




Development of Newton's Law E-Module Integrated Alquran REACH Based Using the Flipbuilde App

Artha Nesa Chandra¹, Dino Andika Putra¹, Novia Lizelwati¹, Marjoni Imamora, Pera Agustia Putri¹, and Syifa Hayatun Nufus Wahidah¹

¹ Universitas Islam Negeri Mahmud Yunus Batusangkar, Sumatera Barat, Indonesia
arthanesachandra@uinmybatusangkar.ac.id,

Abstract. The physics e-module integrating the Alquran with REACT steps is believed to be able to improve the quality of student learning. E-Modules have steps that can guide students to learn independently in understanding learning material. This underlies the importance of developing a REACT-based Alquran integration E-Modules. The development model used is 4-D, namely define, design, develop and disseminate. In this study, the researcher used a validation instrument in the form of an E-Modules validation by 3 validators. The practical instrument was a questionnaire from educators' and students' responses which was tested on 29 students and 2 educators. From the analysis of research data that has been carried out, the results obtained for validating the E-Module are 82.28% (Very Valid category). For the practicality of the E-Modules, based on the response questionnaire from educators and students, successive values were obtained, namely 97.39% (Very Practical category) and 84.32% (Practical category). This means that the Development of Newton's Law E-Module Integrated with the Alquran with the REACT Approach using the Flipbuilder App is valid and practical.

Keywords: E-Module, REACH, Integrated

1 Introduction

Please note that the first paragraph of a section or subsection is not indented. The first paragraphs that follows a table, figure, equation etc. does not have an indent, either. Facing the era of technology and industrial revolution 4.0 requires media innovation in learning [1] because the success of learning is influenced by the learning media used. Electronic Modules or E-Modules are examples of learning media innovations. E-Module is the development of a print module into the digital form [2]. E-Modules include digital media that are effective, and efficient and make students independent and active in solving problems because E-Modules are modules in the form of soft files that can be opened and read by students anywhere and anytime [3]. E-Modules help students in the learning process arranged by the teacher and adapted to the goals to be achieved [4]. In addition, the E-Module is also an option due to the condition

that the price of books is quite expensive, the availability of a small number of books, and thick books are less attractive to students [5].

Based on facts found in the field after the spread of the Covid-19 virus which changed the order of life and demands for the development of learning innovations using IT. This problem is compounded by the decreased interest in learning of students because the teaching resources used are usually in the form of printed books borrowed from libraries that are not interesting, or difficult to understand. This book is also heavy and difficult to carry around. The government also emphasizes increasing the self-potential of students towards the spiritual aspect of religion by growing faith and devotion through a learning process that is held by schools or related agencies [6]. The West Sumatra Education Office has also emphasized that all subjects at the SMA/MA level must integrate Al-Qur'an education and Minangkabau Natural Culture, including physics learning [7]. The integration learning process can increase students' complete understanding of understanding material, both science and Islamic religion (Al-Qur'an) to form a generation that is *ulul albab* [8]. Physics is a science that deals with real natural phenomena that can be found in everyday life. The theory of physics is also explained in the holy Qur'an and the truth of its verses can also be proven as explained, such as the theory of Newton's Laws. Integration between the Qur'an and science needs to be done by a learner at the time. Following Chandra's research [9] The development of teaching materials such as modules that integrate the Qur'an can increase students' confidence and understanding of the holy book of the Qur'an.

Another fact found in the field is that there are no learning media based on an approach based on the 2013 curriculum published by the Ministry of National Education. At the time of learning educators still use textbooks that only contain material summaries, formulas, and example questions that have not involved students in learning, the material has not been linked to daily activities and is still lacking in experimental activities. This book is also not oriented towards approaches or methods that can increase the enthusiasm and participation of students. Even though the 2013 curriculum is explained that the learning process must use an approach that is by KI and KD [10]. If we observe the books or learning modules that have been developed, those are more focused on the enrichment of science that lacks values, especially from religious perspectives. The book or module is only in the form of scientific concepts, notions, and mathematical formulas without thinking about the concept of science with religious values or its relation to the Qur'an. Therefore now we see many people who are smart to reach success by any means necessary [11].

The solution to this problem is the design and development of an E-Module which contains physics material supplemented by REACT-based verses of the Qur'an using the flip builder app. REACH is part of contextual learning which consists of relating, experiencing, applying, cooperating, and transferring [12]. REACH assists educators in instilling concepts and associating concepts with real situations, so that students can construct their knowledge and skills acquired [9]. REACT can build students' multiple intelligences, because the REACT component involves activities such as logical thinking, writing, speaking, experimenting, collaborating, respecting the opin-

ions of others, responsibility, self-confidence, and being able to direct students to become creative individuals.

Flip builder (Flip PDF Professional) is an E-book designer software in the form of a flip book [8]. The advantage of this Flip builder is that we can input videos in PDF so that it is very feasible and effective to be used as learning media and to train students' science process skills [1]. Following Lestari's opinion [13] E-Modules using the Flipbook application can help students in the independent learning process and foster student understanding and can be used anywhere both online and or offline regardless of time (flexible). Based on the above, the researchers developed a Newton's Law E-Module that integrates the REACT-based Qur'an using the flip builder app, which is believed to be able to improve the quality of student learning.

2 Methods

Research and Development with the 4-D model is the research method used in this study. The test subjects in this study were 29 class X MAN 2 Tanah Datar students and 2 teachers. The steps of this research method are: define, design, develop and disseminate. The development procedure is carried out as follows: 1) Define the stage. At this stage, interviews were conducted with educators in the field of physics studies and students. This aims to find out the problems that occur in learning and the needs needed in learning by educators and students. Furthermore, an analysis of teaching materials and media is carried out which functions to obtain information regarding the availability of teaching materials and media used. Lastly, an analysis of learning objectives is carried out which functions to determine the achievement of Basic Competencies and learning objectives. 2) Design stage. At this stage the product is designed using the design stage [14] in the form of Making an Outline of the Media Program (GBPM); making flowcharts; designing storyboards; collecting materials for designs such as materials, questions, and videos, animations, backgrounds, and images; do programming, and finally do the finishing so that the product output in the form of a link is obtained. 3) Develop stage. At this stage, a product validation test is carried out for experts and a practicality test for educators and students. A validation Test is used to see the quality of the resulting E-Module product. While the practicality test is carried out to see the practicality of the products produced in learning. The final stage of this study 4) The Dissemination Stage was not carried out due to the time and financial limitations of the researchers.

The data obtained from this study were in the form of 1) E-Module Validation Data obtained from three validators, namely 2 lecturers and 1 subject teacher. The aspects assessed by the validator on the products produced are aspects of purpose, rationale, content, characteristics, language, and appearance. 2) E-Module Practicality Data was obtained from the responses of 2 educators and the responses of 29 students. The analysis technique for the results of this study was based on a Likert scale using a range of 1-4. The data obtained were then analyzed quantitatively according to the criteria of validity and practicality as shown in Table 1.

Table 1. Validity and Practicility of Equipment

(%) Percentage	Category	Praktikalitas
0–20	Not Valid	Not Practical
21–40	Not Quite Valid	Not Quite Practical
41–60	Enaught Valid	Enaught Practical
6–80	Valid	Practical
81–100	Very Valid	Very Practical

Source: [15]

3 Results and Discussion

3.1 Define Stage

At this stage, information was obtained through interviews with physics educators and students. The results of the interview showed that the curriculum applied in one of the State Madrasah Aliyah schools in Tanah Datar was the 2013 curriculum, but in the learning process educators still applied conventional approaches/models. The teaching materials used during learning are in the form of textbooks available in the school library. But this teaching material is limited in quantity. These teaching materials generally contain material summaries, formulas and example questions, making them uninteresting and difficult to understand. These teaching materials are also heavy and difficult to carry. This teaching material is also not yet oriented towards an approach, and has not studied the relationship between physics material and Islamic values or integration of the Quran.

In fact, we know that the connection between science and the Quran, which is outlined in the Kauniah verses in the Quran, will make us more aware of the greatness of Allah. Educators who link scientific knowledge with the Quran and Sunnah when teaching in schools will become an extension of their role in carrying out the mandate of institutions to produce Islamic scientists in the future [16]. In addition, during the post-Covid-19 pandemic, educators are required to develop teaching materials that are more innovative and can be used online. Meanwhile, educators have not yet developed physics teaching materials that can be used online, which involve students to think logically, carry out experiments, are able to direct students to be active and easy and can be used anywhere and at any time. So we need teaching materials that are approach-oriented, integrate the Quran, are effective and efficient in use and attract students' interest in studying them.

3.2 Design Stage

At this stage, the product design process is carried out. The designed product is in the form of an Electronic Module (E-Module). This E-Module is compiled with the Ms. Word application and the Flipbuilder application which is equipped with material, practicum, sound, and video, and uses various colors and types of writing to make it interesting. In compiling an E-Module, the design steps are implemented, namely: a)

making an Outline of the Media Program (GBPM). In making GBPM, the E-Module components are grouped into three parts, namely introduction, content, and closing. The designed E-Modules refer to REACT learning by the 2013 curriculum. b) making flowcharts. c) making Story Boards. d) collecting materials for making E-Modules such as materials, questions, videos, sounds, and pictures. f) do editing using the flip builder application. g) Finishing so that an E-Module is produced in the form of a link [14].

The E-Module is designed to contain a coherent and structured learning process by uncovering facts about or everyday phenomena of students. In the Relating section with the command "Let's Observe", students follow simple experimental activities procedurally in groups. In the Experiencing and Cooperating section with the command "Let's Find It", students can find a concept related to the material being studied and form principles, based on the theories and physical laws found by physicists. In the next step, students are invited to apply the concepts that have been found in the form of questions or exercises called the Applying section with the command "Let's Apply". Furthermore, students can transfer the concepts that have been found in the form of phenomena in the form of learning experiences in the Cooperating and Transferring section with the command "Let's Share". At the beginning of the material, verses of the Qur'an are also presented with verse presentation, translation, and verse study. For example, the concept of "Motion" is found in Q.S Ar-Rahman: 60, the concept of "Push and Force" is found in Q.S Ar-Rad: 11, Q.S Al-Jatsiyah: 22 and Q.S Al-Baqaroh: 286. The display of the E-Module can be seen in Figure 1.

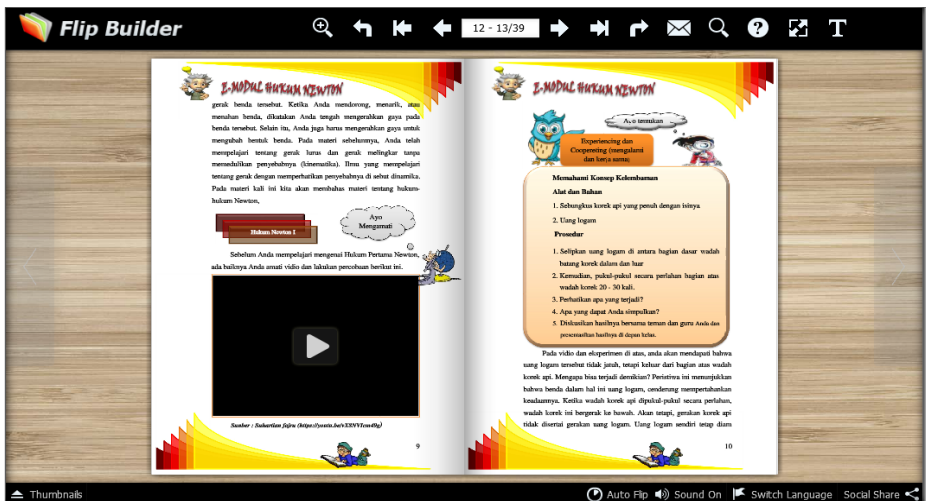


Fig. 1. Display of the REACT based E-Module Newton integrated with the developed Alquran

3.3 Develop Stage

At this stage, two stages were carried out, namely the validation test and practicality. The validation test process was carried out by 3 physicists consisting of 2 lecturers

and 1 educator. Data from the analysis results of the integrated Newton's Law E-Module validation integrated with the REACT-based Qur'an can be seen in Table 2.

Table 2. Recap of Validation of Newton's Law E-Module integrating the Alquran with REACT steps

No	Validated aspects	Validator			Amount	Max Score	%	Information
		1	2	3				
1	Content requirements	54	50	50	154	192	80.20	Valid
2	Presentation eligibility requirements	24	19	22	65	72	90.27	Very Valid
3	Language requirements	19	18	18	55	72	76.38	Valid
		Average					82.28	Very Valid

Table 2 shows the results of the validation of the E-Module for each aspect, for the content aspect has a value of 80.20% with a valid category, the feasibility of presentation obtains a percentage of 90.27% in the very valid category and the language aspect obtains a percentage of 76.38% in the valid category. In the problem formulation section there is a question "What is the validity of the Newton's Law E-Module Integrated with the Qur'an with REACT steps using the flip builder App?" This question has been answered according to the results of the E-Module validation from 3 validators. The results of the validation show that the E-Module that the researcher developed for the content aspect has a value of 80.20% with a valid category because the contents of the E-Module have been by KI and KD as well as class X syllabus indicators. Coverage in the material in the E-module is appropriate with REACT steps and integrated with the verses of the Qur'an. The verses of the Qur'an presented are clear and correct. The presentation of the material is to the needs of students and is complete. This was also conveyed by Mulyasa that the criteria for module and material development must pay attention to (1) the level of physical, emotional, intellectual, spiritual, and social development of students. (2) useful for students. (3) scientific structure, (4) breadth and depth of material, (5) relevance to the needs of students and the environment, and (6) time allocation [17].

For the feasibility of presentation, obtaining a percentage of 90.27% is a very valid category because the title presented in the E-Module Newton's Law Integrating the Qur'an with REACT steps using the flip builder App is clear and consistent and the language presentation is easy to understand and understand. Every sheet on the E-Module is easy to open. As well as being easily accessible as long as there is an internet network, as well as Newton's Law E-Module Integrated Al-Qur'an with REACT steps using the learner-centered flip builder App. For the language aspect, a valid category of 76.38 is obtained because the sentences used are by good and correct Indonesian language rules. As well as sentence structure according to the ability of students. This is in line with what Prastowo said that the modules must use an easy language [18].

The next step in the Develop stage is the Practicality Test. The Practicality Test was carried out on a limited basis to 29 students in class X. The results of the trial questionnaire obtained from 29 students can be seen in Table 3.

Table 3. Recapitulation of students' practicality tests on E-Modules

No	Practical Aspects	Amount	Max Score	%	Information
1	Interest	1024	1276	80.25	Practical
2	Material	844	928	90.94	Very Practical
3	Language	284	348	81.60	Very Practical
	Amount	2152	2552	84.32	Very Practical

Table 3 shows that the results of the student response questionnaire to the practicality of Newton's Law E-Module with the REACT approach obtained a percentage of 84.32%. Based on this, it can be concluded that Newton's Law E-Module has a Very Practical category. This answers the research objective of "How the Practicality of Newton's Law E-Module integrates the Qur'an with REACT steps using the Flip-Builder App. This is because Newton's Law E-Module integrates the Alquran with REACT steps using the flip builder App. It has an attractive appearance, clear instructions for use, and easy-to-understand language, and is simple, helps students understand the subject matter, and adds interest and motivation to learn. for students. The verses of the Al-Quran that are displayed are related to the material presented. According to Arifin in practicality it means ease in preparing, processing, using, and administering tests [19]. A product can be said to have high practicality if it has practical properties. The practicality or usability of a product can be seen if it has been tested on trial subjects.

4 Conclusion

Based on the results of research data analysis, the conclusions obtained are: Validation of the Newton's Law e-module with REACT steps which were developed based on material expert validators seen from the aspect of content validity, the feasibility of presentation obtained a validation value of 82.28% with the Very Valid category. Meanwhile, based on expert media validators, seen from graphic and language elements, a validation value of 79.82% was obtained in the Valid category.

Furthermore, based on the Newton's Law e-module practicality test with the REACT steps developed, the practicality value according to students was 84.32% in the Very Practical category and the practicality value according to educators was 97.39% in the Very Practical category. So it can be concluded that Newton's Law Emodule with REACH Steps is valid and practical and can be used for learning in schools.

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