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Research Article

Literacy Profile of Flood and Rob Disaster Mitigation Among Sciences Teachers in Central Java

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Abstract.
There is a need to acquire the data description of science teachers regarding literacy mitigation in Central Java. However, there is no specific data that informs these conditions. Therefore, the research aims to identify the literacy of flood disaster mitigation among science teachers in the Central Java province. Several 125 science teachers from 6 districts/cities in Central Java were involved as respondents. The flood and tidal disaster literacy instrument consists of 17 items divided into 2 parts. The first part concerns the teacher's knowledge of floods and tidal waves. The second part contains the teacher's insights about mitigating flood and tidal disasters. The findings show that the average teacher's knowledge about floods and tidal waves is good (8.4 of 10). Meanwhile, the average knowledge of science teachers regarding literacy of flood and tidal disaster mitigation is in the sufficient category (11.4 of 18). This fact shows that science teachers' flood and disaster mitigation literacy needs to be improved. Instilling disaster mitigation literacy, especially floods and tidal waves, can be done by implementing disaster mitigation education in science learning through research and community service.

Keywords: mitigation literacy, disaster mitigation, STEAM, early warning system

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1. Introduction

Natural catastrophes have a moderately high likelihood of occurring in Indonesia. Statistics about 8051 disasters over the previous ten years are shown in data provided by the National Disaster Management Agency (BNPB). Floods, landslides, tornadoes, forest fires, droughts, earthquakes, abrasion, volcanic eruptions, and tsunamis are some of the disaster types that frequently occur. Every person must be vigilant and respond quickly in light of the numerous calamities that occur. Natural catastrophes kill a lot of people because people lack the knowledge to mitigate them. Disaster mitigation is a process that takes place before, during, and following a disaster. Disaster preparedness and

measures to lessen the long-term effects of disasters also aim to mitigate repercussions [1].

The Catastrophe Management Law Number 24 of 2007 governs catastrophe mitigation in Indonesia. However, Indonesia is currently grappling with a significant issue, namely that its response time to disasters is still subpar. Disaster mitigation is still not widely known [1, 2, 3]. Development of disaster-resistant infrastructure, Public Education and Awareness, Improving Early Warning Systems, Establishing Disaster Management Teams, Increasing Institutional Cooperation, Mapping and Identifying Disaster Risks, Development of Disaster Preparedness Plans, and Development of Disaster Response Plans are some of the actions that can be taken to reduce disasters in Indonesia.

Disaster mitigation education can be done from an early age through formal education. Students who live in disaster-prone countries need to receive disaster mitigation education through learning activities. Several research results depicting the profile of students' disaster mitigation literacy in Indonesia [4, 5, 6] show that students' disaster mitigation literacy still needs to be improved. Several policies and programs have been launched, for example, disaster preparedness schools have become one of BNPB's agendas through the Safe School campaign. Apart from that, the government through the Ministry of National Education has issued Circular Letter No. 70a /SE/MPN/2010 dated March 31 2010 concerning Disaster Risk Mainstreaming in schools. Efforts to increase disaster mitigation literacy in schools require the role of teachers. On the other hand, research studies have been carried out on efforts to instill disaster mitigation through education. This research includes developing learning strategies [7][8][9], developing learning tools [10][11], developing disaster literacy models [12][13]. A study of teachers' disaster mitigation literacy profiles needs to be carried out so that the development research carried out follows the facts in the field. Apart from that, disaster mitigation literacy for teachers is very important because teachers have a key role in maintaining the safety of students and school residents during emergencies. A study of teachers' disaster mitigation literacy profiles needs to be carried out so that the development research carried out is by the facts in the field. Apart from that, disaster mitigation literacy for teachers is very important because teachers have a key role in maintaining the safety of students and school residents during emergencies. A study of teachers' disaster mitigation literacy profiles needs to be carried out so that the development research carried out is by the facts in the field. Apart from that, disaster mitigation literacy for teachers is very important because teachers have a key role in maintaining the safety of students and school residents during emergencies.

This research aims to obtain information about the literacy profile of flood and tidal disaster mitigation among science teachers in the Central Java region. The results of the research will be a preliminary study in developing the STEAM KIT - Early Warning System in science learning.

2. Method

To determine the literacy of flood disaster mitigation among science instructors in the Central Java province approach in 6 districts, this research utilized a descriptive-analytical method. By using samples or data that have been gathered, the analytical descriptive approach seeks to characterize or provide an overview of a subject of study and draws commonly recognized conclusions [18]. In this study, science teachers from 6 districts in the province of Central Java served as the participants. 125 junior high school science instructors make up the study's sample. Techniques for gathering research data included employing documents and questionnaires.

3. Results and Discussion

3.1. Teacher Knowledge Profile about Flood Disasters or Rob

Teacher knowledge profile data about flood or tidal disasters was obtained through a knowledge test about the concept of tidal waves. 125 science teachers from 6 districts were involved as respondents to this test. Based on the average value of teacher knowledge about flood or tidal disasters (8.4), it appears that science teachers understand the concept of floods / tidal waves and their causes. The test results appear in the Figure 1.

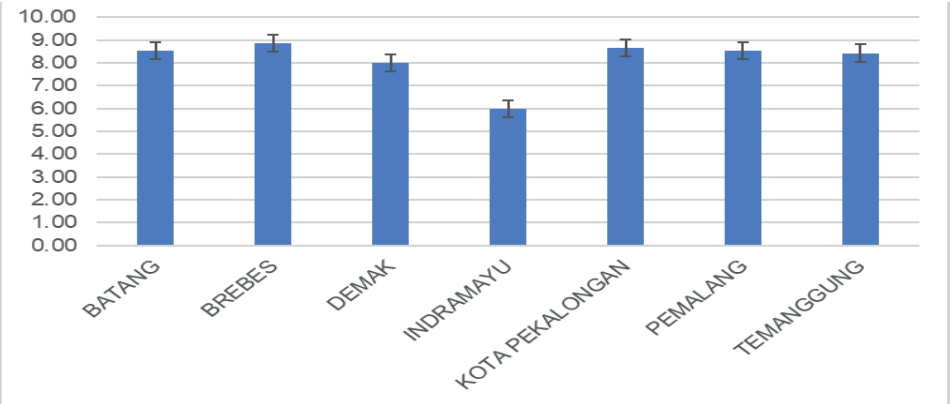

Figure 1: Science teacher knowledge profile in facing flood disasters in schools.

Based on the average value of teacher knowledge about flood or tidal disasters (8.4), it appears that science teachers understand the concept of floods and their causes.

3.2. Flood Disaster Mitigation Literacy Profile or Rob Guru

Teacher disaster mitigation literacy profile data regarding flood or tidal disasters was obtained through a survey. 125 science teachers from 6 districts were involved as respondents to this survey. The results of the descriptive analysis are presented in Figure 2.

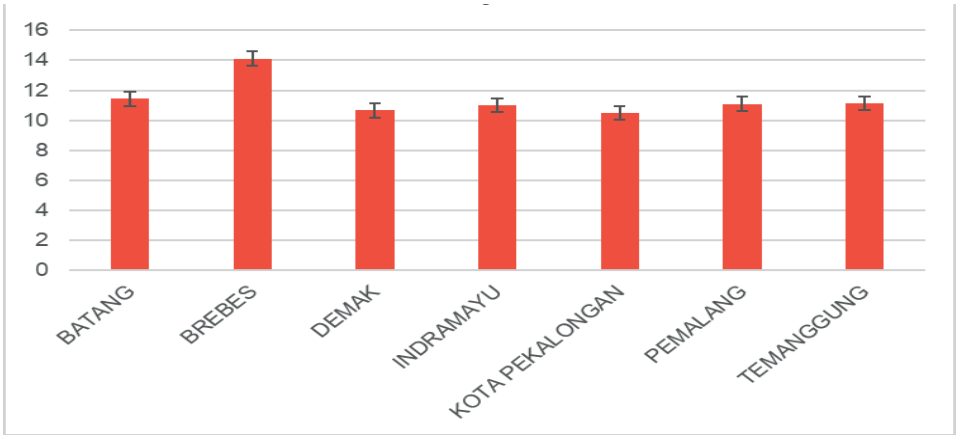

Figure 2: Profile of science teachers in facing flood and flood disasters at school.

Data from the analysis shows that science teachers' flood disaster mitigation literacy needs to be improved further. With a total score of 18, an average score of 11.42 was obtained.

3.3. Discussion

The results of the research show that teachers' knowledge about flood and tidal disasters is in the very good category, however, there were still some teachers who answered inappropriately to several questions. As can be seen in Figure 3.

Figure 3 shows that there are still teachers who believe that flooding is not a natural disaster, does not cause health problems and that blockages in water flow do not cause flooding. This understanding certainly requires attention through various efforts by both the government and higher education academics.

Meanwhile, the data from the analysis shows that science teachers' flood disaster mitigation literacy needs to be improved further. With a total score of 18, an average score of 11.42 (fair) was obtained. Based on respondents' answers to several survey statement

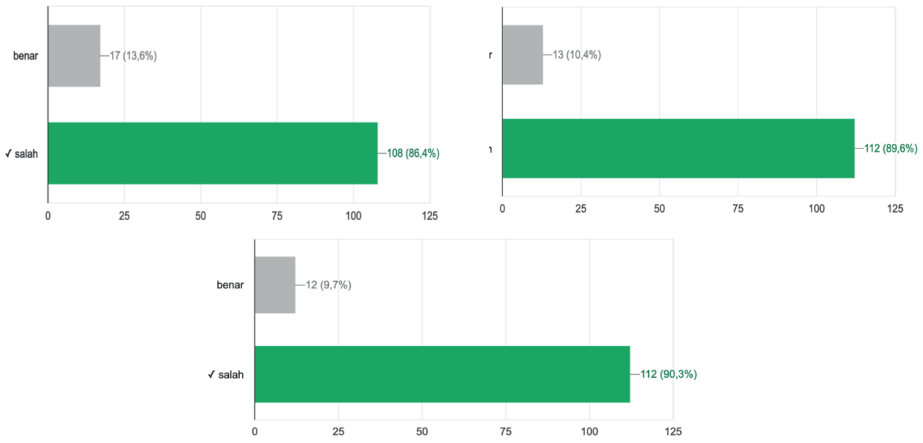

Figure 3: Percentage of teacher answers that are not appropriate.

items, information was obtained that science teachers' flood and tidal disaster mitigation literacy was not yet satisfactory, as can be seen in table 1.

TABLE 1: Flood disaster mitigation survey results and science teacher rob.

No.	Questionnaire	Results (in percentages)	
		Yes	No
1.	Has your school ever undergone repairs following a flood?	43.2	56.8
2.	Are you aware that your school satisfies the requirements for catastrophe safety and security?	61.6	38.4
3.	When a calamity strikes, have you ever been asked to make the proper housing arrangements?	40	60
4.	Are there flood disaster management resources (fire extinguishers, evacuation alarms, and first aid kits) at your school?	50.4	49.6
5.	Does your school have a disaster management policy?	56.8	43.2
6.	Does your school have an action guide before a flood disaster occurs?	33.6	66.4
7.	Do you know where to evacuate if a flood disaster occurs?	57.6	42.4
8.	Has a disaster-safe learning system ever been established at your school?	30.6	69.4

Most teachers stated that school preparedness for flood disasters had not met expectations. Most schools do not yet have standards for preparedness for flood disasters. Meanwhile, almost all teachers agree that it is necessary to provide disaster mitigation education for teachers and students. This fact can be the basis for developing disaster mitigation education for school residents. The same fact was also stated by [14] that almost all teachers do not receive training in disaster management, but they

can manage identified disasters. Meanwhile, students gave good comments regarding their knowledge, attitudes, and behaviour regarding disaster management.

The important role of teachers in disaster mitigation education is not only as agents who carry out learning but also play a role in student safety, effective evacuation, use of safety equipment, effective communication skills, and mental readiness [15,16]. Meanwhile, several research results have shown the importance of teacher training programs, systematic curricula, and assessment of teacher preparedness for disasters as the basis for efforts to increase disaster mitigation among teachers [17].

The profile of disaster mitigation literacy among science teachers in this research is important information for various parties, especially for development research. Development research is carried out to produce educational models, learning tools, and disaster mitigation project KITs.

4. Conclusion

This finding demonstrates the necessity for science instructors to become more knowledgeable about flood and disaster mitigation. Implementing disaster mitigation education in science learning through research and community service can help people become more literate about disaster mitigation, particularly floods and tidal waves.

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