e-ISSN: 2721-1274
p-ISSN: 2721-2718

DEVELOPMENT OF PHYSICS E-MODULES BASED ON KVISOFT FLIPBOOK MAKER APPLICATION ON CIRCULAR MOTION MATERIAL

Evy Meylani and Khairul Amdani
Department of Physics FMIPA Medan State University
evymeylani@gmail.com

ABSTRACT

This study aims to determine the level of feasibility, practicality and effectiveness of the physics e-module based on the Kvisoft Flipbook Maker application on Circular Motion material. The type of method used in this study is development or Research and Development (R&D) using the 4D model, but is limited to three stages: 1) define, 2) design and 3) develop. The research results based on the validation of material experts and media experts obtained a total score of 19.7, with an average of 4.92 and 16.78 with an average of 4.19 "very feasible" e-module to use. This validation was also carried out on physics teachers with an average of 4.22 and was declared "very feasible". For in the e-module practicality test based on student responses for small groups involving 5 students and the results of an average percentage score of 88.8% with the interpretation of "very practical". In the large group test involving 30 students and the results were 86% with the interpretation of "very practical". While the results of student learning tests through the pre-test and post-test given to 30 students consisting of 10 multiple choice questions, the learning outcomes of students' cognitive knowledge aspects were classified as effective because they had scores between (g) ≥ 0.70, namely 0 ,72. This shows that the e-module based on the kvisoft flipbook maker application on circular motion material is stated to be "very effective" and can improve student learning outcomes.

Keywords: *E-Module; Kvisoft Flipbook Maker; Circular Motion.*

INTRODUCTION

Learning is the basic need of every human being. In addition to meeting the need to gain knowledge, learning aims to meet the need to change behavior. This learning process can be done in several ways, one of which is the learning process. Learning is a process to help students to learn well.

One component that cannot be separated in the learning process is teaching materials. Teaching materials are all forms of materials used to assist teachers or instructors in carrying out the learning process (Prastowo, 2016). The success of the education and learning process cannot be separated from the availability of facilities and infrastructure owned by the school. Facilities are the latest learning media that can support learning. Currently, the development of science and technology is growing rapidly, and its development is directed at the world of education. In order for the learning process to run smoothly, you should consider using learning media with interactive features and adapt to the times (Yulando, S, 2019).

Based on the results of interviews with physics teachers at SMA Swasta PBD Medan, information was obtained that only 40% of students are interested in learning physics and 60% of students consider physics lessons very difficult,

e-ISSN: 2721-1274
p-ISSN: 2721-2718

because for them physics only explains the formulas so they don't like it. The teaching materials used are also only based on printed books and LKS, so that students' interest in learning physics is very low and it is very difficult to understand the material presented.

One way to make the teaching materials used more attractive to students is to create an interactive product in the form of an electronic module (*e-module*). Electronic Module (*E-Module*) which can be accessed via *smartphone*, laptop or computer. Electronic books are defined as teaching materials published in electronic form which are accessed through electronic devices which include the presentation of text, images or audio (Nurchaili, 2016). The use of electronic books is very necessary in supporting learning activities because it has advantages, namely ease of access anywhere and anytime, and practicality that can be enjoyed by all education starting from primary level to higher education (Divayana, et al, 2018).

Kvisoft Flipbook Maker is a type of professional software that converts pdf files into a book-like form, on the device pages that can be added editing functions, allowing to insert video, numbers, audio, hyperlinks, animated images and multimedia objects (Apsari & Kustijono, 2017).

This e-module teaching material using the *Kvisoft Flipbook Maker* application is an e-module that can be accessed offline. By using this application, it is expected to provide renewal in the learning process in class. The use of the *Kvisoft Flipbook Maker* application can increase student interest in learning and can also affect student achievement or learning outcomes. The use of this application will also be able to increase understanding and improve the achievement of learning outcomes in students.

RESEARCH METHODS

This research was conducted at SMA Swasta PBD Medan which is located at Jalan Bilal Ujung NO. 3/145, Pulo Brayan Darat I, East Medan District. This type of research is development research or *Research and Development* (R&D). This research uses the 4D model developed by Thiagarajan (1947) which consists of four stages. Of the four stages, the development stage is only limited to 3 stages namely, 1) *define,* 2) *design*, and 3) *develop*.

Define stage

In the definition stage, the activities carried out are as follows:

1. Curriculum Analysis

At this stage, researchers made observations at SMA Swasta PBD Medan about the education curriculum being implemented, so that researchers could find out what curriculum was being used by the school.

2. Needs Analysis

At this stage the researcher then uses data related to the definition to determine the specifications of the product to be developed. The goal is for users *of* this product to know the general description of the product to be used.

Design Stage

In the design stage, the activities carried out are the preparation of material where researchers collect and compile material that will be included in the module later. Furthermore, designing e-module content, this activity makes a design scheme of the module format to be developed.

Development Stage (*Develop*)

e-ISSN: 2721-1274
p-ISSN: 2721-2718

At the development stage the activities carried out are: 1) developing products, namely making products from *software* devices, such as *kvisoft filpbook maker* and *microsoft word* applications. 2) validation of products carried out by validation tests of material experts and media experts. 3) improvement of products that have been validated and given suggestions for improvement, so that the product is suitable for use. 4) product trials carried out to obtain the necessary data related to the e-modules developed.

In this study, the data obtained were analyzed using two techniques, namely in the form of quantitative data and qualitative data. Quantitative data includes scores obtained through questionnaires from material and media expert lecturers, physics teachers, and also students on products developed by researchers. While qualitative data is classified in the form of input or suggestions from all validators and students. By using the feasibility percentage formula below:

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

Where:

P = Category presentation

∑ = Number or frequency of respondents' answers

N = Total availability of respondents' answer scores (Sudjana, 2007)

Effectiveness data is student learning outcomes data obtained from *pre-test* and *post-test* and calculated with the following formula:

Student learning outcome score formula:

$$N = \frac{jumlah\ skor\ yang\ diperoleh}{jumlah\ skor\ maksimum} \times 100$$

To determine the significant increase in student learning outcomes, quantitative analysis was carried out using the Gain Normality formula.

$$N - Gain = \frac{nilai\ post\ test - nilai\ pre\ test}{nilai\ maksimum - nilai\ pre\ test}$$

Description:

N-Gain: Normalized gain

Pre-test: Initial ability score before learning

Post-test: Final proficiency score after learning

RESULTS & DISCUSSION

1. Validity

Based on validation by material experts, the e-module developed by researchers can be stated as shown in the table below:

Table-1. Results of Material Expert Validation Assessment on E-Modules

No.	Assessment Components	Score
1.	Content eligibility aspect	4,94

e-ISSN: 2721-1274
p-ISSN: 2721-2718

2.	Aspects of language feasibility	4,91
3.	Aspects of presentability	4,92
4.	Aspects of graphical feasibility	4,93
	Total	19,7
	Average	4,92
	Interpretation	Very Feasible

Based on the assessment data by material experts on the four aspects above, the total score is 19.7, with an average of 4.92 and the e-module material is "Very Feasible" to use. Meanwhile, based on validation by media experts, the e-modules developed by researchers can be stated as shown in the table below:

Table-2. Results of Media Expert Validation Assessment on E-Modules

No.	Assessment Components	Score
1.	Content eligibility aspect	4,17
2.	Aspects of language feasibility	4,16
3.	Aspects of presentability	4,21
4.	Aspects of graphical feasibility	4,24
	Total	16,78
	Average	4,19
	Interpretation	Very Feasible

Based on the assessment data by media experts on the four aspects above, the total score is 16.78, with an average of 4.19 and the e-module is "Very Feasible" to use.

2. Practicality or Student Response

Student response to the e-module based on the Kvisoft Flipbook Maker application developed, obtained based on filling out a questionnaire. To find out student responses through filling out a questionnaire consisting of 3 aspects of assessment, namely, material aspects, appearance aspects and benefit aspects, which were assessed in a small group of 5 students and an assessment in a large group of 30 students.

Table-3. Results of Student Response Analysis in Small Group

No.	Assessment	Percentage	Criteria
1.	Material	89,5%	Very Practical
2.	View	88%	Very Practical
3.	Benefits	89,1%	Very Practical
	Average	88,8%	Very Practical

Based on the results of the analysis of responses in small groups by 5 students to the e-module, the average percentage is 88.8% with the criteria "Very Practical" and easy to understand.

Table-4. Results of Student Response Analysis in the Large Group

No.	Assessment	Percentage	Criteria
1.	Material	86,1%	Very Practical
2.	View	85,6%	Very Practical
3.	Benefits	86,3%	Very Practical
	Average	86%	Very Practical

Based on the results of the response analysis in the large group by 30 students on the e-module, the average percentage is 86% with the criteria "Very Practical" and easy to understand.

e-ISSN: 2721-1274
p-ISSN: 2721-2718

3. Effectiveness

The results of student learning tests through pre-test and post-test given to 30 students consisting of 10 multiple choice questions, obtained that the increase in learning completeness scores showed significant results where the score of answers obtained by students increased.

Table-5. Results of Student *Pre-test* and *Post-test* Analysis

Value	Average Score	N-Gain	Category
Pre-test	45	0,72	High
Post-test	85		

From the results of the analysis above, it was obtained that the average post-test score increased from the pre-test results obtained n-gain 0.72, with a category of "High" indicating that the e-module made was very effective in teaching and learning activities in improving students' cognitive learning outcomes. E-modules can also be said to be effective if students' cognitive outcomes can increase.

CONCLUSIONS

1. Based on the results of the research and discussion that has been described, the conclusions in this study are as follows:
2. Based on the results of validation by material and media expert validators, the material expert validation obtained a total score of 19.7, with an average of 4.92 and e-module material "Very Feasible" to use. Meanwhile, the media experts obtained a total score of 16.78, with an average of 4.19 and e-modules "Very Feasible" to use.
3. Measuring the practicality of e-modules made based on student responses or responses to small group trials involving 5 students and the results of the average percentage score of 88.8% with the interpretation of "very practical". In the large group test involving 30 students and the average percentage score of 86% with the interpretation of "very practical". So that students' responses or responses in the development of physics e-modules based on the Kvisoft Flipbook Maker application on circular motion material have a very practical category to be used in learning.
4. And the results of student learning tests through pre-test and post-test given to 30 students consisting of 10 multiple choice questions, it was found that the increase in learning completeness scores showed significant results.

BIBLIOGRAPHY

Abdul, M (2013) Perencanaan Pembelajaran. Bandung: PT Remaja Rosdakarya.

Ali, M & Asrori, M (2011) Psikologi Remaja Perkembangan Peserta Didik. Jakarta: PT Bumi Aksara.

Ali, M (2011) Aplikasi Pembelajaran Kurikulum Tingkat Satuan Pendidikan dan Bahan Ajar dalam Pendidikan Agama. Jakarta: Raja Grafindo.

Apsari, N, P & Kustijono, R (2017) Development Of E-Book Using Kvisoft Flipbook Maker To Train Science Process Skill For Senior High School Students In Curriculum 2013. Jurnal Inovasi Pendidikan Fisika (JIPF). 6 (3). 285-291.

Djamarah, S, B (1997) Strategi Belajar Mengajar. Jakarta: Rineka Cipta.

Divayana, D, G, H., Suyasa, P, W, A & Adiarta, A (2018) Pelatihan Pembuatan Buku Digital Berbasis Kvisoft Flipbook Maker Bagi Para Guru di SMK Ti Udayana. Jurnal Abdimas Dewantara. 1 (2), 31–44.

e-ISSN: 2721-1274
p-ISSN: 2721-2718

Fitria, S (2015) Pengembangan E-Modul Dengan Aplikasi Kvisoft Flipbook Maker Pada Pokok Bahasan Fluida Statis Untuk Pesera Didik SMA/MA Kelas X. Repository UIN Sunan Kalijaga. Yogyakarta.

Latifah, N., Ashari, H & Kurniawan, E, S (2020) Pengembangan E-Modul Fisika Untuk Meningkatkan Kemampuan Berpikir Kritis Peserta Didik. Jurnal Inovasi Pendidikan Sains. 1 (1), 1-7.

Majid, A (2005) Perencanaan Pembelajaran Mengembangkan Standar Kompetensi Guru. Bandung: Remaja Rosdakarya.

Mulyasa, E (2005) Implementasi Kurikulum 2004 Panduan Pembelajaran KBK. Bandung: PT Remaja Rosdakarya.

Mulyaningsih, N, N, & Saraswati (2017) Penerapan Media Pembelajaran Digital Book Dengan Kvisoft Flipbook Maker. Jurnal Pendidikan Fisika. 5 (1), 25-32.