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Development of e-Modules Problem Base Learning with the Help of App Mit Invetor to Increase Students' Interest in Learning

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ABSTRACT

Interest in learning is crucial in the learning process. With an interest in learning, it will also be able to affect their academic abilities, and this will be one of the supporters of the success of the learning process. Judging from the importance of the function of interest in learning, the purpose of this research is to develop electronic learning media to increase students' interest in learning. The object of this research, is the students of class X MIPA 2 and X MIPA 4 SMA 1 Kalasan with a total of 70 people. This research is development research with ADDIE design. The data collection method in this study used a questionnaire method with a Likert scale. Based on the analysis, the questionnaire obtained by X MIPA 2 is 84.5% and X MIPA 4 is 86.5%. Based on this data, the questionnaire can be said to be valid, so it is feasible to use it to increase student interest in learning.

Keywords: interest in learning; electronic learning

INTRODUCTION

The rapid development of technology has led to the renewal of people's frame of mind when they want to search for information. Now, information-seeking activities can not only be done through newspapers and television, but also from other sources of information such as the internet. There are a lot of mistakes in receiving information as a result of these technological developments, one of which is mistakes in the field of education. In fact, education is the main element to be able to give birth to quality human resources.

The world of education comes from the learning process which includes teachers, students, and the learning environment. These three elements, in their existence, influence each other in order to achieve learning objectives. In order to achieve learning objectives, a teacher can utilize learning media, where the selection of the right type and variety of media can reduce passive behavior and increase learning motivation from students. A learning media must certainly be given attractively, so that it can attract students' interest in studying the material being conveyed.

However, at present, the available learning media are usually static or printed, as a result of which they cannot foster students' interest in learning independently. however, learning media can be packaged in electronic form. discoveries on electronic learning media that can be accessed via smartphones can be made interactively and incorporate developing technology.

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Media that can be developed into electronics and can be accessed on smartphones are e-modules. E modules are considered capable of building students' interest in learning physics. To create an e module that can be accessed on a smartphone, a software is needed. App Inventor is one of the software that can be used to develop the media. The ease of programming is an advantage of this software, where this ease allows users to still be able to use it even if they do not have basic knowledge of code, programmers, and experience in other information technology. The most essential thing in the creation of applications using App Inventor is the use of programmer's logic as if an individual were doing a puzzle.

In line with the 2013 Curriculum which requires educators to use an example of learning based on a scientific approach. There are at least 4 (four) learning models, namely project-based learning, discovery, problem-based learning, and inquiry. These learning models have different learning syntax and objectives. Learning momentum and impulse is suitable for using problem-based learning models. This model was chosen because the characteristics of momentum and impulse material are closely related to using life or contextual.

Before conducting the research, researchers first conducted pre-research through observations and interviews with Physics teachers of class X MIPA 2 SMA N 1 Kalasan. Based on the pre-study, the researcher found that some students had difficulty in digesting the learning material provided. The difficulty begins with their previous experience which makes them experience the assumption that physics is a serious and heavy subject, because it is full of material that makes students have to do mathematical calculations so that they have difficulty understanding the material. In previous research, Hutauruk, E., N (2019) also found the same thing, where a positive view held by a student will make the student have positive motivation and interest in learning, and vice versa.

Referring to the description above, a research was conducted on "Development of e-Modules Assisted by App Inventor on Momentum and Impulse Material to Increase Learning Interest.

METHODS

In this study, researchers used a research and development method with the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation) with a quasi-experimental design. This research is quantitative research, where the research data obtained is quantified in the form of numbers during the analysis process so that researchers can draw conclusions from it. The subjects involved in this study were students of class X MIPA 2 and X MIPA 4 SMA N 1 Kalasan.

Data collection techniques were carried out with literature studies, interviews and questionnaires. Literature studies and interviews are used as material for analyzing the needs in the development of learning media, questionnaires are used to assess the feasibility of media. The assessment sheet is made on a Likert scale of 1-4. According to Sugiyono (2019) The results of the

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assessment conducted by experts on the learning media that has been developed can be analyzed through descriptive percentage techniques using the equation:

$$P = \frac{f}{N} \times 100\%$$

Description:
P = Percentage score
f = Number of scores obtained
N = Total score (number of questions x maximum score)

After calculating through the equation, researchers will get a percentage range and qualitative criteria can be determined as in the following table.

Table 1. Learning Media Feasibility Criteria (Modified from Riduwan 2011)

Rentang Nilai/Persentase (%)	Konversi	Kategori
85% - 100%	A	Sangat Baik
70% - 84%	B	Baik
55% - 69%	C	Cukup
40% - 54%	D	Kurang
<40%	E	Sangat Kurang

RESULT & DISCUSSION

The focus of this research is the process of developing and testing learning media conducted by experts, where this research uses the MIT App Investor subtle tool in the creation of learning media. The learning media validation process is carried out with V Aiken. Furthermore, the data from the validation assessment results are processed to determine the feasibility of learning media.

The final result of this android-based learning media is named Momentum and Impulse. In it there is a summary of the material, sample problems and their discussion, practice questions, and examples of the application of momentum and impulse in everyday life. The initial product produced from the development stage then goes through the validation stage, the purpose of validating learning media is to determine the feasibility of the media before being tested (Yunus & Fransisca, 2021). The validation results are used to determine the level of media feasibility. The description of the validation results is as follows.

Diagram of Validation of Questionnaire Score X MIPA 2

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In the bar chart in Figure 1, the minimum percentage value obtained from the validation test of class X MIPA 2 is 72%, where the percentage is included in the "good" category, while the maximum percentage is 97% where the percentage can be classified as "very good". If the mean calculation is carried out, the validation value is 84.5% where the value indicates that the media is in the "very good" and "feasible" category.

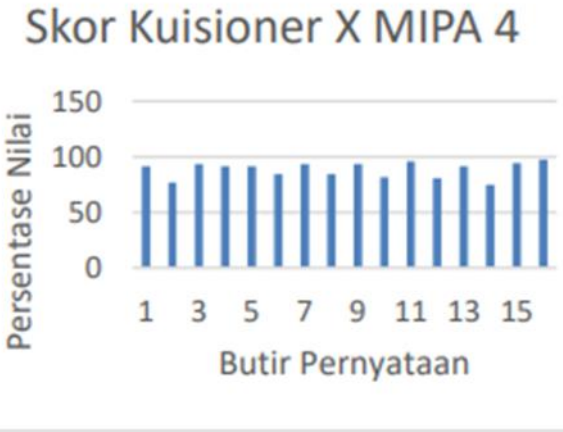

Figure 2. Diagram of X MIPA 2 Questionnaire Score Validation

Based on the data presented in the diagram above, it is known that the result of the validation test of class X MIPA 4 is 75%, where the result is included in the "good" category, while the percentage of the maximum value is 98%, which means it can be included in the "very good" category. If the validation value is calculated, then the researcher gets a figure of 86.5%, which means that the media is "very good" and "feasible".

The designer and creator of this learning media product is the researcher himself. The purpose of the design is that later, this product can be useful as a teacher's tool in the process of learning material and become a reference when students learn independently. Of course, the use of smartphones in this learning media can also support the learning style between students and teachers by adapting the learning style according to the demands of the times, where now, technology is developing very dynamically.

The design of the MIT App Investor is carried out as simply and easily as possible to use, because in its use, a user does not need knowledge related to code, programmers, or experience in the field of information technology. MIT App Investor also does not require its programmers to write lines of program code, but users only use graphical visual interactions (Axel et al., 2017). To be considered valid or feasible, of course, a product must be able to align with the original purpose of its creation (Pimenta, 2021).

Learning media whose development is successful will be well received by students and teachers as users (Mulyaningsih and Saraswati, 2017). The use of learning media must certainly have a positive effect so that students can improve their understanding and learning outcomes (Rizky, et al., 2021).

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CONCLUSION

The development of android-based learning media with MIT App Inventor developed mainly on the discussion of momentum and impulse received an assessment score of 84.5% for X MIPA 2, while X MIPA 4 received a score of 86.5%. The percentage means that this media is classified as "very good" and "feasible" to be implemented in learning.

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