



Implementation of Flood Mitigation Experiment-Based Learning to Increase Safety Awareness in Early Childhood

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Abstract. This research was conducted aiming to find out how the application of direct learning strategies based on flood mitigation experiments that teachers do in learning in an effort to increase awareness of self-safety in early childhood. Group B consisting of 10 children consisting of 5 boys and 5 girls at the Ko-ber Al Muwahidin Early Childhood Education Institution, Cimaung District, Bandung Regency. This study uses a qualitative descriptive method to describe how the application of flood mitigation experiment-based learning that teachers do in increasing safety awareness in early childhood and the correlation between the application of experiment-based learning methods carried out by increasing self-safety awareness in early childhood. Data collection tools in this study include observations (field notes), interviews, and documentation. The stages of data analysis are; Data collection, the activities carried out by researchers in this activity are collecting data from interviews, observations and results from documentation studies; Data reduction, in this activity the researcher combines the same data from different subjects; The results show that the teacher applies learning with audio-visual learning video information media in which there are experimental activities using simple technology that can be practiced with children and then carry out experimental activities that build children's knowledge through various experiences experienced by children in real terms and can be seen to have a significant increasing effect on aspects of the development of awareness of self-safety in early childhood which shows an increase in children's knowledge about what things can cause flooding and what needs to be done to prevent flooding.

Keywords: Mitigation, Flood, Early Childhood.

1 Introduction

Indonesia's geographical condition, which is located at the confluence of four tectonic plates, namely the Asian Continent, Australian Continent, Indian Ocean and Pacific Ocean plates, causes Indonesia to become a tropical country and prone to natural disasters such as volcanic eruptions, landslides, tsunamis, earthquakes, and fires. Natural disasters can be caused by natural events or man-made disasters Flooding is one of the

disasters that often occurs in some areas when the rainy season arrives. Floods are caused by the erosion of land, lack of water absorption in the soil and the diversion of land functions as residential land. Deforestation is also one of the causes of flooding. Throwing garbage in rivers or waterways can cause water clogging so that when the rainy season arrives and the volume of water rises, the garbage that blocks the waterways will also rise, causing flooding. Not only that, flooding can also be caused by high intensity rainfall which causes the volume of water to rise.

Based on Law Number 24 of 2007, disaster management is all efforts made in the framework of prevention, preparedness, mitigation, emergency response and recovery related to disasters both before, during and after the disaster. Mitigation is an effort to reduce disaster risk through counseling and can improve ways to overcome the threat of disaster hazards. Children are categorized as more vulnerable to disaster impacts than adults. Gaining knowledge about disaster mitigation is the right of children in order to provide readiness and get information related to efforts made if a disaster occurs [1, 2, 3, 4].

Learning strategies indicate a particular learning approach that includes objectives, syntax, environment, and management system. Direct learning strategy is one of the strategies that is oriented towards the active role of the teacher, either as a mediator, motivator or facilitator. Every learning strategy that will be used depends on the subject matter or material to be taught, because not all strategies can be used on every material. Based on this, the teacher is required to be able to analyze the material and match it with the learning strategy to be used. The Direct Instruction model teaching and learning process can take the form of lectures, demonstrations, exercises or practices and group work. In using direct instruction, a teacher can certainly also relate to class discussion activities and cooperative learning [5].

Early childhood education both formal and non-formal education for children aged 4-6 years which is a golden period for children in developing moral aspects, religious values, physical motor, cognitive, language, social emotional. Therefore, from an early age children must receive learning about disasters. UNESCO & UNICEF [6] describes several child developmental milestones regarding disaster mitigation knowledge, namely: 1) Understanding disaster risk and safety; 2) Knowing the efforts made when the threat of flood disaster occurs; 3) Achieving knowledge skills related to disaster mitigation. Also, in terms of indicators of cleaning and tidying up the playground 1. Children throw garbage in its place 2. Children clean up toys that have been used A resilient and responsive generation in facing disasters will be realized if the provision of knowledge about disasters is good.

The background of this study is the frequent occurrence of early childhood accidents. Children as objects of protection need to be equipped with knowledge and attitudes and behaviors related to their safety [7]. One way to avoid early childhood hazards is to increase their understanding of hazards and ways to overcome hazards through personal safety education. Education about disaster knowledge in PAUD Institutions aims to realize disaster resilient education which is certainly child-centered, where all efforts are made with a focus on understanding that each child certainly has specific needs in terms of dealing with the dangers of disasters and all these efforts can be done by inviting children to actively participate according to the capacity and interests of

children [8]. Disasters can also cause a variety of significant problems not only for adults but also for children, which can be a disruption in the growth and development of children, including early childhood [9,10]. Because of this, disaster knowledge education is very important to be carried out early on, namely since children are in PAUD institutions. Some things that become urgent include 1. being prepared in terms of dealing with disaster emergencies, 2. increasing the preparedness of every citizen who lives in disaster-prone areas, 3. creating a culture of security, 4. as much as possible reducing casualties caused by disasters into consideration to encourage the campaign. In addition, Indonesia is a country that has many areas where there are potential threats of hydrometeorological (floods and landslides, forest and land fires) and geophysical (volcanic eruptions, earthquakes and tsunamis) natural disasters that are relatively among the highest threats in the world [11].

From the description of the problems above, the researcher aims to find out how the application of Flood Mitigation Experiment-based learning in increasing safety awareness in children to provide knowledge of flood disaster mitigation carried out by teachers in learning at Kober Al Muwahidin, Cimaung District, Bandung Regency. The researcher also wants to know whether there is an increase in safety awareness in children through experiment-based learning.

2 Methodology

Qualitative descriptive research methods were used in this study [12]. We examined 10 Group B children at Kober Al Muwahidin, Cimaung sub-district, Bandung Regency In this study using qualitative descriptive research methods. Data was collected through observations carried out to directly observe students' abilities in practicing mitigation flood activities, researchers conducted interviews with teachers regarding children's responses in disaster mitigation learning, interviews with school principals regarding disaster mitigation program planning as well as collecting instrument documents used by teachers in building children's attitudes, knowledge and skills in learning flood mitigation. Data analysis in this study used Miles and Huberman's interactive analysis [13] namely data reduction where the researcher summarizes the data collected to be processed and sorted regarding the disaster mitigation program in Kober Al Muwahidin, data presentation describes the planning, implementation and evaluation of activities and conclusions from research findings in the field.

3 Result and Discuss

Kober Al Muwahidin, Cipatat sub-district, West Bandung Regency in the first stage is in the preparation stage, namely including experimental learning methods in the learning characteristics listed in the Kober Al Muwahidin Curriculum of Education-al Institution (KTSP). Geographically, Indonesia is an archipelago that happens to be at the confluence of four tectonic plates, namely the Asian tectonic plate, the Australian tectonic plate, and the Indian Ocean plate and the Pacific Ocean plate. So that these

conditions make Indonesia prone to natural disasters both volcanic eruptions, tsunamis, earthquakes, landslides and floods [14].

We examined 10 children in group B. The subjects of our research were 5 boys and 5 girls. we conducted interviews with the principal and teacher of group B as well as observing learning about flood disaster mitigation which is usually carried out at Kober Al Muwahidin. From the results of the interview we found that teachers usually stimulate awareness of personal safety in children by applying the habituation method and with learning video media and experiment-based learning. By using the experimental method, each child can search and find their own answers to the problems they face, stimulating the children to be more aware of their own safety scientific way of thinking, children think more actively and do, and find the truth of a theory learned [15]. This is in line with the results of research by Garcia and Sheehan who wrote that disaster mitigation programs are effective in building children's resilience and adaptation to disasters [16].

From the results of interviews with the head teacher why plan flood mitigation activities, because seeing from that Mitigation is covering activities and also protective actions that can be started from preparation before facing the disaster is happen-ing, can also assess what is the danger of disaster, and how to cope with disasters in the form of rescue, rehabilitation, and relocation. Knowledge, understanding, and behavioral skills in an effort to prevent, be able to detect, and be able to anticipate disasters effectively can be transformed and socialized. So, the provision of knowledge and life skills is very much needed by students, especially children, so that when a disaster occurs students can make efforts to save themselves and can also help others.

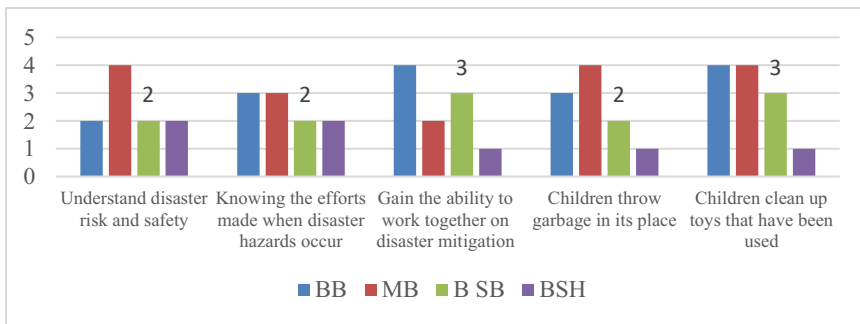


Fig. 1. Achievement of self-safety awareness development before the application of experimental method.

The Fig. 1 above explains students' knowledge with the code BB showing that the child has not yet developed, the child's MB is starting to develop, the child's BSH is developing according to expectations and the child's BSB is developing very well. The next stage is the implementation stage. In the opening session the teacher opens the discussion activities, the application of this discussion method will be able to arouse students' interest and motivation to learn. The discussion was opened with a lighter question "What is a disaster? Then the teacher narrowed the discussion to the flood disaster. The teacher then asked again what triggering questions could cause flooding? According to Cheppy Riyana in the journal [17] learning video media is media that

presents audio and visuals containing learning messages containing procedures, principles, concepts, and applications of theory and information to facilitate understanding of subjects. The use of audio-visual videos makes learning more interesting and can increase interest in learning in early childhood. Early childhood feels that this video media attracts their attention so that they can focus on the material provided by the teacher. after that the teacher then provides information by means of the teacher first presenting a learning video about flood mitigation. from the video, the teacher then prepares the tools and materials according to what is conveyed in the learning video to then conduct experiments together with the children.

In delivering information through learning video media in which there is information about what things can cause flooding, followed by a demonstration of making simple technology from used paralon to simulate flooding due to clogged sewers or drains. Then in the learning video also conveyed through animated characters what children should do to avoid flooding. After watching the learning video, the teacher then invites children to carry out experimental activities to make sewers or drains from used paralon and then use a replica of the sewer to experiment whether it is true that if the paralon is clogged with garbage it can cause water to overflow into the land which becomes a flood disaster. In line with research results which state that learning media using animated videos is media in the form of films or cartoon videos that can move which are able to convey information and messages to students. [18,19,20]

In the final stage the teacher enters the evaluation stage, developmental assessment in early childhood is an important part of the implementation of early childhood education. Assessment has many meanings and purposes, which are mainly centered on how to understand and know the development achieved by children after getting learning stimuli to determine the next steps in order to stimulate optimally After the experimental activities are carried out, the teacher invites the children to tidy up the items used to carry out the experiments to their original place until the learning environment becomes neat and clean. In the discussion, it can be seen that children's knowledge increases as they can mention what causes flooding and what can be done to prevent flooding from occurring, referring to the learning video they have watched.

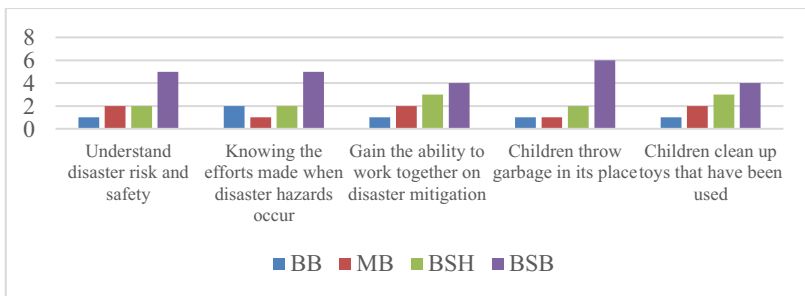


Fig. 2. Achievement of Self-safety Awareness Development After the application of experimental method.

Based on the results of the study, it can be concluded that in the application of flood mitigation experiment-based learning carried out by teachers at Kober Al Muwahidin , it starts by including it in the planning stage by including it in the curriculum and

including experimental activities in the Learning Implementation Plan (RPP). The second stage is the implementation stage where the teacher carries out activities in accordance with what has been designed in the Learning Implementation Plan (RPP). And in the third stage, namely the evaluation stage where at this stage it can be seen that there is an increase in safety awareness in early childhood which can be seen from children being able to mention the causes of flood disasters and things that can be done in an effort to prevent flood disasters from occurring.

4 Conclusion and Recommendation

Based on the results of the study, it can be concluded that in the application of flood mitigation experiment-based learning carried out by teachers at Kober Al Muwahidin , it starts by including it in the planning stage by including it in the curriculum and including experimental activities in the Learning Implementation Plan (RPP). The second stage is the implementation stage where the teacher carries out activities in accordance with what has been designed in the Learning Implementation Plan (RPP). And in the third stage, namely the evaluation stage where at this stage it can be seen that there is an increase in safety awareness in early childhood which can be seen from children being able to mention the causes of flood disasters and things that can be done in an effort to prevent flood disasters from occurring.

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