



How to Manage Student Elementary School Learning in Disaster Areas?

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ABSTRACT

Natural disasters are emergencies that frequently occur throughout the world. Education for elementary school students when a disaster occurs is one of the focuses that must receive attention. This study aims to review various forms of learning activities that can be presented to elementary school students when natural disasters occur, including prevention and how to reduce their impacts. This research is a type of literature review research that discusses concept learning applied by emergency schools in disaster areas. To support the literature review data, several journal articles indexed by Scopus and SINTA related to learning for children in disaster-prone areas. The search was limited to reviewed articles in English and Indonesian with a publishing period of 2015-2021. The selected articles were reviewed for relevant citation and conducted by two research independently. The primary search generated 50 relevant references. After eliminating the duplicates and articles which were not related to the review of the abstract, 20 references were identified for inclusion. After reviewing more, 30 references, which failed to meet the inclusion index, were excluded from the study. Based on the results, managing learning student elementary school can be in the form of 1) disaster preparedness education, 2) disaster education for primary school teachers, 3) disaster education for primary school students, 4) disaster literacy, and 5) learning Media. The disaster education program also had an impact on the knowledge and practice of teachers at public elementary schools.

Keywords: *Manage; Student Elementary School; Disaster Area*

1. INTRODUCTION

Natural disasters are not occasional phenomena with unfortunate consequences. Floods, wind and ice storms, earthquakes, droughts, volcanic eruptions, and tsunamis cause about 400 national disasters with an average of 74.000 deaths and more than 230 million people are affected each year [1]. However, in 2020 there were 26% more storms than the annual average of 102 events, 23% more floods than the annual average of 163 events, and 18% more flood deaths than the annual average of 5.233 deaths [2].

Natural disasters are common in Indonesia. Therefore, preparedness for the community was needed to face the disaster if anytime disaster occurs. Disaster preparedness needs to be studied by Indonesian people, especially people who live around disaster-prone areas. Knowledge about disaster preparedness needs to be tough for elementary school students. Elementary school students are golden ages to teach for all forms of knowledge to children, both theoretical and practical can

be applied for knowledge. Learning management for elementary school students in disaster areas needs to be a concern from various parties, especially for government, the ministry of education, and teachers as direct learning for students. Because natural disasters cannot be controlled, what can be controlled are the attitude and response of the victims or people who are affected by the disaster. Using the word management in disaster learning is directed for manipulating people or their carrying capacity in a disaster environment.

Research concerning disaster risk reduction management in schools has been carried out at the elementary, junior, or senior high school, college, and community levels in general. Literature review research examines more deeply related to disaster mitigation and learning management for school students has also begun to be carried out by many people, but course this research still have many limitations. Therefore, this literature review study seeks to obtain an overview of previous studies that discuss disaster mitigation and learning

management in the disaster area for elementary school students.

Several studies related to disaster mitigation and learning management for students affected by disasters can be found in this literature review. Literature review from [3] discusses Game Education of Disaster Mitigation. This literature review suggests that technology for reducing disaster risk has become computer-based and conventional disaster mitigation/handling technology. Multimedia technology will be an alternative disaster mitigation educational instrument. The limitation of this study has not been specifically explained that this video game display in question can be used for student learning activities understanding disaster mitigation. In addition, the age range for students that learn disaster mitigation through these video games has not been explained.

Furthermore, the literature review conducted by [4] explains about thematic analysis related to the eight main categories of DRR (Disaster Risk Reduction) are education strategies increasing knowledge, assessment of educational needs, education planning, educational approaches, educational content, educational tools, organizations involved, barriers and challenges to education learning. It had concluded that most countries had launched DRR education activities, but these measures are not enough. More effective and efficient teaching and learning strategies are needed to increase the effectiveness of preparedness and DRR activities at all levels of society. The limitation of this study is the explanation is not specific and detailed for alternative strategies in DRR activities.

Then, there was also a discussion regarding disaster resilience learning in schools conducted by [5]. The results of this study show that the reason for obstacles to disaster resilience in schools includes four indicators, namely inappropriate program targets, poor program socialization, lack of program objectives, lack of program monitoring documents. The DPS development program strategy will be successful with the following conditions: a) incorporating the disaster mitigation education curriculum into several subjects, and extracurricular activities in schools, b) Organizing the DPS Program with appropriate training that has been carried out by selecting the right participants, materials related to local disasters, functional modules, good timing, monitoring equipment carried out routine and systematic, and involving all stakeholders. The limitation of this study has not a specific table to see activity steps according to the DPS program strategy so it is not clear what students and teachers do during learning.

Studies concerned the establishment of emergency schools for school-age children in disaster evacuation

sites have been widely discussed, but in the practice of the field, there are still some obstacles and shortcomings that need to be corrected immediately. For further research related to learning management in disaster emergency schools to present learning concepts that are following needs in the field and are right on target. The purpose of this literature review is to conduct further reviews in the form of how to manage student learning activities in disaster emergency schools. Then, use findings research to develop innovative program learning concepts more effective in disaster emergency schools. Thus, hoped that the education program in disaster emergency schools can run optimal and be able to facilitate the learning needs of students.

2. METHOD

The method used in this research is a literature review. Data collection is carried out through analysing and organizing data from several journal articles that related to research results and studies for management of learning activities and learning concepts in disaster emergency schools. It is primarily intended to see learning activities carried out and the innovation of learning concepts applied by teachers to children in refugee camps. To support the literature review data, several journal articles indexed by Scopus and nationally accredited by SINTA related to learning for children in disaster-prone areas were used with a publishing period of 2015-2021. The purpose of this literature review is to understand literature studies related to learning management for elementary school students in disaster areas such as the application of certain models, methods, strategies, and learning media.

The primary search article generated 50 relevant references. After eliminating articles that duplicate and not related to the review of the abstract, 30 references were identified. After more identified, 20 references were not suitable with index and were not included after further review. Finally, 10 articles were included in this study. To increase the validity and reliability of the study, researchers searched the articles simultaneously and evaluated the quality of articles separately. The inclusion criteria are the types of natural disasters experienced in several areas, including abroad, the form of learning activities that are presented to elementary school students while in disaster emergency locations, and evaluating the education policy strategies carried out.

Finally, 10 articles were registered in this study is arranged in Table 1. After general grouping in the table 1, disaster categorization is carried out with possible learning management which is arranged in table 2.

Table 1 Descriptive papers analysis for the systematic review of literature

Reference Author(s)	Country	Year	Methodology	Data collection tools and analysis method	Type of disaster	Learning activity management
[6]	Indonesia	2020	4D (Define, Design, Develop, dan Disseminate) model	Questionnaire: analyse the basic problems encountered in learning.	Earthquake disasters, tsunami disasters, volcanic eruption disasters, flood disasters, landslides, drought disasters, forest and land fires.	KOASE comic media as an alternative learning media
[7]	Cairo	2014	A(pre-post) quasi-experimental design	Observation and self-administered questionnaire (pragmatic approached)	Earthquake disasters	Educational program disaster management in primary governmental schools.
[8]	Filipina, Thailand	2015	The KHB method	Cross-sectional survey data	Philippines: violent volcanic, earthquake, tropical cyclones. Thailand: tsunami, storm surge, and flood	Explore the role of education, disaster experience, and a set of potential mediating factors in explaining a person's tendency to undertake preparedness measures.
[9]	Indonesia	2021	Descriptive quantitative design	Questionnaires	Volcanic disaster	Disaster education for primary school teachers
[10]	Indonesia	2019	Focus Group Discussion (FGD).	Quantitative and qualitative questionnaires.	Volcanic disaster	Development Disaster Awareness in Primary Schools
[11]	Indonesia	2021	Quantitative approach.	Descriptive statistics	Landslide	Used as the basis for landslide disaster mitigation planning.
[12]	Indonesia	2018	Observational, correlative analytics	Quantitative research	Earthquake, tsunami	Disaster preparedness education through teaching knowledge and attitude
[13]	Indonesia	2021	Qualitative with descriptive analysis	Questionnaires, interviews, observation, and documentation.	Flooding, land sliding, drying as well as climate change	Disaster literacy
[14]	Indonesia	2019	Quasi Experiment	Wilcoxon Test and Mann-Whitney.	Earthquake	An effect of simulation methods and picture books on increasing student knowledge about earthquake preparedness.
[15]	Indonesia	2017	Qualitative and survey	Interviews and Focus Groups	Tsunami disaster	Safety of school location, Experiences of school disaster preparedness programs in the past, Disaster Management, Disaster Education,

Table 2 Result Data Learning Management Student Elementary School in Disaster Area

Type of Disaster	Learning Management
Earthquake, tsunami, volcanic eruption, flood, landslides, drought, forest and land fires	Media comic
Earthquake	Educational program disaster management
Violent volcanic and earthquake activities to tropical cyclones, tsunami, storm surge, and flood	Explore the role of education, disaster experience, and a set of potential mediating factors in explaining a person's tendency to undertake preparedness measures.
Volcanic	Disaster education for primary school teachers
Tsunami	Disaster preparedness education through teaching knowledge and attitudes
Landslide	Used as the basis for landslide disaster mitigation planning for landslide
Earthquake, tsunami	Disaster preparedness education through teaching knowledge and attitude

Type of Disaster	Learning Management
Flooding, land sliding, drying as well as climate change	Disaster literacy
Earthquake	An effect of simulation methods and picture books on increasing student knowledge about earthquake preparedness.
Volcano eruption	Accommodate the content of disaster in the school curriculum

3. RESULT AND DISCUSSION

The findings from our analysis literature review about learning management for student elementary school in disaster areas: 1) Disaster preparedness education, 2) Disaster education for primary school teachers, 3) Disaster education for primary school students, 4) Disaster literacy.

3.1. Disaster Preparedness Education

Disaster preparedness education is important for students in elementary school, especially those in disaster-prone areas for all types of disaster (earthquake, tsunami, volcanic eruption, etc). The government has started the Disaster Preparedness School Program. The introduction of Disaster Preparedness School (DPS) hoped students were able to identify disaster resilience learning and face the disaster occurring [5] suggested that implementation of the DPS Program through appropriate trainings have been carried out in several elementary school and high schools: 1) Target for training must be choose the right people; 2) Program targets should be set by change of the subject matter related to new disasters in the area and flexible subject matter; 3) Making modules related to disaster risk reduction using language that is easy to understand, and delivering it into participants in an informal and dynamic way so that it can improve cognitive and affective as well as psychomotor; 4) Timing must be appropriate in relation to the purpose and number of participants; 5) The DPS program is equipped with proper monitoring such as an understanding of disaster mitigation and prevention, questionnaires, document interviews, and comprehensive observation documents; 6) Training must be carried out regularly and involve school members in the local community; 7) Training must be carried out regularly and systematically; 8) Involve all stakeholders such as school residents, parents, surrounding communities, local governments, and NGOs.

To assess disaster preparedness as a result of past experiences of disasters. The idea arose to initiate implementation of the disaster preparedness school with a comprehensive security framework. Several things need to be considered for preparing disaster preparedness schools, by following: 1) School safety; 2) Experience in the past school disaster preparedness programs, 3) Disaster management; 4) Disaster education. Preparations for these conditions have been carried out in Aceh as a form of preparedness and response to the 2004 Tsunami [15]. Development of the disaster preparedness

school program is carried out by all parties involved so that the community has an established resilience [16]; [17]; [18]; [19]; [20]; [21]. The purpose of the school program must be to follow the existing disaster threat because each school location has a different disaster hazard. The development of appropriate and different programs in each school depends on the topography of the school which will provide the richness and diversity of school preparedness programs in Indonesia.

Practices in disaster mitigation learning to be needed for furthermore skills and long-term memory on actors and learning subjects. The simulation method was applied to improve student preparedness in dealing with disasters. Simulation is a technique used in all teaching systems, especially in learning design oriented towards behavioural goals ([22]; [23]; [24]; [25]; [26]; [27]). Teachers must be able to provide the ability to guide students in conducting simulations in disaster conditions. This simulation was dominated by procedural knowledge practiced by teachers and students, so it becomes a skill of fosters disaster awareness behaviour.

3.2. Disaster Education for Elementary School Teacher

Educational programs implicated changes in teachers' knowledge, and practices regarding disaster management in primary governmental schools [7]. Urgent for every periodically conducted training programs for teachers in primary governmental schools. Disaster mitigation learning for teachers related to knowledge, attitudes, and practice needs to be done, so the teachers can able to design and teach disaster mitigation lessons for their students. The results of research conducted by [9] stated that elementary school teachers in Magelang Regency generally have good knowledge about disaster education. The level of knowledge is estimated to be influenced by the last level of educational factors. Elementary school teachers agree that disaster education should be part of the curriculum and they have taught disaster education for students([16]; [28]; [29]; [30]; [31]).

The lack of student knowledge about disasters and their mitigation efforts is caused by several factors including the lack of teacher knowledge about disaster mitigation in schools. Efforts that can be made are the need for legitimacy that regulates teacher skills in disaster preparedness. The basic skills developed to manage these teachers include the ability to carry out needs analysis, planning skills, the ability to implement,

monitor, evaluate, and follow up on disaster mitigation lessons. The disaster education program also has an impact on the knowledge and practice teachers in public elementary schools in Cairo where the disaster education program has implications for changing the knowledge and practice of teaching teachers about disaster management in public elementary schools [7]. This study recommends a regular training program for teachers in public elementary schools to increase knowledge and teaching practice about disaster management in primary schools.

Knowledge is an important part of the school's mitigation program. The urgency of teachers knows because this is a message that will be internalized by the teacher and will be realized in teaching practices that involve disaster mitigation materials [23]; [24]; [25]; [26]; [27]. The knowledge that teachers need to possess is general knowledge of disasters, knowledge of disasters around schools, knowledge of disaster management, knowledge of mitigation planning, implementation, and evaluation of disaster mitigation.

3.3. Disaster Education for Elementary School Students

International agencies and scientific research have called for the inclusion of children in disaster preparedness and risk reduction. It is intended to listen to their voices in addressing their specific needs and vulnerabilities and to leverage their capabilities in terms of building community resilience [32]. Teachers in primary schools need to teach the basics of disaster mitigation because schools are good means to grow and develop students' knowledge. Knowledge of disaster mitigation is a process and activity of thinking of individuals through the interaction of the sense of sight and hearing in seeing disasters, both before, during, and already occurring disaster [33]. Through a learning process that is intentionally designed by educators about the disaster, mitigation knowledge is expected to have an impact on students' preparedness in dealing with disasters and can make it easier for teachers to measure students' knowledge of disaster mitigation. [34] Suggest that disaster mitigation education is carried out with the aim to 1) providing information to students about true knowledge about disasters; 2) providing a systematic understanding of protection, and 3) training students on how to protect themselves and how they can respond to disasters appropriately and quickly.

3.4. Disaster Literacy

Literacy is one type of learning model that has been widely used in various disciplines. [35] Described literacy as a conceptual framework that is used as reference for carrying out activities in the classroom or tutorials to improve skills related to critical thinking,

speaking, reading, and writing so that one will develop ability in specific cognitive operations through writing, words, sentences, and the text; these are used as means of communications to meet the demands of modern society. As a learning model, literacy is suitable to develop students' critical thinking and decision-making ability. Geographic literacy is an alternative learning method for geography class [36].

Expansion of the disaster and environmental constraints have occurred in the environment of female students in primary schools. Unfortunately, students' mothers are rarely involved in socialization activities. This triggers a lack of knowledge about environmental and disaster functions because they are not yet literate. Due to the lack of information on disaster clues, they can fail to deal with environmental problems and disasters when disaster strikes their lives. Disaster Management Agency, both government and private, as well as NGOs also have a role in natural disaster literacy.

As mothers, students are aware, high knowledge and attitudes, have an impact on their behaviour because environmental literacy and disasters are related to real actions or behaviour. For this reason, behaviour in concrete actions to deal with environmental constraints and disasters has not been carried out properly and fairly. For example, they have not cultivated trees and other crops such as fruit and flowers to reduce disaster risk. Likewise with the behaviour of the mothers of students who have not taken action to manage their waste. Garbage is still thrown into the river, burned, and thrown into the trash. In addition, rainwater which is a big problem that triggers flooding cannot be accommodated even though rain is very valuable for life. If these actions are left unchecked then the problem of disaster in human life. Then, water catchment areas have not become a habit to reduce the amount of runoff on the ground surface. This refers to the flood disaster because rainwater is not able to save the underground area [13].

3.5. Learning Media

Teachers in elementary schools are also responsible for making learning interesting for students and eager to participate in learning. Using learning media is one-way teachers can create interesting learning. Learning media can accompany the teacher's explanation so that students more easily understand the things they are explained. Learning media is one form of means that is considered capable of translating abstract concepts into more concrete processes in learning. Graphic media is one of the media that can communicate reality and thoughts more clearly through a combination of expressing words and images [37]. Students still have imagination but are more directed and organized by using learning media in each lesson so that learning objectives will be more focused. Comics can be used as a learning medium that functions as a messenger of learning with visual media

that is packaged as attractive as possible so that students are more interested in learning [6]. Comics are one of the learning media that can stimulate students to want to learn and learn things.

4. CONCLUSION

Based on the results of the literature review and discussion, it can conclude that education management in disaster areas can realize in several ways including 1) Disaster preparedness education, 2) Disaster education for primary school teachers, 3) Disaster education for primary school students, 4) Disaster literacy, and 5) Learning Media. Learning management for students in elementary school in disaster areas very important to prepare student during disaster occurs. The disaster education program also had an impact on the knowledge and practice of teachers at public elementary schools. Disaster education for elementary school students is important to be taught as a form of the first step for disaster preparedness. Disaster literacy teaches students to understand what a disaster is and critical power disaster-related community. And then learning media can accompany the teacher's explanation so that students more easily understand the things they are explained.

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