



Development of electronic modules (e-modules) for islamic religious education (PAI) learning based on flipbook at SMPN 1 Tanggetada

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ABSTRACT

This research aims to develop a learning media in the form of a Flipbook-based E-Module for Islamic Religious Education (PAI) for seventh-grade junior high school students and to test its validity, practicality, and effectiveness. The method used is research and development with the ADDIE model. Validation was conducted by media experts and subject matter experts, while the practicality test was carried out by PAI teachers, and the effectiveness test was conducted on students through a questionnaire. The results of the media expert validation showed that the E-Module was classified as very valid with an average score of 3.9, while the subject matter expert validation obtained an average score of 3.3, which falls into the valid category. The practicality test by teachers obtained an average score of 95, which means it is very practical, indicating that the product is easy to use and meets the learning needs. Meanwhile, the effectiveness test obtained an average score of 91, which is categorized as very effective, with the material aspect receiving the highest score of 94. Based on these results, it can be concluded that the Flipbook-based E-Module developed is suitable for use in Islamic Religious Education and can enhance student engagement and understanding. This product can also serve as an alternative innovative learning media in the digital era.



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INTRODUCTION

Education is all forms of effort, influence, protection, and assistance given to children with the aim of making them independent individuals capable of carrying out their own life tasks (Purnamasari & Amal, 2021). Education is the process of acquiring knowledge and behavior according to needs. Education is an effort or process carried out to guide the overall quality of human resources so that they can perform their roles in life optimally and functionally. Therefore, education can help humans to demonstrate their existence functionally and optimally in this life. Thus, the benefits of education can be felt by humans (Dikti, 2018).

Article 1 paragraph (1) of Law Number 20 of 2003 on the National Education System (Sisdiknas) states: "Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to possess religious spiritual strength, self-control, personality, intelligence, noble character, and skills necessary for themselves, society, nation, and state." The National Education System Law aims to enlighten the nation's life and develop the potential of students to become individuals who are faithful and devoted to God Almighty, have noble character, are healthy, knowledgeable, skilled, creative, independent, and become democratic and responsible citizens. The focus is on the formation of a whole Indonesian person through quality education. Currently, we are in the digital era where everything can be accessed very easily by anyone, anytime, and anywhere. The advancement of technology and information has now permeated every aspect of life, including education. One way to improve the quality of education is by utilizing advanced technology. A teacher is expected to make good use of the advancements in technology and information to facilitate innovative learning for students. The rapid development of technology and information presents a very good opportunity to improve the quality of education. With the help of technological and informational advancements, there are many things that teachers can do, such as administration,

communication, lesson plan creation (RPP), evaluation, independent learning, and many other things (Mudrikah et al., 2022).

A teacher should be able to effectively utilize technology and information and innovate as an effort to foster students' interest in learning. In addition to that, a teacher must be able to implement active, innovative, creative, participatory, and enjoyable learning, commonly known as the PAIKEM learning method (Active, Innovative, Creative, Effective, and Enjoyable Learning) (Zuliana et al., 2023). A teacher can provide interactive learning modules as one of the alternative media choices used in teaching. Suastika and Rahmawati state that modules are one of the important components in learning because they can help students obtain important information about the learning material (Aulia, 2024). The digital module in question is a flipbook-style module designed as a learning tool with animations, audio, and navigation to enhance interactivity. This digital flipbook can be used similarly to an electronic book (e-book), but it has the advantage of being able to be opened page by page and supporting text, animations, videos, and photos that are pertinent to the book's content. (Khasanah & Nurawati, 2021). This application's benefits include: (1) the ability to provide a flip effect module or flippable pages; (2) the ease of creating modules; (3) the ability to present the content using audio and video in addition to text and images; and (4) the ability to publish the final product in HTML (Hyper Text Markup Language) or SWF (Shock Wave Flash) formats if it is intended for online publication. (Anandari et al., 2019). With the use of videos and direct assessments, e-modules facilitate the use of increasingly sophisticated technologies, including smartphones, which helps students comprehend the subject matter. Additionally, by reducing the amount of paper used, this improvement promotes environmental sustainability (Sofa & Zahra, 2022).

The use of learning modules has become very important and highly needed to deliver material in a more interesting and easily understandable way so that learning does not become boring for students, especially in religious education (Nursafitri et al., 2020). Considering that Islamic Religious Education (PAI) plays an important role in shaping life values in accordance with Islamic teachings based on the Qur'an and Hadith (Alawiyah, 2014).

Islamic Religious Education (PAI) aims to nurture and enhance a person's faith quality through the provision and cultivation of knowledge, understanding, and practice of Islam among students, so that they will become Muslims who continually develop in piety, faith, and noble character (Arfandi, 2020). The goals of Islamic Education represent the ideal condition of the learning objectives to be achieved, meaning that all activities within the education system are directed (Koderi & Husin, 2021). Islamic Religious Education in schools aims to shape students who are faithful, pious, and of noble character as the foundation for building the nation's character.

The development of electronic module (e-module) has become a widely debated topic in the context of education, particularly regarding their implementation and effectiveness in the learning process. E-modules combine various media, including text, images, sound, and video. This aims to provide a more interactive and engaging learning experience for students (Royhanin & Sungkono, 2022). Three perspectives can be found in studies related to the development of e-modules. First, a study explaining the need for the development of electronic modules for writing expository texts that are entertaining, interactive, and innovative (Charlina et al., 2022). Second, an average percentage acquisition of 94% with criteria for e-modules that are very practical to use (Waluya et al., 2022). Third, a lot of skills, techniques, understanding among students, and critical thinking abilities are needed to solve problems, and the module fosters social presence through Facebook learning groups such as interactive, affective, and cohesive (Lah et al., 2024). From the numerous studies that have been conducted related to the development of e-modules, the overall flipbook-based e-modules have become an interesting innovation in learning.

Based on the initial interview conducted by the researcher at State Junior High School (SMPN) 1 Tanggetada with teachers from the Islamic Religious Education (PAI) subject, almost all teachers and students obtain PAI learning resources from the internet, using various search tools such as Google, YouTube, and other social networks. In fact, the learning media that is often used is in the form of textbooks. Another fact found by the researcher during the initial observation was that students were less interested in learning because each lesson conducted by the teacher was limited to the use of media

and learning resources from textbooks, combined with learning models such as jigsaw, PBL (Problem-Based Learning), and others.

Based on the observed phenomenon, the researcher innovated in teaching by developing digital-based learning media or learning modules. The type of module developed is based on a flipbook, which is created with various content such as text, images, videos, or audio. This research aims to develop the PAI E-Module as a new learning resource that can assist both teachers and students in creating their learning experiences to ensure that education remains effective and enjoyable by utilizing the latest technology as a better new learning resource. With the presence of this Flipbook-based E-Module, it is hoped that students will be enthusiastic about learning and have renewed motivation in their studies. It is also hoped that the results of this research can contribute to creating innovative learning in the classroom.

RESEARCH METHODS

1. Type of Research

The type of research used in this study is research and development, also known as Research and Development, using the ADDIE model. Development research is a research method used to produce a specific product and test the effectiveness of that product.

2. Research Location and Time

The location for the implementation of this research and development is at SMPN 1 Tanggetada, Jalan Poros Pomalaa-Watubangga, Desa Palewai, Kec. Tanggetada, Kabupaten Kolaka, Southeast Sulawesi. And the research period is June 2025. This location was chosen because, based on observations conducted at SMPN 1 Tanggetada, this school is quite innovative in its teaching methods, including having its own computer room, making it an ideal choice for the researcher to conduct the study. Additionally, the school is easily accessible with good transportation, which is why the researcher is interested in developing a Flipbook-based E-Module at this school.

3. Research Subject

The subjects in this study are electronic module products (E-Modules) for all seventh-grade students at SMPN 1 Tanggetada in the subject of Islamic Religious Education (PAI) in the first semester.

4. Development Procedure

The research and development procedure uses the model developed by Robert Martie Branch. Based on the philosophical foundation of education, the application of the ADDIE model must be student-centered, innovative, authentic, and inspirational. The stages of the ADDIE model process (Analysis, Design, Development, Implementation, and Evaluation) are interconnected. Therefore, the use of this model needs to be carried out gradually and comprehensively to ensure the creation of an effective and efficient learning product.

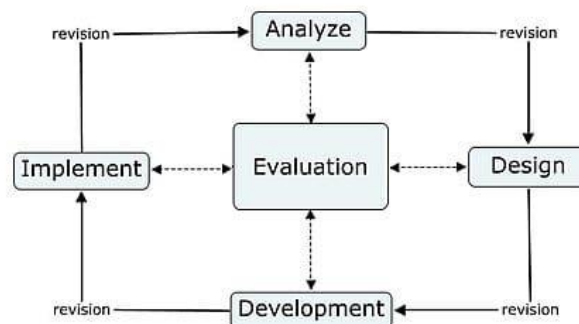


Figure 1. The flow of the ADDIE model development procedure

5. Data Collection Techniques

- a. Observation: conducted to observe the learning process that occurs in the classroom between teachers and students during the learning process. Observation provides the advantage of collecting objective data, especially when the information obtained is difficult or impossible to obtain through interviews or questionnaires (Sugiyono, 2016).
- b. Interviews: used to gather information from both teachers and students regarding the learning process, learning resources, and how the learning process takes place.
- c. Product Validation Instruments: This questionnaire will later be used to determine the validity of the developed product. This questionnaire is intended for media experts and content experts in the development of electronic modules (E-Modules) based on Flipbook learning.
- d. Questionnaire: aims to measure the responses of students and teachers regarding the practicality and effectiveness of the developed E-Module. The questionnaire/survey is a method that has been conducted by providing various types of questions related to the research problem. (Damayanti, 2021)
- e. Documentation: to complement the obtained data and serve as the result or tangible evidence of the research that has been conducted.

6. Data Analysis Techniques

Data analysis is the effort of processing available data so that it can be used to answer the research problem formulation. The purpose of data analysis is to provide answers to the formulated problems. Aulia (2024), to analyze or manage the data from the development results, the following analyses are needed:

- a. Validity Analysis: The validity of the Flipbook-based E-Module is tested through expert validation instruments using a Likert scale with a score range of 1-4. The validation results are calculated using the formula: the achieved score divided by the maximum score and multiplied by 100, where a percentage of 70%-80% indicates that the product is valid, suitable for use, and ready to be used without significant revisions.
- b. Analysis of Student and Teacher Responses: The data from the student and teacher response questionnaires were analyzed using a Likert scale with a range of 1-4. The interpretation of the response results refers to an achievement level of 80%-90% as the category of feasible and 91%-100% as very feasible. Through a systematic research methodology, this study aims to produce a valid, practical, and effective Flipbook-based E-Module to assist the classroom learning process, particularly at the research location, SMPN 1 Tanggetada. Using the R&D (Research and Development) approach and the ADDIE Development model, this research can significantly contribute to building an effective and enjoyable learning process in the classroom.

RESULTS AND DISCUSSION

Result

1. Expert Validation

a. Media Data Expert Validation

Table 1. Media Expert Validation of the Developed Product

No	Rated aspect	Value	Criteria
1	Display	3,7	Very Valid
2	Media Materials	4	Very Valid
3	Suitability	4	Very Valid
Average Score		3,9	Very Valid

The results of the media expert validation show that this Flipbook-based E-Module is very suitable for use in PAI learning at schools. The aspects of appearance (3.7), media materials (4), and suitability (4) indicate that all these categories are very valid, with an attractive appearance, easy-to-use media materials, and appropriate for the students' level or targeted according to its medium. Therefore, overall, this Flipbook-based E-Module is very good to use and indeed ready to be implemented in the classroom.

b. Material Expert validation

The material expert validation data is as follows:

Table 2. Expert Validation of the developed product, namely the Flipbook-based E-Module.

No	Rated aspect	Value	Criteria
1	Presentation Of Material	3,6	Very Valid
2	Material Suitability	3,4	Valid
3	Language Use	3	Valid
Average Score		3,3	Valid

The results of expert validation show that the Flipbook-based E-Module has an excellent presentation of material (3.6) and good material relevance (3.4). Furthermore, this Flipbook-based E-Module has language that is good and easy for students to understand, with a score of 3, which means it is valid or good. The assessment with the above criteria indicates that this Flipbook-based E-Module is already good but can still be further developed to be even better in the future.

2. Validation of Practicality and Effectiveness Testing

a. Practicality Test

After being declared valid by experts, the product was then tested for practicality by Islamic Religious Education (PAI) teachers. The data from the test results by the Islamic Religious Education (PAI) teachers at SMPN 1 Tanggetada are as follows:

Table 3. Practicality Test by Islamic Religious Education (PAI) teachers at SMPN 1 Tanggetada using Flipbook-based E-Modules

No	Rated aspect	Value	Criteria
1	Content Eligibility	100	Very Practical
2	Language	87,5	Very Practical
3	Material	93,75	Very Practical
4	Media Aspect	93,75	Very Practical
5	Benefit	100	Very Practical
Average Score		95	Very Practical

The practicality test shows that the Flipbook-based E-Module is very feasible (100) to be used in the classroom. The language aspect is good (87.5) but can still be developed and improved further so that it is easier for students to understand later. Other aspects such as content (93.75) and media (93.75) are already very practical, and this product is considered very beneficial for both students and teachers.

b. Effectiveness Test

This effectiveness test was conducted by providing a questionnaire to students after the product introduction to see the students' responses regarding the effectiveness of the developed Flipbook-based E-Module. The results can be seen in the following table:

Table 4. Effectiveness Test

No	Rated aspect	Value	Criteria
1	Instructional Media	92	Very Effective
2	Material	94	Very Effective
3	Benefit	87,5	Quite Effective
Average Score		91	Very Effective

Based on the effectiveness test results presented in the table, it can be concluded that the developed product falls into the "Very Effective" category with an average score of 91. This assessment includes three main aspects. First, the Learning Media received a score of 92, which falls into the "Very Effective" category. This indicates that the media used supports the learning process very well. Second, the content received the highest score of 94, also categorized as Very Effective, meaning the content is very appropriate, easy to understand, and supports the learning objectives. Lastly, the benefits received a score of 87.5, categorized as Fairly Effective, indicating that the product still has room for improvement in terms of its usefulness for students or users.

Overall, these three aspects resulted in an average score of 91, concluding that the tested product has a very good level of effectiveness and is suitable for use in learning activities.

Discussion

The results of this study indicate that the Flipbook-based E-Module in Islamic Religious Education (PAI) for seventh-grade junior high school students is suitable for use as a learning medium. The discussion of the research results is based on three main aspects, namely expert validation results, practicality tests, and effectiveness tests. These three aspects are analyzed descriptively quantitatively and reinforced with qualitative explanations.

1. Expert Validation Results

Validation was conducted by two experts, namely a media expert and a content expert, to assess the feasibility of the content and appearance of the developed E-Module.

a. Media Expert Validation

The results of the media expert validation indicate that the Flipbook-based E-Module received an average score of 3.9, categorized as Very Valid. The aspects evaluated include appearance, media materials, and user suitability. The appearance received a score of 3.7; media materials and suitability received a score of 4. This indicates that the developed Flipbook has met good visual and technical standards, as well as being suitable for the characteristics of junior high school students. The appearance is considered attractive, the layout is consistent, the colors are not excessive, and it facilitates navigation for students. The media materials are considered practical and can be used across devices, while the content is tailored to the age and abilities of the students.

b. Material Expert Validation

Validation from material experts resulted in an average score of 3.3 with a Valid category. The presentation of the material received a score of 3.6 (Very Valid), material relevance 3.4 (Valid), and language use 3.0 (Valid). This means that the content of the module is already relevant to the PAI curriculum for seventh grade and is presented systematically. However, the use of language still needs improvement to be more communicative, contextual, and appropriate for the students' literacy level. The results of this validation indicate that the Flipbook-based E-Module has strong potential as a digital learning resource suitable for use in schools, with some notes for improvement, particularly in the linguistic aspects.

2. Practicality Test Results

The practicality test was conducted by PAI subject teachers who are direct users of the product in teaching. The test results show an average score of 95 with the category of Very Practical. The content and benefit feasibility aspects received a perfect score (100), the material and media each received a score of 93.75, and the linguistic aspect received a score of 87.5.

This shows that teachers feel greatly assisted by the E-Module Flipbook because its content is relevant to learning needs, easy to use, and capable of facilitating more interactive learning activities. Although the linguistic aspect did not receive the highest score, teachers stated that the language used is generally communicative and understandable to students, but it could be further adjusted to the local context or the students' language culture.

Overall, the E-Module Flipbook is considered very practical by teachers, both in terms of technical ease, content usefulness, and in supporting both online and face-to-face learning processes.

3. Effectiveness Test Results

The effectiveness test was conducted by distributing questionnaires to students after the use of the E-Module. The average score obtained is 91, which falls into the Very Effective category. Three aspects that were evaluated include learning media (92), materials (94), and benefits (87.5).

The aspect of learning media is considered very effective because Flipbook offers a different and more engaging learning experience compared to printed modules. Students feel more inclined to study independently because of interactive features such as animations, page navigation, and engaging design. The material received the highest score, indicating that its content greatly helps students understand Islamic teachings more deeply and enjoyably. The aspect of usefulness received a score of 87.5, which falls into the category of quite effective. This indicates that although students perceive benefits from the product, they still expect improvements, such as adding automatic quiz features or short instructional videos that reinforce concept understanding.

With a high effectiveness score, it can be concluded that the Flipbook E-Module is capable of enhancing the quality of learning as well as supporting student engagement and understanding.

4. Implications of Research Findings

Overall, the results of this study support that technology-based learning media such as Flipbook can be an effective alternative to support the PAI learning process in the digital era. Expert validation shows the feasibility of the content and media, while practicality and effectiveness tests indicate that this module is easy to use and capable of having a positive impact on students' motivation and learning outcomes. However, several aspects need to be considered in further development, including improving the quality of the language to make it more communicative and integrating additional interactive features to enhance the product's benefits.

This is also in line with research by Laili (2019), which states that e-modules can increase student motivation, are dynamic and interactive, and can reduce paper production as a material for printed modules. With various presentations including material exposure that can be complemented with animations, videos, and even evaluations packaged interactively, it will provide facilities for students to acquire knowledge in a more varied manner compared to printed modules which are more static in nature.

This is also supported by Maharcika et al., (2021), who explain that the advantages of e-modules include their integration with technology, meaning they can present more modern material because they are equipped with interactive and engaging features such as text, links, audio, animations, illustrations, and videos as tools to support the material. Thus, it will expand students' understanding and create new learning experiences as well as enhance students' ability to learn independently. Not only that, the e-module is also self-instructional, meaning it does not depend on others. Thus, it creates an interesting impression when using the e-module. Among the advantages of the e-module, it certainly also has some limitations.

CONCLUSION

Based on the research results that have been conducted, it can be concluded that the development of Flipbook-based E-Modules in the subject of Islamic Religious Education (PAI) for seventh-grade junior high school students has successfully met the criteria of being valid, practical, and effective. The validation results by media experts indicate that the product is classified as very valid with an average score of 3.9, meaning that visually, technically, and in terms of suitability for students, this module has been designed very well. Meanwhile, the validation results by content experts obtained an average score of 3.3 and fall into the valid category, with the note that the use of language in the module can still be improved to better match the students' level of understanding. The practicality test conducted by teachers received an average score of 95, indicating that the module is very easy to use, helps teachers deliver the material, and supports efficient learning. The effectiveness test by students showed an average score of 91, categorized as very effective, meaning this module is capable of increasing student engagement and helping them understand the material better. Thus, the Flipbook-based E-Module is deemed suitable for use as an innovative learning medium in PAI education at junior high schools.

Based on the results of this study, it is recommended that developers add additional interactive features such as automatic quizzes or relevant external links to enrich students' learning experiences and improve the linguistic aspects so that the module becomes more communicative and easier to understand for all students, especially those from different regional backgrounds or literacy levels. The use of Flipbook-based E-Modules should be integrated continuously into the learning process, both online and offline, so that the benefits can be maximally felt. Access to the link on this Flipbook-based E-Module is still limited, it is hoped that further development by researchers can find new innovations so that the link used can be utilized in the long term.

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