DEVELOPMENT OF FLOOD DISASTER MITIGATION LEARNING MODEL IN EARLY CHILDHOOD EDUCATION

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Abstract: *This study aims to develop a learning model for flood disaster mitigation in Early Childhood. The research method used is the Research and Development (R&D) method. The research was carried out in several stages. The first stage, conducting a preliminary study and needs analysis (early data collection); the second stage, planning; The third stage, the development of the draft product in this case the Daily Lesson Plan development flood disaster mitigation, the fourth stage is the validation and trial stage. Based on research results, it was found that the development of the flood disaster mitigation learning model met the valid criteria of 3.50, 98% effective and practical test of 3.9 in learning flood disaster mitigation in early childhood. Thus, it can be concluded that the flood disaster mitigation model can be used for learning activities to introduce the concept of science and the concept of environmental care in Early Childhood, especially for children aged 4-6 years. The finding or novelty element in this study is the design of the flood disaster mitigation learning model is easier for children to understand, because the implementation of the model has been adapted to the characteristics and uses learning methods and approaches that are appropriate to the stages of development based on age levels.*
Keyword: Mitigation model, Flood disaster, Early childhood

Abstrak: Penelitian ini bertujuan untuk mengembangkan model pembelajaran mitigasi bencana banjir di Pendidikan Anak Usia Dini. Metode penelitian yang digunakan yaitu metode *Research and Development (R&D).* Penelitian dilaksanakan dalam beberapa tahapan. Tahap pertama, melakukan studi pendahuluan dan analisis kebutuhan (pengumpulan data awal); tahap kedua menyusun perencanaan; tahap ketiga pengembangan draf produk dalam hal ini pengembangan Rencana Pembelajaran Harian menggunakan model mitigasi bencana banjir, tahap keempat yaitu tahap validasi dan uji coba. Berdasarkan hasil penelitian, telah ditemukan pengembangan model pembelajaran mitigasi bencana banjir memenuhi kriteria valid sebesar 3,50, efektif sebesar 98% dan uji praktis sebesar 3,9 dalam pembelajaran mitigasi bencana banjir pada anak usia dini. Dengan demikian, dapat disimpulkan bahwa model mitigasi bencana banjir dapat digunakan untuk kegiatan pembelajaran pengenalan konsep sains dan konsep cinta lingkungan di Pendidikan Anak Usia Dini khususnya untuk anak usia 4-6 tahun. Temuan atau unsur kebaruan dalam penelitian ini adalah rancangan model pembelajaran mitigasi bencana banjir lebih mudah dimengerti olah anak, karena implementasi model telah disesuaikan dengan karakteristik dan menggunakan metode dan pendekatan belajar yang sesuai dengan tahapan perkembangan berdasarkan tingkatan usia.
Kata Kunci: Model Mitigasi, Banjir, Pendidikan Anak Usia Dini.

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INTRODUCTION

Education is one thing that is very important for all children to get, because education is one of the capital that must be owned by every individual to achieve success in his life. The continuity of education for every citizen needs serious attention from various parties, especially the government. The government's roles and responsibilities for the care, education and development of early childhood in Indonesia have been manifested in the form of various policies and agreements both internationally and nationally (Sujiono, 2009. pp 47).

From an empirical perspective, there are many studies that conclude that Early Childhood Education is very important, including according to Clark who explained that at the time humans are born, the completeness of the brain organs contains 100-200 billion brain cells that are ready to be developed and actualized to achieve the highest level of potential development, but research results prove that only 5% of the brain's potential is used. This is due to the lack of stimulation that optimizes brain function (Sujiono, 2009. pp 17). So far, efforts to improve disaster preparedness capabilities have only focused on adults, while for preschool-aged children, there are still very few. The Sendai Framework for Disaster Risk Reduction 2015-20130 lays the foundation for all stakeholders to have a positive attitude that children must be seen as human beings who have all the potential resilience to adapt in disasters (Amriel, 2016).

Therefore, from an early age children must be prepared to face disasters that will occur in the future. Children can be involved in supporting families in community preparedness and recovery. Children who can bounce back after adversity have more resources within themselves, their families and society (Osofsky & Reuther, 2013).

In 2019 the Ministry of Education and Culture requires all levels of education to have special lessons regarding disaster preparedness. Because based on research results, Indonesia has a high level of natural disaster proneness. These natural disasters are dominated by disasters such as floods, landslides, earthquakes, volcanic eruptions and other hydrometeorological disasters. The natural disasters that occur depend on the geographical location and environmental conditions in an area. In early 2021, South Kalimantan experienced severe flooding which resulted in most of the districts and cities being paralyzed. Several road points, villages and several places such as in Barito Kuala Regency, Banjarmasin City, Gambut District, Pelaihari, Tapin, Banjarbaru, Hulu Sungai Utara, Hulu Sungai Selatan, Balangan, Tabalong were affected by floods and the worst was in the Hulu area. Central River. Floods that occur begin with high rainfall and are caused by environmental damage that causes higher pools of water.

Barito Kuala Regency, whose capital city is Marabahan, is located in the westernmost part of South Kalimantan Province. The Barito Kuala Regency area is flanked by two large rivers, namely the Barito River and the Kapuas River, this greatly affects the existing water system in this district. Besides that, there are also 3 artificial canals (anjir) that connect the Barito River and Kapuas River, namely Anjir Talaran, Anjir Serapat and Anjir Tamban. This hydrological situation is strongly influenced by rainfall and present land use both in this area and upstream. In the rainy season at high tide the Barito River can flood most of this area and result in continuous inundation of the land surface. Natural irrigation capacity through small tributaries to form swamp land. Tides also affect the existing water system, which always moves up and down following tidal fluctuations in the Barito River and Kapuas River, this tidal motion occurs 2 times in 24 hours and every day it is 50 minutes late according to the

circulation of the moon (Source: Wikipedia.org).

The magnitude of the potential for flood disasters that occur in South Kalimantan, especially the Barito River Bank area which includes the Barito Kuala Regency, it is important that this mitigation study is carried out early in order to minimize the impact of floods that occur in the area.

According to Paimin in Hermon (2012) flood disaster mitigation is a series of efforts to reduce the risk of flood disasters, both through physical development and awareness and capacity building to face the threat of flood disasters.

Based on a preliminary study to TK Negeri 3 Alalak in Alalak District, Barito Kuala Regency. The research team found that there were learning activities related to the theme of Natural Disasters, including flood disasters. However, in learning, it is only introduced to various types of disasters, with learning models that are still conventional models, question and answer methods and lectures accompanied by picture media.

The learning model is a form of learning that is illustrated from the beginning to the end which is presented specifically by the teacher. In other words, the learning model is a wrapper or frame from the application of an approach, method, strategy, and learning technique (Helmiati, 2012).

To overcome this problem, a learning model for flood disaster mitigation can be used for early childhood. This can be done through the development of a flood disaster mitigation model in PAUD. This is an important and fundamental action that is not only an act of learning development, but is also a preventive measure for the life of every child in dealing with this phenomenon in the future, so that when faced with real events each child has optimal readiness to deal with it.

The material introduced to early childhood should not only be limited to the introduction of various types of disasters, but can be more than that, coupled with the large potential for disasters to occur in the area, it is also necessary to introduce disaster mitigation, especially flood disaster mitigation. Therefore, the Development of Flood Disaster Mitigation Models in Early Childhood Education needs to be developed to provide understanding and meaningful learning experiences for early childhood. So that children become accustomed to maintaining cleanliness and environmental sustainability, as well as becoming individuals who have the ability to respond quickly to possible flood disasters wherever they are. This is in accordance with research from Ina Winangsih, Euis Kurniati in 2020 entitled "Disaster Mitigation in Early Childhood Education" which states that education programs in PAUD must be designed to be responsive to natural disasters (Winangsih & Kurniati, 2020). The focus of this research is to develop a learning model for flood disaster mitigation which consists of planning learning models, implementing learning and evaluating learning models for flood mitigation for early childhood in Kindergarten 3 Alalak, Barito Kuala Regency.

Based on the variety of scientific research, this research focuses on the Education Sector which leads to the Development of Flood Disaster Mitigation Learning Models in Early Childhood Education. In the implementation of this research, the theme of early childhood learning is about community life in the Barito Kuala area which is on the coast of the Barito River.

METHODOLOGY

The type of research used in this research is Research & Development (R&D). This Research & Development is used primarily to bridge the gap between

educational practice and research (Sugiyono, 2016, pp. 297).

Research and development is different from ordinary research which only produces suggestions for improvement, research and development produces products that can be used immediately. So, it can be concluded that development research is a research method to produce a product or to improve existing products.

This research was conducted at TK Negeri 3 Alalak, Barito Kuala Regency, South Kalimantan. Respondents in this study were school principals, teachers and Children in Group B.

Data collection techniques used through interviews and observation. Interviews were used to obtain initial data for analysis of product requirements developed, while questionnaires were used for expert validation. The observation sheet is used to see the implementation of learning using the flood disaster mitigation model.

The research was carried out in several stages. The first stage, conducting a preliminary study and needs analysis (early data collection); the second stage of planning; the third stage of product draft development in this case the development of the Daily Learning Plan using a flood disaster mitigation model, the fourth stage is the validation and trial stage.

The design of the stages of this research can be seen in the chart below:
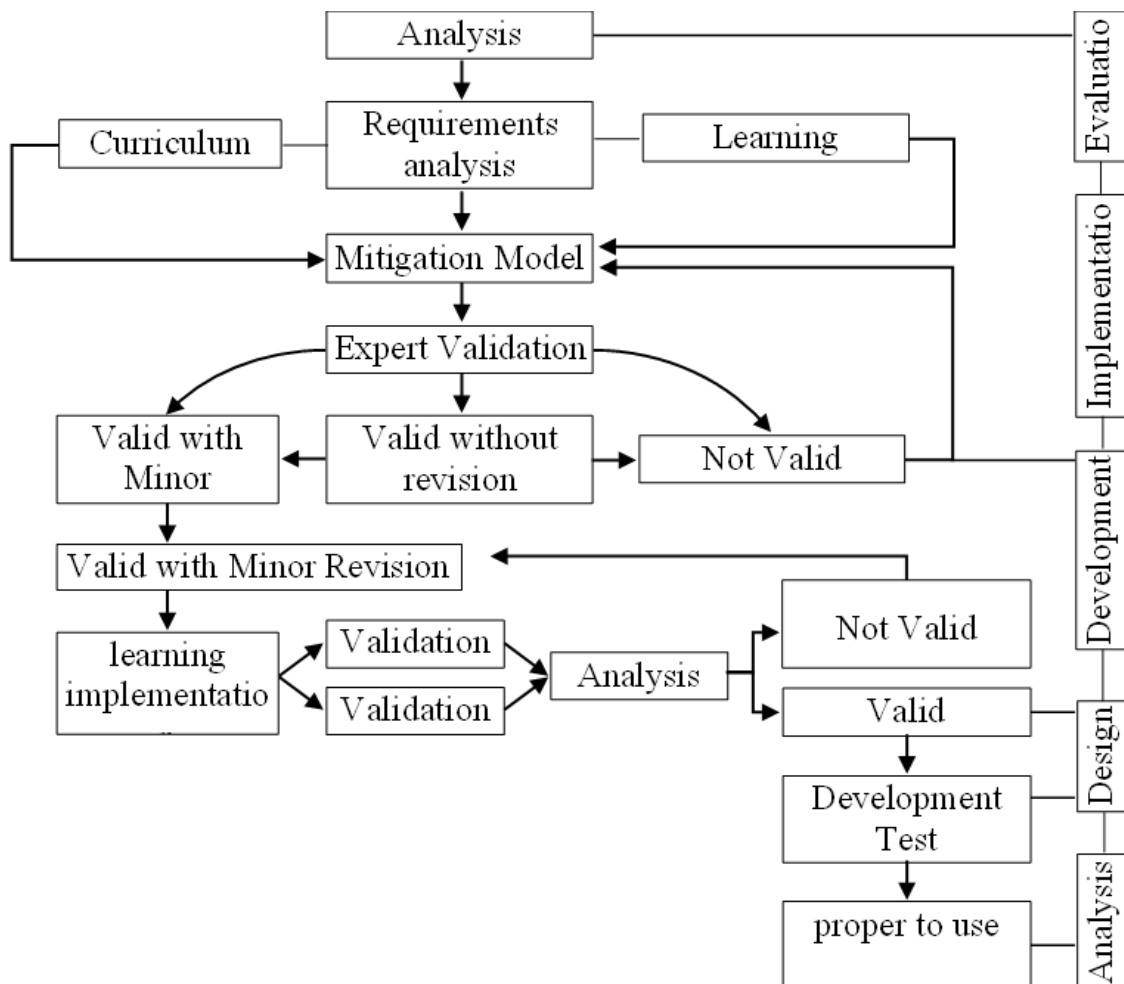
RESULT

The result of this research and development is the design of a learning model for flood disaster mitigation. This study uses a development model which consists of the stages of analysis, design, development, implementation and evaluation.

Implementation of product trials in the form of Daily Learning Plans through three stages, namely; Validation, Validation and Trial Results. The implementation details are as follows:

Validation Phase: It is the determination of the relevant criteria or not a RPPH (Lesson Plan) using the results of the validation analysis carried out by experts. In this stage, the experts were asked to validate and provide an assessment of the RPPH that had been designed by the research team. Furthermore, suggestions and input from the validator are used as a reference and guideline in revising the RPPH (Lesson Plan) in order to obtain a proposition.

Stage of Validation Results: Aspects of the assessment validated by the validator can be seen in the table below:

Table 1 Validation Result

No	Assessment Aspect	Result	Category
1	Goals, Indicators, IP, KD, TPPA and Materials	4	Very Valid
2	Suitability Methods, Approaches and Media with Mitigation Models	3,79	Very Valid
3	HOTS-Based lesson plans	3	Valid
4.	LKPD is able to measure the achievement of learning objectives	3	Valid
5.	Assessment and Assessment Techniques include Attitudes,	3,77	Very Valid
	Knowledge and Skills		
Final score		**3,50**	**Valid**

Based on the data obtained from the table above, it is in the valid category. General assessment by experts is feasible to use/test with minor improvements/ revisions.

Trial Phase: Revised Daily Learning Implementation Plan (RPPH) based on input from experts/validators. Then the next step is the product trial stage in the learning activities carried out by the teacher. The number of students who were tested was six people because this research was carried out during the Covid-19 pandemic. This trial is intended to perfect the RPPH that was developed. This trial activity was carried out in two stages, namely the pre-trial and trial stages.

The Pre-Trial Stage is a stage carried out to equalize perceptions between teachers and researchers. At this stage, FGD (Focus Group Discussion) was held between the researcher and the model teacher. The research team explained the Flood Disaster Mitigation Learning Model and how to fill out the observation sheet. The results of the meeting at this stage are obtained suggestions and input from the model teacher for testing and determining classes for samples and trials. The Trial Phase was held for four meetings held at TK Negeri 3 Alalak, Barito Kuala Regency.

This trial was carried out in Group B with a total of 6 children. In this trial, the learning themes used were varied, ranging from the theme of love for the environment, natural phenomena to a more specific theme, namely flooding.

This trial aims to determine the implementation, effectiveness and practicality of the developed flood disaster mitigation model.

Evaluation Stage: The evaluation stage is used to determine whether the Daily Learning Implementation Plan that has

been designed has been implemented and whether the implementation of the flood disaster mitigation model has been carried out in accordance with the steps and to determine the learning outcomes of children using the flood disaster mitigation model.

Table 2. Data on Children's Learning Outcomes were analyzed based on quantitative data which were interpreted according to the assessment in Early Childhood Education:

MEETING	LEARNING OUTCOMES	CATEGORY
1	75	BSH (Very Well Developed)
2	81	BSB (Develop as Expected)
3	84,3	BSB (Develop as Expected)
4	85,5	BSB (Develop as Expected)

Based on the table above, the data obtained from Learning Outcomes or Children's Development Results in learning activities using the flood disaster mitigation model at the first meeting the average child scored 75 in the category of Developing According to Expectations. Then at the second meeting 81 with the assessment category Very Good. At the third meeting the score obtained was 84.3 with the category of Very Good Developing assessment. Then at the fourth meeting the score was 85.5 in the Very Good Developing category. From these data it can be concluded that the level of understanding and knowledge of Kindergarten B Ttk Negeri 3 Alalak children as respondents from this study can be declared Developing.

DISCUSSION

Based on the results of research and trials conducted in four meetings, the data obtained from the development of the flood disaster mitigation learning model meet the valid criteria of 3.50, 98% effective and practical test of 3.9 in learning flood disaster mitigation in early childhood.

Integrating Disaster Education Into Learning Implementation (Methods/Children's Play Activities). Play activities in the context of Disaster Education require careful planning because they must consider the child's age, psychological condition, stages of playing activities, media and learning resources including the use of educational game tools, and the method chosen for playing. To make educational game tools needed in the context of a disaster, teachers should pay attention to three things, namely: (1) determination of tools and time of use (according to the characteristics of children), (2) materials and tools used for play activities and (3) safety criteria. game tools. By paying attention to these three things, it is hoped that playing activities with educational game tools to teach disaster can be optimally successful (Anggani & Sudono, 2006).

Use of Media and Learning Resources for Disaster Education (Disaster Education Introduction Game). There are several media and learning resources that can be used to introduce Disaster Education for early childhood developed by the Directorate of Early Childhood Development. The games consist of: 1) Posters; 2) Picture cards; 3) Picture stories; and 4) Snakes and ladders game (Hasbi et al., 2019).

Another relevant research is a study by Eddy Noviana, Otang Kurniaman, Munjiatun, Nugraheti Sismulyasih Sb, Sri Dewi Nirmala in 2019 with the title "Why Do Primary School Students Need Disaster Mitigation Knowledge? (Study Of The Use Of Koase Comics In Primary Schools)" which resulted that the use of KOASE comics in learning disaster mitigation can improve students' knowledge of disaster mitigation (Noviana et al., 2019).

Learning Disaster mitigation is very important for early childhood education, because children also need to be introduced to potential disaster hazards that occur in their neighborhood or school.

Therefore, the learning activities in this study that were developed into the RPPH (Lesson Plan) were developed in various ways. Starting from instilling the concept of the occurrence of floods as providing knowledge to children, to role playing activities by conditioning the class as a place for children to play roles that are set in the occurrence of floods until after the flood. This is in accordance with the research by Arif Hakim, Dinar Nur Inten, Dewi Mulyani in 2020 with the title "The Literation of Disaster Mitigation for Early Childhood" which resulted in a special learning plan that was outlined in a theme about natural fire disasters in detail and comprehensively by touch. cognitive, attitude and psychomotor aspects of children in dealing with disasters (Hakim et al., 2020)

The integration of local wisdom in disaster mitigation through science learning is no less important. it can be concluded that the flood disaster mitigation model can be used for learning activities to introduce the concept of science and the concept of love for the environment in early childhood education, especially for children aged 4-6 years. This is in accordance with research conducted by Haman (2020) which produced a flood disaster mitigation guidebook for children aged 5 to 6 years. flood disaster preparedness for children.

Another relevant research, namely Research by Putu Eka Suarmika, Erdi Guna Utama in 2017 with the title "Disaster Mitigation Education in Elementary Schools" which states that disaster mitigation education based on local wisdom can be implemented in the 2013 Curriculum by (1) identifying local wisdom in mitigation disaster and (2) integrating in learning (Suarmika & Utama, 2017).

In addition, through learning about flood disaster mitigation, it is also able to support 21st Century skills, namely Critical Thinking, Creative, Communication, and Collaboration. This is in accordance with research from Singgih Prihadi in 2017, which stated that children from the Bengawan Solo suburb in Nusupan Village have good spatial abilities even though they have not yet learned to read disaster mitigation maps; 2) Children from Bengawan Solo in Nusupan Village have good 4C (Critical Thinking, Creative, Communication, Collaboration) skills after non-formal learning and this strongly supports 21st Century skills skills programmed in formal schools (Prihadi, 2017). With children knowing the causes and effects of disasters, children have the insight to be able to help anticipate the occurrence of disasters and are also able to anticipate if a disaster occurs.

CONCLUSION

This Research and Development produces a product in the form of a Daily Learning Plan using a flood disaster mitigation learning model that has met the criteria of validity, practicality and effectiveness in early childhood learning activities.

This Daily Learning Plan can be used in disaster mitigation lessons to introduce science concepts and the concept of loving the environment. It is hoped that through the implementation of this flood disaster mitigation learning model, students are expected to have an understanding and ability in preventive and anticipatory actions when facing the possibility of a flood disaster in the future.

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