can improve disaster preparedness to anticipate landslides that can occur at any time. This is appropriate. with the appeal of the Ministry of National Education calling on all local governments to organize natural disaster management education in schools, amidst the students' lack of knowledge about natural disasters.

The results of observations based on the readiness research variable of elementary school children after being given comics were obtained from 57 students, the average score of student preparedness in facing landslides after being given comics was 76.63, with the highest score 91.81 and the lowest score 55.19 and standard the deviation is 9,56. Related research, namely research with the research title "the effect of training programs for disaster risk reduction (PRB) on the knowledge and attitudes of students of SD Negeri 3 Tanged in facing earthquakes" obtained the average value of preparedness from 20 students before being given training, namely 80.00 (20). .

The results of this study are in accordance with the theory put forward by LIPI UNESCO / ISDR (2006) that knowledge is a very important factor for the preparedness of a school community. Knowledge will influence a person's attitude about disasters, the impact of the disaster, and the actions that will be taken when a disaster occurs. Research on the effect of disaster knowledge on people's preparedness in facing landslides shows that there is a positive influence on disaster knowledge on people's preparedness in facing landslide disasters (21). This means that the higher the knowledge of disasters, the higher the attitude of community preparedness in facing landslides. Attitude is very important towards one's preparedness in saving oneself from disasters. The better the attitude about disasters, the better prepared a person will be in dealing with disasters, especially in this case, namely landslides, where in every determination of attitude, knowledge factors, thoughts, beliefs and emotions play an important role ⁽¹⁹⁾.

Knowledge about disaster risk reduction (DRR) is very important to be given from the age of children in order to form attitudes and concerns to improve self-preparedness in the event of a disaster. Referring to PP. 21 of 2008 children are one of the most vulnerable groups at risk of being affected by disasters. The vulnerability of children to disasters is triggered by a limited understanding of the risks around them, which results in a lack of preparedness in facing disasters ⁽²²⁾.

The results of the research conducted at SDN 1 Sukawana showed that after being given education using comic media, there was a difference in the average score of students' preparedness in facing landslides by 6.945 with a standard deviation of 14.36. The results of the analysis using the paired t-test statistical test showed that the p-value in Sig 2-tailed was 0.001. This shows the p-value $\leq \alpha$ (0.05)

thus the research hypothesis is accepted, which means that there is an effect of the use of comic media on student preparedness in facing landslides at SDN 1 Sukawana in 2018.

Providing education on preparedness in the face of landslide disasters by using comic as media was carried out once and given 30 minutes of reading time. In accordance with the research entitled the use of comic media for learning about landslide disasters at SMPN 41 Semarang, it shows that the use of comic media as learning for landslide disasters is more effective than the use of power point media (14). This is because the comic media does not only contain writing but is combined with pictures so that it will be more attractive among children. Edgar Dale's theory, known as the Cone of experience, states that 75% of learning will be easier to remember is obtained through the sense of sight (eye) ⁽¹⁶⁾.

Piaget's theory is a theory related to this study which states that at the age of seven to 11 years, children are in the final period called the elementary school age which is the concrete operational age period (23). At this time, late age children like to play constructively, explore, collect things, play sports and entertainments such as reading comics, listening to radio, watching movies / television, and fantasizing. Providing education related to disaster preparedness using comic media will make children Children are faster in accepting the material presented because it is more attractive among children (12). The purpose of providing this comic media is to provide information and education to students about knowledge related to landslides and disaster preparedness and management efforts. Children's preparedness can not only be trained through providing education in the form of materials and lectures, but according to Piaget's theory, children are invited to think in concrete terms which will make children more quickly understand and receive material through media, both in the form of comic media.

4. Conclusions and suggestions

Based on the results of this study, it can be concluded as follows: the results of students' readiness in facing landslides before being given comics, namely the average preparedness value of 57 students was 69.69 with the highest score 91.81, the lowest score was 45.81 and a standard deviation of 12. The results of the students' readiness in facing landslides after being given comics were 76.63, the preparedness average of 57 students, with the highest score 91.81, the lowest score 55.19 and a standard deviation of 9.56. There is an effect of the use of comic media on students' preparedness in facing landslides with p -value in the Sig. (2-tailed) column = 0.001 ($< \alpha = 0.05$).

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6. References

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