Development of Flood Disaster Management Module as a Means of Elementary School Learning Enrichment

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Abstract. This study aims to develop a flood disaster management module as a means of enriching elementary school learning. This development research aims to develop a flood disaster management module and the feasibility of the flood disaster management module media as a means of enriching elementary school learning. The method in this study was carried out using the Borg and Gall Research & Development model which has been modified by Sugiyono covering 7 stages, namely: 1) potentials and problems, 2) collecting data, 3) product design, 4) design validation, 5) design revision, 6) product trials, 7) product revisions. The results of this study indicate that the results obtained from the validation of material experts obtained an average of 81% with the "Easy" criteria. validation of linguists in the flood disaster management module obtained an average percentage of 85% with very decent criteria. The average percentage of student responses to the flood disaster management module is positive. Students respond that the module is easy to understand, gives a feeling of pleasure, is presented in an orderly and systematic manner, illustrations support imagination, and can increase knowledge about flood prevention. This shows that the flood disaster management module as a means of enriching elementary school learning produced in this study is considered appropriate for use as learning enrichment material in elementary schools.

Keywords: Flood disaster management module, elementary school learning enrichment

How to Cite: Aryaningrum, K., Kuswidyanarko, A., Fakhrudin, A., Pratama, A., Kirom, H., Sari, S.R.I., Suhendra, A.A., & Hadi, F.S. (2023). Development of Flood Disaster Management Module as a Means of Elementary School Learning Enrichment. *Proceeding The 5th International Conference on Elementary Education, 5*(1), 386-391

INTRODUCTION

Indonesia as a region with a tropical climate consists of a rainy season and a dry season. Indonesia is a country with the highest level of disaster vulnerability. This is because Indonesia is geographically located on the equator. So, during the dry season it is prone to forest fires and dry land, while during the rainy season when rainfall is high. This condition will trigger floods and landslides. "In Indonesia there are at least 5,590 main rivers and 600 of them have the potential to cause flooding. Flood-prone areas reach 1.4 hectares" (Yurianto, 2016).

Palembang with an area of 400.61 km2 , is located between 2°52' to 3°5' south latitude and 104°37' to 104°37' east longitude. Palembang city area is divided into 2 parts, namely the Seberang Ulu area and the Seberang Ilir area which is separated by the Musi River. The Musi River is the second longest river after the Kapuas River, with a length of 750 km. Palembang is the downstream part of the Musi River, the length of the Musi River which is included in the Palembang city area for 460 km. There are also 95 tributaries that are included in the city of Palembang.

Palembang is one of the cities in Indonesia that experiences flooding every year. Floods that occur are caused by natural factors and human factors. Based on the results of Beladonna's (2005) analysis, the causes of flooding include inadequate drainage capacity, backflow into small rivers upstream, an increase in population resulting in an increase in the built-up area, silting of rivers as a result of people living on the banks of rivers throwing garbage into rivers. In 2021. Floods that hit 5 sub-districts in Palembang, South Sumatra, were triggered by heavy rains on December 25, 2021 in the morning. BNPB disclosed a report received from BPBD Palembang, which in essence has something to do with a tributary of the Musi River. There were two fatalities due to the flood (Detik News, 2021).

The impact of these conditions is that children are the most vulnerable when natural disasters occur. One of the high risks of disasters experienced by children is due to a lack of understanding of the disaster itself. Although, disaster pocket books do exist and can be downloaded on the official website of the National Disaster Mitigation Agency (BNPB). Unfortunately, the pocket book is not made for children. This is due to the inability of children to understand the vocabulary and sentences in the disaster pocket book which are technical and difficult to understand, so that only adults can understand them" (Harsono, 2019).

Education is a repressive action that provides a solution to save themselves during a flood. It is very important to instill this as early as possible, i.e. immediately save yourself to a safe, high place, if possible, invite family members or the closest person, bringing important items as needed. So when a flood occurs someone can escape to a higher place and save important items as needed or not excessive (Akbar, 2015).

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It is important for children to gain knowledge about flood disasters as a preventive effort that is important and fundamental for children's daily lives to reduce the risks of disasters they face. The incident lasted a long time and has become a routine occurrence. Thus, it is very important to provide knowledge of flood disasters to children from an early age so that when a flood disaster occurs, children have the ability to survive and protect themselves from disasters both for themselves and those around them. The impact if children do not get knowledge about flood disasters, then children do not know what is needed both before, during or when the flood disaster occurs. Limited understanding of disaster risk, where disasters have indirectly become a part of their lives makes children the most vulnerable group affected by floods. Anxiety problems and physical, mental, emotional as well as behavioral and spiritual problems occur in children. Law No. 24 of 2007 concerning disaster management reads "Disaster preparedness is a process of forming individuals from the aspect of knowledge, attitudes, and skills to deal with threats consisting of preventive and countermeasures in order to foster a behavior or mental awareness of disasters (understanding and understanding about the disaster itself)). Disaster preparedness education is integrated into development programs, namely the education sector. The path to a disaster-aware mentality is through education from an early age" (Purwani & Fridani, 2019).

The community becomes the main object when a disaster hits, thus the community is expected to have the ability to know existing vulnerabilities, so that they are able to carry out disaster risk reduction efforts that can minimize material losses and casualties (Desfandi, 2014: 191-197). Integrating flood, earthquake and tsunami disaster mitigation education into education is one of the efforts to impart disaster mitigation knowledge, these efforts can be packaged in modules that can be used as learning enrichment.

Modules are media or learning tools that contain materials, methods, limitations of learning materials, instructions for learning activities, exercises and ways of evaluating that are designed in a systematic and interesting way to achieve the expected competencies and are used independently (Hamdani, 2011). The main purpose of teaching materials in the form of modules is that readers can absorb teaching material or materials independently (Daryanto, 2013). According to Prastowo, (2011), modules are teaching materials that are systematically arranged in easy-to-understand language so that students can learn independently with minimal assistance or guidance from educators. To reduce the boredom of students learning with modules, modules

need to be combined with electronic media, which are often called electronic modules (e-modules). Deep learning (deep learning) will materialize when integrated with e-modules and will produce a better graduate product.

This research is supported by several relevant studies, Narusllah (2022) The development of comic media Aku Pintar Beware of Flood Disasters produced in this study is in the form of printed comic books. Developing aspects of language development, namely reading adapted to the developmental characteristics of children aged 7-8 years, emphasizing the concept of learning by playing, providing meaningful experiences (meaningful learning). The implementation of the comic media I'm smart on flood disaster alert results is effective in increasing understanding of flood disaster preparedness in children aged 7-8 years in Sidrap district. This is characterized by a better level of mastery of students' concepts. Taslim (2017) Students respond positively and accept well the presence of integrated disaster mitigation textbooks. After using this integrated disaster mitigation textbook, students are declared to be very prepared in dealing with disasters. Through disaster preparedness materials, students are trained to build new knowledge, and develop an attitude of awareness of disasters (Nelly, 2017).

This research is focused on natural disasters which are disasters that are close to students' daily lives, namely floods. Students must have insight into the causes, impacts, and prevention of flooding. It is hoped that students can become sources of informants about disaster mitigation for parents and the surrounding community. The formulation of the problem in this research is: "how to develop a flood disaster management module as a means of enriching elementary school learning".

METHOD

The research design is a Borg and Gall Research and Development (R&D) model which has been modified by Sugiyono and includes 7 stages, namely: 1) potentials and problems, 2) collecting data, 3) product design, 4) design validation, 5) design revision, 6) product trials, 7) product revisions (Sugiyono, 2016: 80-83). Through this research it is hoped that it can become a means of continuing research that tests more theories towards producing products that can be used directly by users. The research design follows the design of Borg and Gall in which is described as follows.

Preliminary Study: This stage is a research and information collecting activity, which is the development of a flood disaster management module as a means of enriching elementary school learning. Its main activity is literature study, both reviewing relevant sources and reviewing previous research and field studies in the form of analysis of research needs and observation of research locations. Development Stage: Stages of planning and development of the preliminary form of product whose activities consist of planning and preparing flood disaster management modules as a means of enriching learning in elementary schools, formulating the parties involved in this research, determining work procedures and due diligence. The results of this activity resulted in a product design draft that was ready to be tested in elementary schools. Validation Stage: This stage aims to perfect the product made, by a team of experts/experts who are experts in their field. Researchers validate to test the product to be developed so that it can be used in schools. At this stage an analysis and revision of the product is made. If the model made is not good, then it is revised and then re-validated. Once it is known that the validation results are good, the product is ready to be tested in the field to find out whether the modules that have been developed can be used in elementary schools. Field Test/Implementation Stage: Stages that contain the main activities, namely trials carried out on elementary school students to measure students' responses after using the flood control module as enrichment material or reading. The percentage of student responses is calculated using the formula

$$\textit{Percentage of agreement} = A/B \times 100\%$$

A is the proportion of respondents (students) who voted and B is the total number of respondents (students). Students will be considered to respond positively if the percentage of agreement is ≥ 50%. Student responses are used to improve the product to be produced. After the product is considered good, it will then proceed to the dissemination stage. Dissemination Stage: defined as the dissemination and implementation stage which includes socialization and

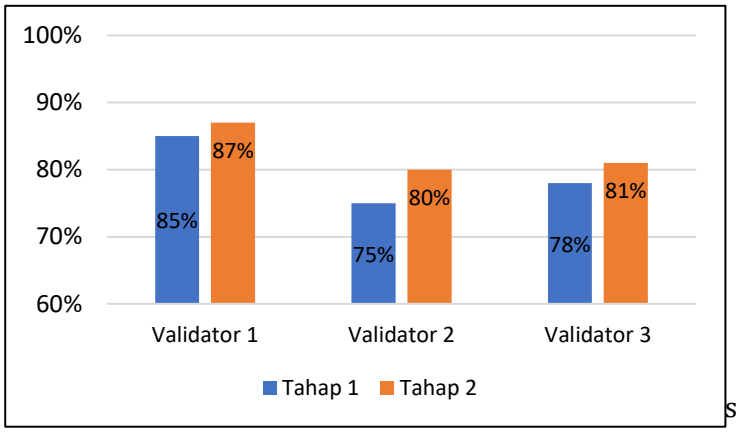
distribution activities. The form of dissemination of the developed product to potential users is elementary school teachers throughout the city of Palembang.

Test product development is carried out through two stages, namely field testing. Field tests through 1) experts (material and language experts); 2) students. The types of data to be collected are qualitative data and quantitative data. Qualitative data are inputs from experts and quantitative data in the form of results of questionnaire assessments regarding the level of feasibility of the flood disaster management module as a means of enriching learning in elementary schools. The questionnaire was processed in percentage with a Likert scale. The instrument to be used for the data collection process is a questionnaire. The questionnaire is used to find out the response or responses of students after reading the module.

RESULTS

The first stage is the potential & problems and the second stage is collecting data/information that has been completed, then the next step is designing the product. After the product has been designed, the thing that is done is an assessment by experts. The assessment of these experts is carried out so that the products developed achieve the desired goals (Zakiy et al., 2018). The design validation in this learning module was tested by 4 expert validators, namely 3 material experts and 1 linguist. Material expert validation assessment was analyzed in 3 aspects, namely content feasibility, graphic feasibility, and language feasibility.

The results of the validation test by material experts are presented in Figure 1.



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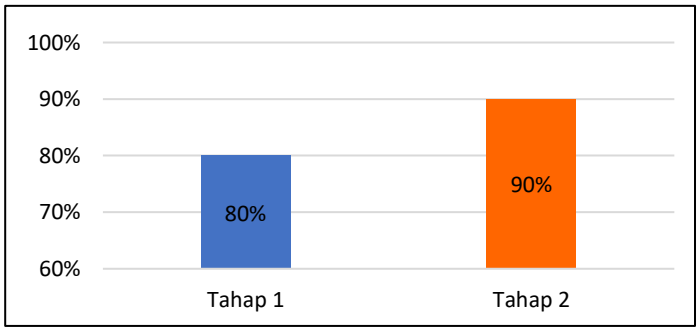
Based on Figure 1, the results obtained from the validation of material experts obtained an average of 81% with the "Decent" criteria. The validation results by linguists are presented in Figure 1.



Based on Figure 2, the validation results of linguists in the flood disaster management module obtained an average percentage of 85% with very decent criteria. Based on validation by material experts and linguists, this learning module is appropriate as an enrichment material for flood disaster management for elementary school students. The feasibility of this module is of course inseparable from the validator's input and suggestions. After the module has been validated and revised according to the validator's input and suggestions, the module is ready to conduct product trials.

Student response data to the flood disaster management module were obtained by giving response questionnaires to students after completing reading the module. Response questionnaire data analysis is based on the questionnaire assessment given to students. The results of student response data can be seen in Table 1.

Table 1. Student Responses

No	Indicator	Persentase	Category
1.	Easy to understand	94,5%	Positive
2.	Gives a happy feeling	100%	Positive
3.	Served regularly	100%	Positive
4.	Illustration Supports imagination	89.1%	Positive
5.	Increase knowledge of flood prevention	97.2%	Positive
	Average	96.1 %	Positive

Based on table 1 it can be seen that the average percentage of student responses to the flood disaster management module is positive. Students respond that the module is easy to understand, gives a feeling of pleasure, is presented in an orderly and systematic manner, illustrations support imagination, and can increase knowledge of flood prevention. After the product trial phase was carried out without any revisions. Furthermore, the researcher disseminated the product to all elementary schools in Palembang City and social media through the link that the researcher provided.

CONCLUSION

Based on the results of the research presented in the previous discussion, it can be concluded that this study developed a flood disaster management module as a means of enriching learning in elementary schools. The results of the due diligence were assessed by experts with the appropriate criteria, and linguists obtained very feasible criteria. And in product trials, students responded that the module was easy to understand, gave a feeling of pleasure, was presented in an orderly and systematic manner, illustrations supported imagination, and could increase knowledge of flood prevention.

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