

Development Of Covid-19 Disaster Mitigation E-Module for Elementary School Students in The Low Grades

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ABSTRACT

The rising number of Covid-19 cases in Indonesia is attributed to a lack of public education about the virus, particularly among elementary school students. As a result, we require an invention capable of educating elementary school students. The goal of this research was to create a functional Covid-19 disaster mitigation e-module. This research is development research with a 4-D model. The research was conducted in the Primary school in the first grade. The product will be an E module for students in the first grades in Primary School. This study revealed that the elementary school experts, Covid-19 disaster mitigation experts, language experts, and graphic design experts all declared the e-module to be viable in a valid category, the score obtained was 87,67 percent. The findings can be used by practitioners to create acceptable e-modules for elementary school students.

Keywords: *Development, E-Module, Disaster Mitigation, Covid-19, Elementary School Students.*

1. INTRODUCTION

The COVID-19 pandemic has spread tremendously, including to Indonesia [1]. The entire spread of the coronavirus in all parts of the world is known as the COVID-19 pandemic [2]. On March 2, 2020, Covid-19 was originally discovered in Indonesia. Covid-19 is a virus that affects the human respiratory system, causing mortality. This covid-19 virus can be spread through saliva splashes, holding the lips, eyes, and nose where COVID-19 sufferers' droplets are present, and close contact with COVID-19 sufferers without wearing a mask [3]. However, a large number of Indonesians are still infected with the virus. According to the most recent data, 1,334,634 persons were confirmed positive in Indonesia on March 2, 2021, with a total of 36,166 deaths. This is the highest number in ASEAN and it continues to rise every day.

According to a literature study, the rise in COVID-19 is attributed to public disobedience of health protocols [4], [5] and [6]. The lack of public awareness leads to a lack of information and understanding, making it difficult to stop the COVID-19 virus's chain of transmission [7], [8]. Therefore, efforts are needed so

that this disaster does not take many victims. The goal is to educate people about disaster mitigation.

Disaster mitigation is an effort to reduce and prevent the impact of disasters [9]. One of the efforts is through the learning process [10]. Providing information on disaster mitigation can be done through teaching materials in the form of modules [11].

This module is accessible to the public, including elementary school students. Elementary school students are at risk of being exposed to the covid-19 virus because it is difficult to control their behavior in the face-to-face learning process. So, students must be equipped with a lot of knowledge to protect them as effectively as possible. Therefore, the development of e-modules is an innovation to reduce the impact of the spread of covid-19 because these e-modules may be accessed anywhere and at any time [12], [13] and [14]. Based on the literature review, there has been no research that has developed a COVID-19 disaster mitigation e-module for elementary school students. Most of the modules developed so far are about earthquake, landslide, and flood mitigation only [15], [16] and [17]. Thus, the development of this e-module is the appropriate innovation. As a result, the goal of this

study is to develop a COVID-19 disaster mitigation e-module that may be used by elementary school students.

This research is necessary to be developed because the development of e-module is a new innovation in the learning process. This e-module can increase the knowledge of elementary school students regarding covid-19 disaster mitigation and reduce the risk of students being exposed to the covid-19 virus. Moreover, the learning system in elementary schools has been implemented face-to-face. Knowledge about covid-19 is presented through modules and adjusted to the level of student development. Furthermore, the development of this e-module is also an effort from academics in breaking the COVID-19 transmission chain.

2. RESEARCH METHODS

This research is development research with a 4-D model which consists of define, design, development, and disseminate stages. In the defined stage, development needs analysis is carried out in the form of preliminary analysis, student analysis, and concept analysis. At the design stage, the e-module design is carried out in the form of cover design and systematic design. At the development stage, e-module development and validity tests are carried out. In the dissemination stage, the distribution of e-modules is carried out. Observation sheets, interview sheets, and documentation are forms of data collecting instruments. The validity test data analysis technique is carried out by transforming it into a quantitative assessment using the guidelines in the table below:

Table 1. Score Scale of Validity Test Assessment

Criteria	Score
Best	5
Better	4
Good	3
Less	2
Bad	1

The following procedures are then carried out:

- Calculate the average of all aspects:

$X = \text{Average value}$

$\sum x = \text{Total score}$

$N = \text{Number of indicators}$

- Categorize the overall average value by using the following formula qualitatively [21].

Table 2. Score Scale of Formula Qualitatively

Value Range	Category
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86-100	Totally Valid
71-85	Valid
56-70	Slightly Valid
40-55	Invalid
< 40	Totally Invalid

3. RESULTS AND DISCUSSION

The first step of the research is to do needs analysis. Needs analysis consists of preliminary and final analysis, student analysis, and concept analysis. A preliminary analysis reveals why a COVID-19 disaster mitigation e-module for elementary school students is needed. The reason is the increasing number of COVID-19 cases among children in Indonesia [18]. This rise was caused by children's lack of knowledge of covid-19, which led them to believe it was just an ordinary disease [19]. Therefore, efforts must be made to overcome this. The goal is to include covid-19 knowledge into the learning process. One solution is to develop an e-module for COVID-19 disaster mitigation. Based on literature studies, the development of e-modules is one of the learning processes in industry 4.0, and it follows the characteristics of students [20]. Furthermore, the employment of e-modules in elementary schools can increase the quality of student learning [21]. Therefore, the development of the covid-19 disaster mitigation e-module can supply students with information on covid-19-issues.

Furthermore, a student analysis was performed to assess the characteristics of current elementary school students. According to the findings, elementary school students are currently in the concrete operational phase [22]. Elementary school students must learn from real objects related to everyday life. Besides, elementary school students today have mastered the technology. Thus, the development of this e-module is expected to be following the development and characteristics of elementary school students.

Furthermore, a concept analysis was performed. The following are the concepts to be developed based on the analysis:

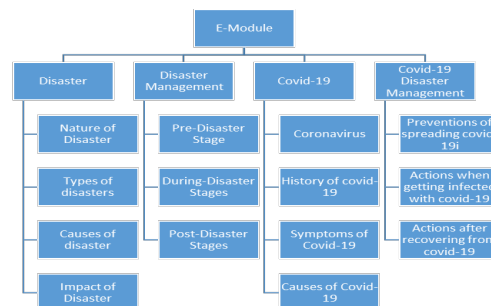


Figure 1. Image of E-Module Concept Map

This concept is then used for the development of e-modules. Next, cover design and systematic design are carried out. Based on design, the cover design must use big and attractive letters, illustrations, and photos and use attractive colors. Meanwhile, for systematic design, the e-module consists of cover; a cover, preface, table of contents, learning objectives, material description, observing activities, discussion activities, and do-you-know activities, summaries, exercises, answer keys, feedback, and follow-up,

Then comes the process of development. The development process is guided by a needs analysis and a previous design. The development has the following form:

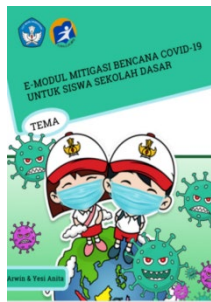


Figure 2. Image of cover E-Module



Figure 3. Image of content E-Module



Figure 4. Image of content E-Module

The next step is to validate with experts. The goal of validation is to see if the information, presentation, and language are all feasible. Validation was performed twice. Initial validation aims to identify the flaws in the developed e-module. In addition, modifications were made to correct flaws, and a second

validation was performed. The validation recapitulation is shown in the table below:

Aspect of Validation	Validation 1		Validation 2	
	Score	Information	Score	Information
Content aspect	60	Slightly Valid	87	Totally Valid
Presentation Aspect	60	Slightly Valid	88	Totally Valid
Language Aspect	58	Slightly Valid	88	Totally Valid
Average	59.33	Slightly Valid	87,67	Totally Valid

Table 3. expert validation

According to table 3, the expert validation final result received an 87.67 in the totally valid category. This demonstrates that the developed e-module is well suited for use in elementary schools.

Several factors support the validity of this e-module. The process of making this e-module adjusts general goals and specific goals so that students have direction in achieving the desired goals. This aligns with the belief that all educational materials should have a clear learning objective. Furthermore, the accuracy of the material is considered when developing e-modules. The material developed is based on the conditions found in the field. This aligns with the belief that a teaching material should pay close attention to the material's accuracy [23]. Moreover, the material developed is adjusted to reflect current events. This is in line with the belief that teaching materials should always be up-to-date [24].

This e-module is supported by consistency and systematic presentation in terms of presentation technique. The statement that teaching material must be produced based on a clear presentation technique [25] confirms this. This e-module also included illustrations, exercises, answer keys, feedback, summaries, glossaries, and bibliography to support the presentation of the e-module. This is in line with the assertion that the development of instructional materials requires the elements that support the presentation [26].

From the language aspect, researchers developed a straightforward, communicative and interactive language so that students were interested in understanding the material presented in the e-module. This is in line with the opinion that the teaching materials developed must use straightforward, communicative, and interactive language [27]. The language developed is also simpler. This is in line with the opinion that the language used in teaching materials must be following the developmental level of elementary school students [28]. So, in conclusion, the validity of the e-module comes from the development of the

material aspect, presentation aspect, and language aspect.

4. CONCLUSION

This study concludes that the developed e-module gets a score of 87.67 with a totally valid category. This proves that the e-module developed is very suitable for use in elementary schools.

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