



Needs Analysis of Disaster Mitigation Learning Design Based on Information Literacy in Efforts to Increase *Disaster Self-awareness* of Early Childhood

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Abstract. At the Early Childhood Education level, to introduce the concept of disaster mitigation learning, it must be integrated into contextual learning so that it is easy for children to understand and very meaningful. Furthermore, the role of school principals, educators, parents and partners/communities is needed in the introduction of disaster mitigation learning that is able to increase children's disaster self-awareness from an early age. The main problem currently being faced is the limited information literacy skills of educators in searching data for preparing disaster mitigation teaching materials. East Lampung Regency, one of the flood and tornado-prone areas in Lampung Province, of course all existing early childhood children need education about how to teach disaster mitigation lessons to children from an early age to increase disaster self-awareness so that they become a young generation that is resilient to disasters. Where they live. For this reason, a study will be conducted on the analysis of information literacy skills possessed by educators in East Lampung Regency in the preparation of disaster mitigation teaching materials to increase disaster self-awareness of children aged 5–6 years. This research uses a qualitative approach and case study method. The research subjects were PAUD educators in Labuhan Ratu District, East Lampung Regency. Determination of location based on areas prone to floods and tornadoes. The entire process of collecting data online and offline, by complying with the covid-19 health protocol. Through this research, it is hoped that the following specific objectives will be achieved, namely: (1) Mapping the level of information literacy skills of educators in the preparation of disaster mitigation teaching materials that can improve early childhood disaster self-awareness; and, (2) analyzing the needs of educators in preparing disaster mitigation learning plans that can increase disaster self-awareness of early childhood.

Keywords: disaster self-awareness · disaster mitigation · Early Childhood

1 Introduction

A. Background

The increase in air temperature that we feel lately is the impact of climate change. Characterized by extreme weather that increases in intensity and duration, resulting in various disasters, such as floods, landslides, flash floods, sea level rise. Climate change has a very broad impact on people's lives, it is even considered a global threat that has the same impact as the COVID-19 pandemic. The phenomenon of climate change has occurred in the world, and Indonesia is no exception. Our country is known to have a row of coastal cities that are at the forefront with the highest risk of facing disasters.

Lampung Province is one of the regions in Indonesia which is also a disaster-prone area. The part of Lampung Province that is unavoidable from the impacts of climate change is the area in East Lampung Regency. Data from the Central Statistics Agency in 2015 states that East Lampung Regency consists of land and water areas. The territorial waters are mostly in the form of oceans, so that according to Law No. 23 of 2014 concerning Regional Government, the territorial limits are up to 4 miles from the coastline. The land area of this district is divided into 24 sub-districts in which there are 264 villages. With the existing conditions, making East Lampung Regency a potential area prone to floods and tornadoes.

Flood disaster or any disaster will always involve people from all ages without exception for early childhood. The community here is not only the object of natural disasters, or in this case called victims. Contemporary research shows that the community not only implements a "*strategy of survival*" when a disaster occurs, but also takes preventive actions aimed at avoiding disasters or rather reducing the impact of disasters. In a sociological perspective, this concept contains efforts to reduce vulnerability and increase adaptive capacity to potential threats in the surrounding environment.

As an area that is potentially prone to floods and tornadoes in Lampung Province, there are 997 Early Childhood Education level schools spread across 24 sub-districts in East Lampung Regency. This data from the official website of the Ministry of Education and Culture assumes that there are at least more than 40 thousand early childhood children (age range 5–6 years) who need education on how to teach disaster mitigation lessons to increase *disaster self-awareness* so that they become a young generation that is resilient to disasters in the area where they reside.

Providing disaster mitigation learning to early childhood is a challenge for educators. More than that, educators must master the concept of disaster education. It's not just a definition, but what are the needs in preparing learning plans, what media are needed in the learning process to understand disaster mitigation and how to transform the concept of disaster mitigation in early childhood in order to increase their *disaster self-awareness*.

To master the concept of disaster mitigation learning in the current digital era, of course, educators must also have in-depth information literacy skills so that they are able to collect data and compile teaching materials through searches on the website.

The spread of information and digital guidebooks also makes it easier for educators to prepare teaching materials. However, this case is a challenge in compiling disaster mitigation lessons to improve *disaster self-awareness* for early childhood who live in flood-prone areas in East Lampung.

The main problem currently being faced in designing disaster mitigation learning is that educators often have misconceptions in transforming knowledge about disaster mitigation learning because of the lack of educator knowledge of innovative learning media variants presented on the website. In addition, the existing guidelines from the Government are only known without having been further implemented because of the difficulty in integrating them into the thematic learning in PAUD institutions. This condition is in line with the statement of BP PAUD and Dikmas staff of Lampung Province, Nasib Wasito, who is also active in distributing and facilitating knowledge of the learning program launched by the current Minister of Education.

Another fact faced by teachers is the limited information literacy skills of educators in searching for disaster mitigation teaching materials which can actually be done by utilizing information and communication technology, namely teachers can look for teaching material references such as innovative learning media that can be obtained by using a search on the internet through the Google site. or YouTube. As revealed in previous research which states that the images and sounds that appear also make children not bored quickly, so that they can stimulate children to know the material further, and on the good side they will become more diligent and triggered to learn to concentrate. PAUD educators can also use innovative learning media such as showing pictures or videos of disaster mitigation lessons. Basically, the use of media in the learning process will create a pleasant atmosphere for children, especially if you want to increase children's *disaster self-awareness* of disaster mitigation.

Therefore, through this research proposal, we will try to study in depth the analysis of the information literacy skills of educators in the preparation of disaster mitigation teaching materials to improve *disaster self-awareness* of children aged 5–6 years. The location proposed in this research is PAUD institution in East Lampung Regency. East Lampung Regency was chosen because it is one of the areas prone to floods and tornadoes in Lampung Province. At the end of 2021, a research study on disaster mitigation was carried out by the Laboratory of the Sociology Department, FISIP, University of Lampung in collaboration with the Disaster Management Agency of East Lampung Regency and it was found that the importance of collaboration and synergy between the community, village government and related agencies to introduce disaster mitigation. Thus, this research is a continuation of the existing findings for its implementation in PAUD institutions and it is hoped that they will be able to support each other.

2 Research Methods

This research is a qualitative research with a case study method (*case study*). The use of qualitative approaches and case study methods is based on the consideration that the literacy education process has many unique aspects to be learned and instilled in early childhood, especially when it occurs in the family, so it needs to be explored more deeply and comprehensively. This research will involve PAUD educators in Rajabasa Lama Village, Labuhan Ratu District, East Lampung Regency. The research will be carried out

for a period of six months from April 2022 to reporting in October 2022. The data collection methods in this study consisted of interviews, observations, and documentation. The data analysis technique used by the researcher refers to the interactive data analysis model according to Miles and Huberman, the activities carried out during the period of data collection to reporting include three parts, namely data *reduction* (data reduction), data *display* (data presentation), and *conclusion drawing/verification*. (verification).

3 Research Results and Discussion

A. Research result

1) Information Search and Identification of Potential Disasters

Based on the results of interviews conducted with five research subjects, it is known that educators in Rajabasa Lama District have information literacy literacy. This can be seen from the use of print and digital media as a means to find information related to disasters that occur around them. Educators usually use print media, such as; newspapers, magazines and books to obtain information about the surrounding disasters. And also use digital media, such as; TV, and HP through the application youtube, whatsapp, facebook, tik-tok and google to expand information related to potential disasters that may occur.

"...usually we get disaster information in newspapers, television as well, as well as the internet, such as youtube..." S (37)

"...print media is usually, I get information from magazines or newspapers or there are brochures like that, digital media is usually from television or youtube. Group wa..." S (54)

"...I usually find out from newspapers, the Internet is usually through Facebook, watching tik-tok, and watching news on TV..." SM (53)

"...from books, magazines, newspapers, if you are looking for information only from the internet, I usually use my cellphone, only via youtube..." TS (44)

"...I get it from reading newspapers, yes, from anywhere, from the internet, I can, go to google..." EH (59)

Furthermore, the educators also revealed the possibility of potential disasters that will occur in schools usually only related to hurricanes or hurricanes or can be called hurricanes and earthquakes. This was revealed by three educators from five educators as information.

"...as long as I live here, it seems that there are no serious disasters like that, at most it's like a hurricane but it doesn't cause casualties and so on..." S (54)

"...had been hit by a hurricane, my mother just said that behind it there was a big tree and it fell, luckily it didn't fall right into the house, yes, it's just the wind here on average..." TS (44)

"...earthquakes do happen often, yes, but briefly..." EH (59)

2) Learning Content Developer

Based on the results of the study, it is known that in developing learning content related to disaster mitigation, educators have been based on existing information literacy. Where in looking for learning media references related to disaster mitigation,

educators on average have utilized the use of the internet through Google applications, and textbooks or themes, this was conveyed by four educators. While the remaining one only uses songs as a reference for learning media related to disaster mitigation.

"... just go to google..." EH (59)

"...from our google, usually, from our books, maybe from children's textbooks, right there, the universe theme is usually there too, the material..." S (37)

"...theme book, just google it..." SM (53)

"...read in books if you don't browse through the internet, or just watch electronic media on TV..." TS (44)

"...from a song, so we discuss from that song, that if a disaster occurs we do something like that so before we teach children to sing songs about natural disasters such as earthquakes..." S (54)

However, unfortunately the development of learning content that has been based on information literacy skills has not been developed optimally by educators. This can be seen from the form of the design of the disaster mitigation learning program which was made only fixated on the theme of the universe which was only delivered during the second semester.

"...we've been using daily learning programs according to the theme, so when we talk about the universe, we only have it in the second semester, so we only tell the children in the second semester..." S (37)

"...according to the themes, natural disasters are natural surroundings..." S (54)

"...just according to the theme, madam, about the universe later in the second semester..." SM (53)

"...according to the existing RPPH..." TS (44)

"...just introducing, just a story about mitigation in case of flooding, if this is an earthquake, it's just a story..." EH (59)

Furthermore, the delivery of material carried out by educators also looks very small. Where the teaching delivered related to disaster mitigation was only related to floods, earthquakes, hurricanes and volcanic eruptions, while other disasters were never delivered or introduced.

"...learning about flooding, so we convey to the children that what causes flooding is usually due to littering, then why is the water channel clogged, like that and what is the awareness of children and parents usually we convey like that..." S (37)

"...we tell the children that if there is a disaster like this, we have to avoid especially the first glass, for example if there is an earthquake there is a hurricane we cannot take shelter under a tree, then we have to go to an open place like that..." S (54)

"...Introducing the flood disaster, usually children are given the task of coloring pictures during a flood, but the pictures are taken home, so there is no documentation, Ms.

"... The earthquake seems to be good, we teach the children so we just take cover under the table, then go out but not in a place with a lot of trees like that..." TS (44)

"...through science learning which discusses the Mount Eruption disaster..." EH (59)

In addition, three out of five educators stated that the disaster mitigation lessons that had been implemented in their institutions were not in accordance with the surrounding

environmental conditions, but were still taught by educators on the grounds of anticipation in the event of a disaster and at least educators had introduced it to children. While the other two educators answered yes because they felt that the lessons delivered were in accordance with those in the RPPH and printed books.

“... Later, let the children, what if there is a flood at any time so the children are not surprised anymore, oh the flood turned out to be like this, oh this will have to be like this, the children already know that at least the teacher has told them I see...” S (37)

“...if it’s not appropriate, I guess, people have never had a disaster here...” SM (53)

“... in my opinion, it doesn’t suit me...” TS (44)

“... The RPPH that my teacher made seems to be in accordance with the procedure and the soup seems to be right, it’s appropriate, it’s appropriate, I just want to practice it directly, right, it’s never called, so it’s only children, at least when the explanation is the children can be taken to the water channel, then for example the water channel is dammed, the water can’t flow and so on...” S (54)

“...yes, according to the learning materials in printed books...” EH (59)

3) Infrastructure Suggestion Setup

Based on the results of the interview, it is known that the preparation of infrastructure facilities related to disaster mitigation learning is also very limited. This can be seen from the props that are owned are limited to the pictures contained in the theme book and posters only with the method of introduction through stories and assignments to color pictures with the theme of natural disasters.

“...if we usually only use props or posters, that’s all, that’s all...” S (37)

“...it’s just that the problem regarding disaster seems like it’s only through stories, the teacher’s stories are just like if you were going through the picture just coloring the picture of a melutus mountain or a violent wind, if you’ve been using no media so far...” S (54)

“...just use the theme book, madam, we photocopy the picture and then color it with the child...” SM (50)

“...the props are only books, only theme books...” TS (44)

“...introduce by using pictures and by telling a story...” EH (59)

In addition, the display of images and videos related to disaster mitigation learning using the help of projector media has also never been or has never been done because of the absence of tools at each institution. There is only one school that already has a projector but even that is not used because of the lack of understanding of teachers related to IT (Information and Technology).

“...never, because the teachers here don’t know IT too deeply, regarding IT it’s still low, if there is a projector but it hasn’t been used because it automatically has to have its own laptop, they don’t have one, so the use of a projector is very low...” EH (59)

4) Follow-up Implementation

Based on the results of follow-up research related to information literacy-based disaster mitigation learning in an effort to increase disaster self awareness for early childhood, it is still limited to the appeals conveyed by educators to children through the

storytelling method. Meanwhile, cooperation or collaboration with parents and rescue workers or with other institutions regarding the introduction of disaster mitigation has never been carried out. This was conveyed by all educators in interviews.

“...nothing, because we’ve never had a disaster like that, no...” S (37)

“... so far we have never been with parties like that, when it comes to disaster issues with parents, we have never had it, but only during meetings, yes, I have also mentioned that problem...” S (54)

“...nothing, at least it is recommended...” SM (53)

“...never...” TS (44)

“...nothing...” EH (59)

B. Discussion

1) Information Search and Identification of Potential Disasters

The information literacy skills of educators in searching for disaster mitigation teaching materials can actually be done by utilizing information and communication technology, namely teachers can look for teaching material references such as innovative learning media that can be obtained by using searches on the internet via Google or YouTube sites. Where, information literacy in early childhood is no less important to be improved. This information literacy skill has also been possessed by educators in Rajabasa Lama District, East Lampung Regency. This can be seen from the process of searching for information related to potential disasters that may occur in the vicinity by utilizing appropriate literacy sources, namely through print media, such as; newspapers, magazines and books. As well as using digital media, such as; TV, and HP through searches on youtube, whatsapp, facebook, tik-tok and google applications in order to expand information related to potential disasters that may occur in Rajabasa Lama District, East Lampung Regency.

Based on the experience of disasters that have been experienced, educators reveal that the potential for disasters that will occur in schools is related to hurricanes or hurricanes or can be called hurricanes and earthquakes. This is of course very reasonable. Given that Indonesia is located in one of the most disaster-prone areas in the world and is at high risk of various hazards, including floods, earthquakes, landslides, tsunamis, volcanoes, and typhoons [1].

2) Learning Content Development

The development of disaster mitigation learning content given to early childhood is actually a challenge for educators. Although educators in Rajabasa Lama District, East Lampung Regency have based on existing information literacy and have been looking for learning media references related to disaster mitigation using internet media through Google applications, and package books or themes, as well as songs. But more than that, educators must master the concept of disaster education. It’s not just a definition, but what are the needs in preparing learning plans, what media are needed in the learning process to understand disaster mitigation and how to transform the concept of disaster mitigation in early childhood in order to increase their disaster self-awareness. Because in general, disaster mitigation learning needs to be done to make the community understand what

needs to be prepared and done before and when a natural disaster occurs [2] and in particular it can be in the form of a disaster preparedness program in schools so that children can know how to save yourself when a disaster occurs [3].

Disaster preparedness is also intended as *disaster self-awareness*, so this disaster mitigation learning needs to be seriously designed and integrated into early childhood learning, because when a disaster strikes an area, the victims come from all ages including early childhood.. However, unfortunately the development of learning content in Rajabasa Lama District, East Lampung Regency is not optimally developed by educators. This can be seen from the form of the design of the disaster mitigation learning program which was made only fixated on the theme of the universe which was only delivered during the second semester. In fact, the lack of introduction to disaster mitigation carried out by the Institute and only relies on RPPM, RPPH and themes should be followed up immediately with the introduction of disaster mitigation from an early age which is carried out through education, especially in schools and it would be better if it were included in the education curriculum at the level of education. Elementary to high school [4] Because education is one of the effective means to reduce disaster risk by including subject matter about natural disasters as a compulsory subject for every student at all levels, especially in schools located in disaster risk areas [5]. Therefore, disaster mitigation learning is very appropriate to be given in schools.

In addition, the delivery of materials related to disaster mitigation learning carried out by educators in Rajabasa Lama District, East Lampung Regency also looks very small. Where the teaching delivered related to disaster mitigation was only related to floods, earthquakes, hurricanes and volcanic eruptions, while other disasters were never delivered or introduced. Whereas education on natural disasters is very necessary because not many know how to respond to natural phenomena and natural phenomena before a disaster occurs [6]. This is of course very worrying for children, where children will be very vulnerable to becoming victims of disasters because their abilities and knowledge related to disaster mitigation are very minimal, especially for children who are in rural areas [7].

In fact, educators have also understood that although the disaster mitigation lessons that have been implemented in their institutions are not in accordance with the surrounding environmental conditions and have never happened, they are still beneficial for children as a form of anticipation in the event of a natural disaster and can increase children's *disaster self-awareness*. In addition, the introduction of disaster mitigation learning can also unravel the psychological impact of disasters related to post-disaster stress such as trauma, appreciation of experiences during disasters, the absent of social support, unoptimal ability to adapt to changes that occur, reduced self-esteem, to reduce positive expectations [8].

3) *Preparation of Infrastructure*

Preparation of infrastructure facilities related to disaster mitigation learning is usually seen from the preparation of props owned. Where in institutions in Rajabasa Lama Subdistrict, East Lampung Regency, the preparation of teaching aids is still very small and only limited to pictures contained in theme books and posters only with the introduction method through stories and assignments to color pictures with the theme of natural

disasters.. Even though teaching aids can be easily made and developed in accordance with local wisdom in their respective areas, therefore, information literacy skills are needed for educators to search for data/information properly and correctly related to disaster mitigation learning.

The information literacy skills of educators in searching for disaster mitigation teaching materials can actually be done by utilizing information and communication technology, namely teachers can find references to teaching materials such as innovative learning media that can be obtained by searching the internet through *Google* or *YouTube sites*. As revealed in previous research which states that the images and sounds that appear also make children not bored quickly, so that they can stimulate children to know the material further, and on the good side they will become more diligent and triggered to learn to concentrate.

Educators can actually use innovative learning media such as showing pictures or videos of disaster mitigation lessons. Where, the use of media in the learning process will create a pleasant atmosphere for children in order to increase children's *disaster self-awareness* of disaster mitigation. However, unfortunately, the display of pictures and videos related to disaster mitigation learning using projector media has never been done or has never been done because of the absence of tools available at each institution in Rajabasa Lama District, East Lampung Regency. There is only one school that already has a projector but even that is not used because of the lack of understanding of teachers related to IT (*Information and Technology*).

4) Follow-up Implementation

Implementation of follow-up related to information literacy-based disaster mitigation learning in an effort to increase *disaster self-awareness* of early childhood is still limited to the appeals delivered by educators in Rajabasa Lama District, East Lampung Regency to children through the storytelling method. Meanwhile, cooperation or collaboration with parents and rescue workers or with other institutions regarding the introduction of disaster mitigation has never been carried out. Whereas contemporary research shows that society should not only implement a "*strategy of survival*" when a disaster occurs, but also take preventive actions aimed at avoiding disasters or more precisely reducing the impact of disasters. In a sociological perspective, this concept contains efforts to reduce vulnerability and increase adaptive capacity to potential threats in the surrounding environment.

4 Conclusions and Recommendations

A. Conclusion

Based on the results of research regarding the needs analysis of disaster mitigation learning designs based on information literacy in an effort to increase *disaster self-awareness* of early childhood, it can be concluded that:

- The level of information literacy skills of educators in the preparation of disaster mitigation teaching materials is still very low. This is evidenced by the knowledge literacy

skills of educators who are quite broad, but they still often misunderstand in transforming knowledge about disaster mitigation learning due to the lack of educators' knowledge of the variance of innovative learning media circulating on website search sites, as well as educators who still have difficulty integrating literacy. Information obtained from thematic learning in early childhood education institutions in order to increase *disaster self-awareness* of early childhood

- The needs needed by educators in designing disaster mitigation lessons that can improve early childhood *disaster self-awareness are by increasing skills and understanding related to information literacy, preparing good facilities and infrastructure by continuing to develop appropriate learning media in accordance with potential natural disasters that may occur*. Will occur in the surrounding environment by not only focusing on RPPM, RPPH and themes, providing creative and innovative teaching aids, as well as collaborating with other parties, such as parents and rescue workers.
- *B. Suggestion*

Educators should further develop their information literacy skills in depth so that they are able to collect data and compile teaching materials more creatively and innovative through website browsing and using digital guidebooks.

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