THE EFFECT OF VIDEO MEDIA AS FLOOD DISASTER EDUCATION IN ELEMENTARY SCHOOL STUDENTS IN BENGKULU CITY

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Abstract

Background: Disaster preparedness is needed from an early age in order to reduce the impact of disaster risk. Elementary school students are still had lack of knowledge about preparedness in dealing with floods, in general. Bengkulu Elementary School (SDN) is one of the schools affected by flooding when the River Basin (DAS) is unable to accommodate river water discharge.

Objectives: The purpose of this study was to determine the effect of video media on student preparedness in dealing with floods in Bengkulu City.

Methods: The study design used a Pre-Experiment with One Group Pretest-Posttest design. The population in this study were all fifth-grade children in elementary school in Bengkulu City there are 27 students because there is only one fifth grade in the school. The total sampling technique was used in this study. The data were collected by using primary data taken from the results of a questionnaire filled out by respondents. The questionnaire consisting of 24 questions of flood disaster preparedness adopted from LIPI-UNESCO (2006) and modified from the Ramadhani & Berutu, (2018). The data were analyzed by using Paired Sample T-Test.

Results: Based on the results of the study found that the use of video media about flood disaster preparedness can have an effect on the level of student knowledge related to disaster preparedness ($t$-test = 2.887, $p$-value = 0.008 < $\alpha = 0.05$).

Conclusion: The importance of early education about disaster is expected to reduce the impact of disasters, especially flood disasters in risk areas. It is expected that schools will be able to include curriculum and training for their students on disaster preparedness training.

Keywords: Video Media, Flood Disaster Education, Elementary School

INTRODUCTION

Natural disasters around the world in the last ten years have increased significantly, ranging from earthquakes, tsunamis, fires, floods, and landslides. Enactment No. 24 of 2007 explains that disasters can be caused by natural, and non-natural factors that have an impact on environmental damage, loss of life,
loss of property, and psychological impact. The Center for Research on the Epidemiology of Disaster (CRED) (2015) stated that the top five most affected countries are China, America, Indonesia, the Philippines, and India. China is the country with the highest number of natural disasters in 2005-2014.

Indonesia's climate is strongly influenced by location and geographical characteristics. Stretching at 6,400 km between the Pacific Ocean and the Indian Ocean, Indonesia has 3 basic monsoonal climate patterns, the equator and a local climate system. This has led to dramatic differences in rainfall patterns in Indonesia (Badan Nasional Penanggulangan Bencana [BNPB], 2017). The National Disaster Management Agency (BNPB) states that over the last 30 years (1982-2014) 13,729 disasters occurred, which were dominated by floods and followed by landslides, strong winds, droughts and other disasters. As for the results of the 2015 disaster risk assessment, there are five types of disasters with the highest exposure to souls: extreme weather (whirlwind) of 244 million people, drought of 228 million people, floods of 100 million people, earthquakes of 86 million people, and disasters landslides of 14 million people (BNPB, 2017).

The potential for natural disasters in Bengkulu Province is very worrying. The data from the Regional Disaster Management Agency (BPBD) of Bengkulu Province, there are dozens of sub-districts or hundreds of villages spread across 9 districts and 1 city, that prone to natural disasters, both landslides, flash floods and ordinary floods. Potential landslides are spread in 88 sub-districts in 9 districts, flash floods in 106 sub-districts in 9 districts. On the other hand, regular flooding is only in 4 districts and Bengkulu City (Bengkulu Ekspress, 2017).

Bengkulu City based on its topography, is at an elevation between 0-16 meters above sea level with 70% flat topography and 30% small hills and swamps. The western part is a relatively narrow lowland and directly borders with the Indian Ocean, while in the east is a plateau bordering the Bukit Barisan mountains which are prone to erosion (Bengkulu Health Profile, 2015). This causes places located on the slopes of the mountains facing to west, gets the most rain, because they directly face the Indian Ocean, where the wind from the west or Southwest is rich in water vapor. Rainfall exceeds the average rainfall, causing some areas close to rivers and beaches in the city of Bengkulu vulnerable to flood due to overflowing of the Air Bengkulu River (Fitriyadi, 2015).

Flooding is a natural phenomenon that indicate the disruption of the balance by damage to ecosystems, so humans must understand natural phenomena by studying it. Floods are routinely occurring in the Bengkulu city, so it needs flood control and preparedness for the impacts that occur during floods (Rosyidie, 2013). Activities carried out as an effort to anticipate and reduce disaster risk can be in the form of knowledge possessed by someone and the attitude taken. Preparedness is a series of activities carried out to anticipate disasters through organizing as well as through effective and efficient steps (BNPB, 2007). Preparedness is one part of the disaster management process and in the current developing concept of disaster, preparedness is one of the important elements of disaster risk reduction prevention activities that are proactive before a disaster occurs (LIPI-UNESCO, 2006).

Field observations found 2 elementary schools in Bengkulu City that were directly affected by the flood disaster and not only the school buildings that were flooded, but some of the student residences were also affected. However, when there is a flood, the children in primary school age, do not yet know the dangers that can occur. The children play with floodwater and do not know that flooding can carry threatening risks such as being swept away by electricity, being electrocuted, being bitten by poisonous animals and spreading disease through water. Based on the background above, the authors are interested in the extent to which video media influences the preparedness of students of SDN 103 Bengkulu City in the face of flooding.
METHODS

Study Design

This research was used pre-experimental design with one group pretest-posttest.

Setting

This research was conducted in the Elementary School 103, Bengkulu on May, 2019.

Research Subject

The population in this research were all students of Fifth-grade in the Elementary School 103, Bengkulu. The total population in this study was 27 students. The sample of the study was selected by using total sampling technique.

The population of Fifth-grade students (V) is in the age range of 11-13 years in intellectual development can think concretely and rationally (can be accepted) and have the ability to group, arrange and connect skills (Yusuf, 2009). While, researchers do not take Fourth-grade because according to J. Maatakup (1994), Fourth-grade students is a transition from the imaginary world to the real world. Researchers also do not take Sixth-grade because Sixth-grade is preparing a national exam.

Instruments

Video taken from Multimedia P (2015) that was screened for 10 minutes which explains the process of flooding and explains the preparedness measures to deal with floods and questionnaire consisting of 24 questions of flood disaster preparedness adopted from LIPI-UNESCO (2006) and modified from the Ramadhani & Berutu (2018). Interpretation of the preparedness questionnaire is as follows; being very prepared with a score of 80-100, prepared with a score of 65-79, almost prepared with a score of 55-64, not prepared enough with a score of 40-54, not prepared with a score of <40. The reliability test (Cronbach Alpha) of the questionnaire was 0.429. According Guilford (1956), the Cronbach Alpha value of this questionnaire is included in the moderate level category.

Intervention

Before giving an intervention, a pretest is first performed. This test is used to determine the students’ initial abilities about the preparedness material. The test is done by giving a research instrument in the form of a question statement yes no for 5 minutes in the Fifth-grade students. The pretest is used to find out the initial picture of student preparedness. After the pretest the researchers conducted a video screening using animated video media about the flood disaster for 5 minutes. Posttest data retrieval is done after the video ends.

Data Analysis

The Data were analyzed by using univariate and bivariate analysis. Univariate Analysis were used to get an overview of the independent variables (Video Media) and the dependent variable (Preparedness). Bivariate analysis is an analysis to assess the relationship between the independent variable and the dependent variable. The data obtained were analyzed by paired sample t-test because the data were normally distributed. This test was carried out to see the difference in the level of preparedness before and after being given a video at 103 Primary Schools in Bengkulu City.

The normality of the data was tested by using Shapiro Wilk rank test because the sample less than 50 people. Normality test results obtained significance values for the two groups were sig = 0.145> 0.05 for preparedness before video media were given, and the results of sig = 0.199> 0.05 so that both groups were normally distributed. The data were analyzed by using univariate, bivariate, paired sample t-test analysis.

Ethical Consideration

This study received permission from the Bengkulu City National Unity and Politics Agency (Kesbangpol) under number 070/1143 / B. Kesbangpol / 2019. Research permit from
the Bengkulu City Education Office Number: 090/276 / IV.DIK / 2019.

RESULTS

Characteristics of Respondents by Age and Gender

**Table 1.** Distribution of Frequency of Respondents by Age and Gender in the Fifth-Grade Students of the Elementary School 103, Bengkulu on May 2019.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 years old</td>
<td>13</td>
<td>48.1</td>
</tr>
<tr>
<td>11 years old</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>Female</td>
<td>12</td>
<td>44.4</td>
</tr>
</tbody>
</table>

Sources: Primary Data of Questionnaire, 2019.

Based on the result above (table 1), it obtained that most respondents were 11 years old (51.9%). Furthermore, the most of respondents (55.6%) were male.

Analysis of Effectiveness of the Video Media as Flood Disaster Education on Student Preparedness in Dealing with Floods

**Table 2.** Analysis of Effectiveness of the Video Media as Flood Disaster Education on Student Preparedness in Dealing with Floods using Paired Sample T-Test in the Elementary School 103, Bengkulu on May 2019.

<table>
<thead>
<tr>
<th>Level of Preparedness</th>
<th>Before Being Given Video Media</th>
<th>After Being Given Video Media</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (n)</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Very Prepared</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>Prepared</td>
<td>13</td>
<td>48.1</td>
</tr>
<tr>
<td>Almost Prepared</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Less Prepared</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not Prepared</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Sources: Primary Data of Questionnaire, 2019.

Based on the results of the study in table 2 above, it was found that the highest level of preparedness of students before being given video media was at the very prepared level of 14 respondents (51.9%). At the time after being given video media, most respondents had a level of preparedness that was very prepared as many as 20 respondents (74.1%). Based on these results it can be seen that an increase in the level of preparedness of the respondents.

From the results of the above research, it can also be seen that the provision of video media as flood disaster education has an impact on increasing the level of preparedness of respondents in dealing with floods \( (t\text{-test} = 2.887, \ p\text{-value} = 0.008 < \alpha = 0.05) \).
DISCUSSION

Some students are in the very prepared category and some in the prepared category. The results also showed that some students are still confused about what to do when disaster strikes at school, where safe places to take cover and what objects or animals can be dangerous should be avoided and what should be prepared when a disaster occurs. Because some students said they were still playing water when flooding occurred and did not know the location that threatened safety during the flood. Based on the four LIPI parameter indicators, it can be proven from the respondent's questionnaire statement that before being given a video media watch that the highest answer was found in preparedness planning (emergency response plans) there were 54 items (100) and the lowest was in preparedness planning (warning system early) there are 14 items (51.85%).

Early warning system is the lowest compared to other indicators, this indicator is a tool that can capture disaster warning information in schools and know the signs of a state of safety. According to Deni Hidayat, et al (2006) early warning is a key factor linking the stages of disaster preparedness and emergency response. Preparedness is one of the important elements in pro-active disaster risk reduction control activities before a disaster occurs. The concept of preparedness is used more emphasis on the ability to take action to deal with disaster situations quickly and accurately (LIPI-UNESCO / ISDR, 2006).

Mudavanhu (2014) in his research shows that floods cause loss of study hours, loss of qualified personalities, outbreaks of waterborne diseases, high levels of absenteeism and low syllabus coverage which results in poor academic outcomes of children. The results of the study were conducted by Wulandari (2019) in journal entitled Analysis of Student Preparedness in Dealing with Drought Disasters through Media Booklets, the results of the level of preparedness before being given a media booklet were still in low level.

Another similar study by Astini (2018) entitled Education with the School Watching Method Improving Student Preparedness in Dealing with Disasters at SDN 16 Kesiman Denpasar, was also stated that preparedness before being given the school watching method were in the category of almost prepared as many as 30 respondents (42.9%) and in the very prepared category as many as 8 people (11.14%). This findings proved that the category of respondents' readiness still varies, there are respondents who are in the category of not ready.

These results indicate an increasing in student preparedness. Djafar (2013) stated that one of the factors that influenced student preparedness was knowledge of disaster preparedness. Preparedness also aims to ensure that the resources needed to respond in a disaster event can be used effectively during a disaster and know how to use it (Sutton & Tierney, 2006). The Increasing of knowledge possessed by an individual will have a correlation with an increase in the behavior of the individual (Notoatmodjo, 2007). Positive attitude is caused by several factors including experience and counseling about preparedness to anticipate the threat of flooding (Azwar, 2011). The different thing revealed by Takao (2004) is that the level of preparedness for flooding depends on home ownership, fear of flooding and the amount of damage caused by previous floods and not on previous experience with and anticipating flooding. In this case the school component learns from previous disaster experiences, but personal experience is not enough because experience can bring individuals to be better or worse in the face of future events (Wang and Yuan, 2011).

Preparedness after being given knowledge material with video media has increased to be very prepared as many as 20 students (74.1%). The examples of disaster preparedness activities include; preparing plans when a disaster occurs, increasing the ability to handle hazards by attending training, understanding evacuation routes, division of work when a hazard occurs, and others. The increasing of
student preparedness is due to the children's full participation in watching videos of flood disaster preparedness and during the course of research students are accompanied by research team so that children focus on video. This study in accordance with research conducted by Wulandari (2019); Astini (2018) where the level of preparedness of students after being given an intervention will be better.

According to Paramesti, C. A. (2011), the thing that distinguishes preparedness from other pre-disaster risk reduction (mitigation and early warning) is where preparedness can be done by individuals or communities, while mitigation and early warning are directed primarily from higher management levels such as government.

Disaster preparedness education can be done early on through the disaster alert program at school so that children can know how to save themselves in the event of a disaster (Suhardjo, 2011). Preparedness is one of the efforts made to anticipate the occurrence of disasters to avoid casualties, property losses and changes in people's lives in the future (Sutton and Tierney, 2006). On the other hand according to Gregg (2004) preparedness aims to minimize the side effects of hazards through effective, timely, adequate, efficient prevention measures for emergency response measures and assistance when flooding.

According to Nursalam and Effendi (2018), the provision of video media is an economical and effective method so that students given health education are more receptive to the information conveyed. This is consistent with the opinion of Ali (2010) stated that in addition to the appropriate teaching methods, the success of the teaching and learning process is also supported by the teaching media that have been used. Several studies have concluded that video media can increase student motivation, because video is a fun medium for students so that it can arouse curiosity and enthusiasm for learning (Hadi, 2017). Video has a sound in the form of music, explanatory illustrations, and sounds taken from real conditions, so that the video has a special attraction for students, the video can explain something abstract to be real (Pebriani, 2017).

Supriyadi (2013) stated that learning activities using video media can provide a pleasant atmosphere and not boring for students so that the attention of students is focused on videos that contain information about learning material, video media can present events that are not physically possible to be presented into class, so students can find out more about the event, and video media can meet all students who have different learning characteristics, ranging from students by learning audio, visual or audio-visual. Therefore, video is effective to be used for elementary school students who are still in the concrete operational stage, these advantages can underlie the effectiveness of the use of video as a medium for elementary school level.

Video has sound elements and picture elements, this type of media has better and more interesting abilities, because it includes both types of auditive (listening) and visual (viewing) media. The ability of films and videos to paint vivid images and sounds gives its own charm. Both types of media are generally used for entertainment, documentation, and education purposes (Arsyad, 2002). This is in agreement with Sulistyaningrum (2017), one of the ways that can be used to foster a sense of preparedness is by using video animation, because animation can provide a more meaningful learning experience and provide a greater stimulus than reading textbooks. These results are consistent with the results of the study conducted by Owolabi (2014), because the provision of information through the screening of films or videos can provide more interesting modeling, so that it is easily absorbed by the target, namely children. In addition the film or video shown in the form of cartoon animation.

CONCLUSION

There is effect of video media on preparedness in facing flood disaster among students’ elementary school in Bengkulu City.
The importance of early education about disaster can reduce the impact of disasters, especially floods in risky areas such as schools.

SUGGESTIONS
The weakness in this study is the limited number of respondents because it is only done in one school. The next research is expected to be carried out in several schools.

Preparedness has a very large positive effect; therefore, it is very important for the school to be able to conduct preparedness training in extracurricular in the health sector such as the teenage red cross and make 103 State Elementary School Bengkulu City as one of the disaster prepared schools.

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DECLARATION OF CONFLICTING INTEREST
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AUTHOR CONTRIBUTION
Ida Rahmawati: Contributes to the completion of the article.

Vike Pebri Giena: Contributes to the completion of the article.

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