



The Use of Booklet Media in Earthquake Natural Disaster Mitigation Socialization Activities on the Knowledge of Students of Public Elementary

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ABSTRACT

Mitigation is a series of activities carried out to reduce disaster risk and is included in the initial stages of natural disaster management. Activities to provide information and mitigate disasters are one of our responsibilities as academics who are aware of this problem to the general public, one of the targets being PAUD or Elementary School students. In recent years, the Central Board of Education's move to revise the curriculum to include disaster prevention into subjects is fully underway. Therefore, we are carrying out community service to mitigate natural earthquake disasters which will be held on Friday 3 May 2024 at SDN 4 Tumpang, Tumpang District, Malang Regency, which is one of the schools that includes prevention as a subject in its school. The results of this research indicate that the use of booklet media can be an effective method in increasing students' knowledge regarding earthquake natural disaster mitigation at the elementary school level. This can be seen from students who took part in the socialization showing a significant increase in understanding after being given material and information through print media. Booklet media designed with animation and attractive images can attract students' attention and make it easier for them to understand the material presented. Apart from that, the pre-test and post-test conducted before and after socialization also showed a significant increase in student knowledge.

KEYWORDS

Natural Disasters, Earthquakes, Mitigation, Students.

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INTRODUCTION

The Earth has provided facilities that can't afford to meet human needs on a daily basis. Oil and gas, water, metal and non-metallic minerals are all available and stored by the earth. Such earthly resources of course provide many benefits to human life. But on the other hand, the earth also holds the potential for disasters that humans must beware of. Natural potential that destroys and interferes with life and life losses as well as damage to human infrastructure and cultural products (houses, buildings, roads, bridges, dams, and others) can be categorized as natural disasters (Mustofa, 2010).

The Indonesian territory itself is on a column of volcanic rings, making Indonesia vulnerable to disasters. Like earthquakes, volcanic emissions, forest fires, forest floods, tropical storms, and storm waves. Indonesian historical records show that the country has faced recurring natural disasters. Indonesia is also in a region with a high seismicity due to being geographically in an active tectonic order that affects temperatures in Indonesia, namely the Indian-Australian Ocean plate, the Eurasian Continental plate (Sunday display), the Pacific Ocean plate and the Philippine plate (Ridwan dkk, 2023).

Malang district is one of the districts located in East Java and is the largest district number two in Eastern Java each Banyuwangi district. The existence of this Indo-Australian plate brings potential danger, especially for citizens who live near the center of the earthquake. For example, in April 2021, Malang district and its surroundings were hit by an earthquake of magnitude 6.1. The seismic center is in the Indonesian Ocean, in the south of eastern Java region One of the areas in Malang district is Tumpang. Tumpang district was the target of disaster mitigation program carried out by students of Public Health Sciences at Malang State University. The frequent earthquake events in Malang district, mitigation of natural disasters prevention especially earthquakes need to be done so that the people are ready and responsive when facing such disaster, as well as to minimize the victims of disaster. (Widodo dkk, 2023).

The earthquake mitigation assessment is located in the State Elementary School 04 Tumpang where the location is a vulnerable area in the event of an Earthquake. The target for the assessment are children of elementary school level 3-4th grade, the aim is to provide early education in the case of an earthquakes in the area where they live, especially the Tumpang district. This award is one of the dedication activities carried out by the Student of Public Health Sciences which is the task of the Disaster Management course. The purpose of this examination is to find out how the mitigation measures have been taken early in dealing with earthquakes in their area.

MATERIALS AND METHODS

This research uses a survey research method with a descriptive approach which aims to explore the problems to be researched and then the results are analyzed and presented descriptively. Our activity method takes place through socialization which is delivered directly to students using print media which contains material about earthquake natural disasters. Before the activity, analysis was carried out by developing booklet media which was designed to use more image or animation features than explanations with the aim of making this media easier to attract students' attention so that students could better understand the material being presented. This media contains information about the meaning, causes, impacts of earthquake disasters, as well as measures that must be taken when an earthquake disaster occurs and measures that must be taken when it is declared safe from earthquakes. The implementation stage consists of using the booklet during the activity and the evaluation stage is carried out by conducting a pretest and posttest to determine the increase in children's knowledge and





awareness about earthquake disaster mitigation. Thus, this activity can help children become better prepared in dealing with earthquake disaster situations and increase their understanding of the importance of disaster mitigation. This disaster mitigation outreach activity was attended by 18 students, 7 grade 3 elementary school students and 11 grade 4 elementary school students at SDN 4 Tumpang.

RESULTS

This study evaluated the impact of a disaster education socialization activity using booklet media on students' knowledge at SDN 4 Tumpang. The results are presented in two main tables, which describe the respondent characteristics and the changes in knowledge before and after the intervention.

Table 1. Characteristics of Respondents Based on Class

Class Group	N	%
3	7	39
4	11	61
Total	18	100

Based on Table 1, this activity was attended by 18 students consisting of 7 grade 3 students, and 11 grade 4 students of SDN 4 Tumpang.

Table 1 outlines the distribution of respondents based on their grade level. A total of 18 students participated in the activity, comprising 7 students (39%) from grade 3 and 11 students (61%) from grade 4. This indicates that the majority of participants were from the higher elementary grade, which may influence the baseline level of understanding and engagement with the educational material.

Table 2. Data Analysis Results

Knowledge	N	Minimum Value	Maximum Value	Mean	P-value
Pre test	18	30	60	46,67	<0,001
Post test	18	30	70	56,11	

Based on table 2, the results of the pre-test obtained the lowest value of 30 and the highest value is 60 with an average value of 46.67 and after respondents were given socialization using booklet media obtained the lowest post-test results of 30 and the highest is 70 with an average value of 56.11. The results of statistical tests using the Paired Sample T Test method showed a pvalue = <0.001 (p<0.05). This shows that there is a significant difference in the knowledge of respondents from socialization before and according to the holding of disaster education material socialization activities.

DISCUSSION





Disaster mitigation education is an endeavor to prepare ourselves in anticipating the risks of natural disasters such as earthquakes, tsunamis and disasters resulting from human error such as fires and floods. In terms of responding to these conditions, we have carried out natural disaster mitigation community service activities that focus on earthquake natural disasters. The purpose of holding earthquake natural disaster mitigation socialization activities is as a form of simple initial introduction for students at the elementary level related to earthquakes so that they have knowledge related to earthquakes and can respond to protect themselves when an earthquake natural disaster occurs in the environment around their residence. This is in line with what was conveyed by Masitoh in 2018 in the journal Earthquake disaster mitigation education at SDN 1 and SDN 2 Ganti Praya Timur Central Lombok that disaster mitigation education is an effective means of building teacher and student behavior in dealing with disasters.

Disaster mitigation knowledge possessed by teachers and students can influence attitudes and concerns to be ready and alert in anticipating disasters (Natalia Ella et al., 2020). The ability of teachers and students to understand the potential disasters around their place of residence (local area) is very important, this knowledge and skills become very helpful information in the event of a disaster as an early anticipation through attitudes and values that encourage learners to act prosocially, responsibly and responsively when their families and communities are threatened (Kagawa & Selby, 2012)

From the results of the above research, this is the background for our community service team of Public Health Sciences, State University of Malang to carry out disaster mitigation education socialization activities with the theme “Earthquake Mitigation: Ready to Face the Earthquake”. This activity was held at SDN 4 Tumpang, Tumpang District, Malang Regency, East Java. The activity was held on Friday, May 3, 2024 at 08.00 - 10.30 WIB.

This activity was carried out with a series of agendas, namely pre-testing, material delivery, and post-testing. The first agenda was the pre-test sheet with the aim of measuring the level of knowledge of students before the socialization related to earthquake natural disaster mitigation. The paper-based pre-test sheet with a multiple choice question model of 7 questions is equipped with several pictures to make it easier for students to work.



Figure 1. Pretest work





After doing the pretest, it was continued with the presentation of material or socialization delivered using the help of media in the form of booklets which contained material including the definition of earthquakes, types of earthquakes, symptoms and signs of earthquakes, preparedness in dealing with earthquakes, stages when an earthquake occurs, the impact caused by earthquakes and safe steps when dealing with earthquakes. Booklets are books with a relatively small size with information content and insight into a particular matter or field of science (Putri, 2020). The booklet media used in socialization activities is designed to use more image or animation features than explanations with the aim that this media is easier to attract students' attention, facilitate the reception of material, so that students can better understand the material presented. In addition to using media in the form of booklets, the selection of material delivery using the socialization method aims to make it easier to convey messages to students.



Figure 2. Material Delivery

After the socialization activity, a post-test was conducted to measure students' knowledge after the socialization related to earthquake natural disaster mitigation.



Figure 3. Documentation together

CONCLUSIONS

This study aims to evaluate the use of booklet media in earthquake natural disaster mitigation





socialization activities on students' knowledge. The research was conducted at SD Negeri 4 Tumpang, Malang Regency. The results showed that the socialization activities using booklet media succeeded in increasing students' knowledge of earthquake natural disaster mitigation. The students who participated in the socialization showed a significant increase in their understanding after being given materials and information through the printed media. The booklet media, which was designed with animations and interesting pictures, was able to attract students' attention and make it easier for them to understand the material presented. In addition, pre and post tests conducted before and after the socialization also showed a significant increase in students' knowledge. The results of this study indicate that the use of booklet media can be an effective method in improving students' knowledge of earthquake disaster mitigation at the elementary school level.

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Conflict of Interest

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REFERENCES

- Kagawa, F., & Selby, D. (2012). Ready for the Storm: Education for Disaster Risk Reduction and Climate Change Adaptation and Mitigation 1. *Journal of Education for Sustainable Development*, 6(2), 207–217. <https://doi.org/10.1177/0973408212475200>
- Mohamad Ridwan, A. S. (2023). Pengembangan Peta Bahaya Gempabumi di Batuan Dasar untuk. *Jurnal Geologi dan Sumberdaya Mineral*, Vol. 24 No. 1, 31-38.
- Mustofa, A. (2010). GEMPA BUMI, TSUNAMI DAN MITIGASINYA. *Balai Informasi dan Konservasi Kebumihan Karangasambung – LIPI*, Volume 7 No. 1, 66.
- Natalia Ella, C., Ratag, B. T., Sumampow, O. J., & Kesehatan Masyarakat Universitas Sam Ratulangi Manado ABSTRAK, F. (2020). *PENGARUH PENYULUHAN KESEHATAN TERHADAP TINGKAT PENGETAHUAN TENTANG PENYAKIT DIARE PADA SISWA SEKOLAH DASAR NEGERI TABUKAN LAMA KABUPATEN KEPULAUAN SANGIHE*.
- Putri, N. M. (2020). Pengembangan Booklet Sebagai Media Pembelajaran Pada Mata Pelajaran Pengelolaan Bisnis Ritel Materi Perlindungan Konsumen Kelas Xi Bdp Di Smkn Mojoagung. *Jurnal Pendidikan Tata Niaga*, 8, No. 3.





- Tahir, M. S. (2020). Pendidikan Mitigasi Bencana Gempa Bumi di SDN 1 dan SDN 2 Ganti Praya Timur Lombok Tengah . *SELAPARANG: Jurnal Pengabdian Masyarakat Berkemajuan*, 4(1), 290-294.
- Widiyanto Hari Subagyo Widodo, A. H. (2023). Kajian (Δ) Kerentanan Bencana Gempa Bumi Berdasarkan Prespektif Multitemporal Studi Kasus Kabupaten Malang. *Sinergitas Era Digital 5.0 dalam Pembangunan Teknologi Hijau Berkelanjutan*,, 116.

