Development Of Interactive E-Module Based On Infographic Multimedia In Islamic History Of Indonesian Courses As An Innovative Learning Source

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Abstract
In this semester, in the atmosphere of the Covid 19 pandemic, innovative learning resources are needed to improve the quality of learning. This research has the purpose of making an interactive e-module product based on multimedia infographics for the History of Indonesia during the Islamic Period course. The methods used are the research method and development method or Research & Development (R&D). The research was implemented to 2019 batch students of the History Education Department. The research stages used are the Borg and Gall methods. The technique of collecting data is using a form of questionnaire or questionnaire, then the technique of data analysis is using the calculation of percentages and averages. The results of this research indicate that the validation of the material and the media expert obtained a percentage score of 93% and 82%, respectively. Meanwhile, the results of small and medium-scale product trials showed a percentage score of 89% and 86%, respectively. Then, the results of the large-scale use trial and effectiveness test showed a percentage score of 85.6% and 79.4%, respectively. With these results, it can be concluded that the interactive e-module based on multimedia infographics is very valid, so it is feasible and effective to use in the learning process. The limitations of the research product are that the file size is too large, the uniqueness of the research product is that one download can be used offline on a cellphone or computer so as possible to save the internet data.

Keywords: *Development,interactibeE-module,R&D*

I.   INTRODUCTION

Education is one of the most important factors that have a major role in building character and the process of educating someone. Law on the National Education System of the Republic of Indonesia No. 2003, states that education is a conscious and planned effort to create a learning atmosphere and learning process so that students can actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and State [1]. Education is obtained through the process of learning activities.Learning is a process of individual personality change. The change in question is in the form of improving the quality of behavior, such as increasing knowledge, skills, attitudes, thinking power, understanding, and other abilities [2]. Education with a learning process has the same goal.Learning in universities is required to be able to collaborate with technology with the material to be delivered. Along with the development and advancement of technology, the world of education has grown so rapidly, especially in learning. This technological development creates many innovative and interesting learning resources.In general, learning activities only use printed teaching materials, one of which is books. Teaching materials consist of various forms, such as printed teaching materials, audio teaching materials, audio-visual teaching materials and interactive multimedia-based teaching materials. In addition, several universities also apply independent teaching materials or better known as modules. Not much different from textbooks, modules are also designed systematically and based on the curriculum. The module is more independent, meaning that with the module students can learn without having to meet face-to-face with lecturers, this is appropriate to use in connection with the current conditions with the existence of Covid-19.

The chronology of history learning is very suitable for using infographic media. According to Mohammad Taufik in the Techno.COM Journal, he stated that infographics have clear conceptual and thought

processes and ways that are visualized (displayed). There is a relationship with each other that relates from one subject to another, so infographics are a way of bridging the complex from long manuscript data to a simpler visual language [3].Based on observations in the Department of History Education, State University of Medan, it is known that when learning takes place, student independence is still low. And many students have difficulty understanding the course of Indonesian history during the Islamic period. One of the reasons is that the media used in the learning process is not fully in accordance with the needs and situations of students. Learning materials that tend to be memorized make students passive and require a lot of time to explain the material.Based on the statement above, to improve the quality and student learning outcomes, one of the innovative learning resources that can be used is an E-Module based on Interactive Multimedia Infographics. Interactive E-Module is a learning material that contains materials, methods, limitations and ways of evaluating which are designed systematically and attractively for the expected competencies/sub-competencies according to the level of complexity [4]. Interactive E-Module has advantages such as combining module components with text, graphics, images, animations and sounds to motivate students' interest in learning; the composition of bright and diverse colors attracts students' interest in studying it; the use of animation practicum further strengthens students' understanding in studying the material; the existence of practice questions that can be used as a reference for students' level of understanding in independent study; and a user-friendly display that makes it easier for students to operate it.

Multimedia is a media in which there is a combination of various forms of information elements such as text, images, animation, video, interactive, and sound as a support to achieve its goals. The intended purpose is to convey information or just provide entertainment for the target or user [5]. The advantage of multimedia is that it is able to combine all of these elements into a unified presentation so that it accommodates students who have visual, auditory, and kinesthetic types [6].Infographics are media used to communicate information in the clearest way possible without any bias at all, so that the designer's first priority is comprehension, then retention, and after that, allure [7]. It can be concluded that infographics have benefits where the information to be conveyed is complex to the recipient of the information so that it can be understood more easily and quickly.The combination of infographics with interactive multimedia-based E-Modules will create multimedia-based learning media with content in the form of graphics, text, images, audio, video, animation with an innovative display of infographic presentation videos that can be enlarged according to the flow of the material.The researcher intends to carry out applied research by developing interactive e-modules based on multimedia infographics about the history of Indonesia during the Islamic period as an innovative learning resource. This Interactive E-Module is in the form of an application and can be downloaded via Google Playstore. This is in order to make it easier for the general public, especially students, to access it.

II.   METHODS

This research phase uses the Borg and Gall development research method. Development research is a research method used to produce certain products, and test the effectiveness of these products [8]. In the Borg and Gall development research model, the goal is to produce a product in learning. The development model focuses on learning products. Learning products are interactive multi-products, audio-visual products, and other learning products based on CAI (Computer-Assisted Instructional).

In this development research, there are four steps. The first step; initial research (preparation, in-depth survey, needs analysis), second; product development planning (data collection, identification of developed products), third; product validation and revision (expert reviews, small group trials, and large group trials), fourth; product implementation (planning, preparation, implementation, observation, evaluation). The data collection technique is in the form of a questionnaire or questionnaire, while the data analysis technique uses the calculation of percentages and averages.

III.   RESULTS AND DISCUSSION
a.   Validation Result By Material Experts

In this validation stage, it is carried out to determine the feasibility of the media based on the evaluation of material experts and media experts before testing the product on students. Media products that have been validated are then revised according to expert suggestions and input during the validation process. Validation of the material test by the head of the history education department at the State University of Medan, namely Dr. Lukitaningsih, M.Hum. The assessment is carried out to improve the quality of the material content by including an assessment questionnaire. The results of the validation of the components on the quality of interactive E-module learning media materials can be seen in the following figure.
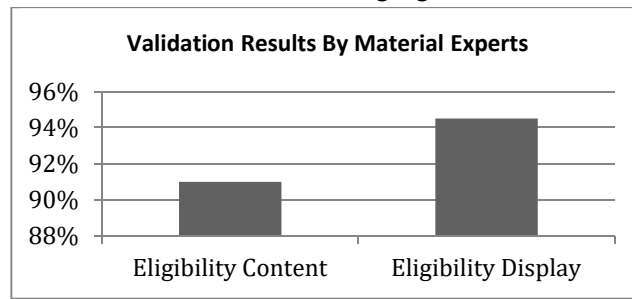

Fig 1. Validation Result By Material Experts

Based on the data from the validation results of the material experts above, it can be seen that the appropriateness of the content and appearance of the interactive E-module is in the "Very Appropriate" category with a percentage of 93%.

b.   Validation Result By Media Experts

Media validation in the interactive e-module developed was carried out by a lecturer in history education at the State University of Medan, namely Najuah, M.Pd. The results of the validation on the media quality of the e-module can be seen in Figure 2 below.
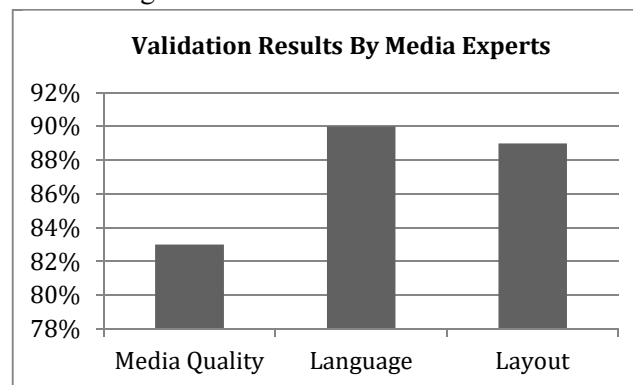

Fig 2. Validation Result By Media Experts

Based on the data from the validation results of media experts according to the table above, it can be seen that the aspects of media quality, language use, and media layout in general are in the "very feasible" category with a percentage of 82%.

c.   The Result Of The Small Group Trial

A small trial was conducted in the history education department. The small trial was conducted on 3 people, namely students from class C. The purpose of this small trial was to identify product deficiencies and perceptions of the interactive e-module that has been developed after being validated by a team of experts. After conducting a small trial, the researcher revised the interactive e-module based on the input that had been given. The results of student assessments of the interactive e-module that have been developed can be seen in Figure 3 below.
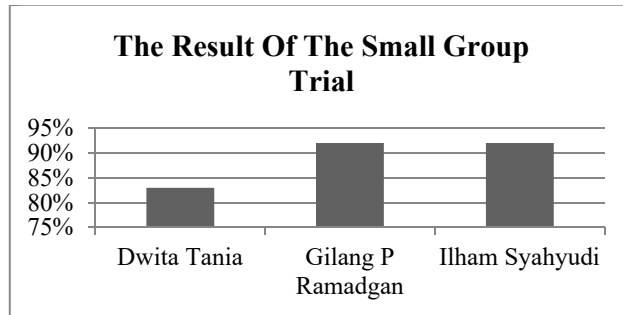
The Result Of The Small Group Trial

Fig 3. Result Of The Small Group Trial
(Source: Personal Data, 2020)

Persentase The percentage of eligibility of the infographic-based interactive e-module at the time of testing with a small group categorized that the product was "very feasible" with a percentage of 89%.

d.   The Result Of The Moderate Group Trial

The assessment was carried out by 10 class A students with the aim of knowing student responses to the feasibility of the interactive e-module being developed. The results of student responses during moderate trials to the android-based interactive e-module that have been developed can be seen in Figure 4 below.
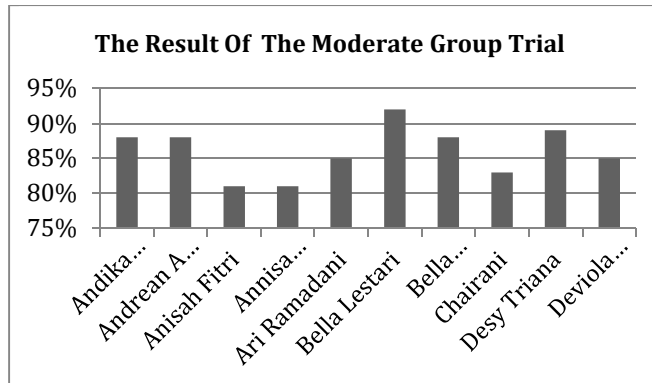
The Result Of The Moderate Group Trial

Fig 4. The Result Of The Moderate Group Trial

The percentage of eligibility for the android-based interactive e-module when conducting the trial was categorized as "very feasible" with a percentage of 86%.

e.   The Result Of The Large Group Trial

The big trial was conducted in class B with 24 students. The results of student responses during moderate trials to interactive e-modules that have been developed can be seen in Figure 5.
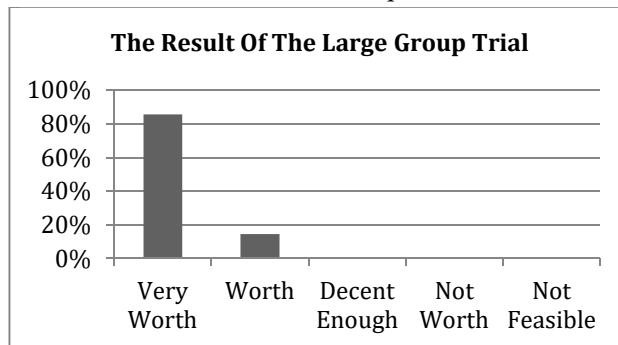
The Result Of The Large Group Trial

Fig 5. The Result Of The Large Group Trial

The percentage of eligibility for android-based interactive e-modules when conducting a large trial can be seen in Figure 5 above that the media is categorized as "Very feasible" with a percentage of 85.6%

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f.   The Learning Outcomes
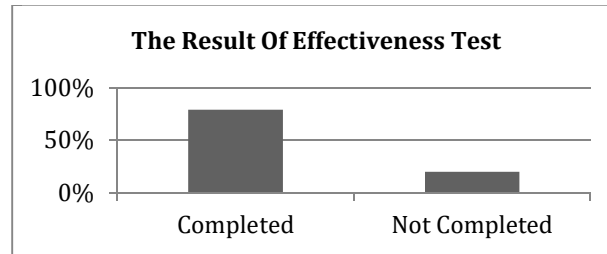

The Result Of Effectiveness Test

Fig 6. The Result Of Effectiveness Test

Based on the results of the product effectiveness test in a large group with a total number of respondents as many as 34 (thirty four) students, it is known that the number of students who completed was 27 out of a total of 34 students. The percentage of learning outcomes score was 79.4%, included in the "effective" category.Based on the table above, it can be concluded that learning historical subjects in Indonesian Islamic period using interactive e-modules can improve student learning outcomes.The interactive e-module that was developed has been validated and meets the criteria for a good learning media and is suitable for use in learning the subject of Indonesian History in the Islamic Period in the History Education Department as a learning resource.

IV.   CONCLUSIONS

Infographic-based interactive e-modules that have been developed have been used effectively to improve student learning outcomes in the learning process. This can be seen from the 93% validation by material experts, 82% validation by media experts. Meanwhile, the feasibility of each trial ranged from 89% for small trials, 86% for medium trials, and 85.6% for large trials. This infographic-based interactive e-module has been in the form of an android-based application. Analysis of student learning outcomes using this learning media has been effective, which can be seen from the analysis of student learning outcomes who obtained a post-test score of 79.4%.

V.   ACKNOWLEDGEMENTS

REFERENCES
[1]   M. Yusuf, *Introduction to Education*, IAIN Palopo Campus Publishing Institute, 2018, p. 10
       Djamaluddin, Wardana. *Study and Learning: 4 Pillars of Improving Pedagogical Competence*, CV Kaaffah Learning Center, 2019, p. 6
[2]   M. Taufik, *Infographics as Visual Language in Tempo Newspaper*, **Information Technology Journal**, 11, 2012, pp. 156-163
[3]   N. Imansari, Nurlita, *The Effect of Using Interactive E-Modules on Student Learning Outcomes,* **Scientific Journal of Education**, 2, 2017, pp. 82-90
[4]   Andi, *Multimedia Development in Learning in Schools*, PT Rineka Cipta, 2017, p. 8
[5]   Suryani, *Innovative Learning Media and Its Development*, Rosda, 2018, p. 195
[6]   J. Lankow, J. Ritchie, *Infographic: The Power of Visual Storytelling*, Gramedia Pustaka Utama, 2014, p. 38
[7]   Sugiyono, *Quantitative, Qualitative and R&D Research Methods*, Alfabeta, 2016, p. 297