

Development of interactive e-book-based Christian religious education teaching materials to increase learning motivation for class VII students at Dian Christian Middle School



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ABSTRACT

This research endeavors to create interactive electronic book (e-book)-based teaching materials that align precisely with curriculum demands, ensuring the customization of learning resources to suit the unique characteristics of students. Employing the research and development methodology, the study adopts the ADDIE model comprising (1) Analyze, (2) Design, (3) Develop, (4) Implement, and (5) Evaluate. Conducted at Kristen Dian Middle School, the research involved class VII students as subjects. Utilizing questionnaires for data collection, the testing phase included 10 students from class VII, with evaluations conducted by 2 media experts and 2 material experts. The analysis technique employed was descriptive data analysis. The research produced two significant outcomes: (1) the development of interactive PAK e-book teaching materials and (2) the results of the feasibility assessment. Both media experts rated the PAK e-book teaching materials as very feasible, with feasibility percentages of 3.45 and 3.2, respectively. Material expert 1 assessed it as 2.81 in the appropriate category, while material expert 2 rated it as 3.69 in the very appropriate category. Students' assessments yielded a feasibility percentage of 3.49, categorizing it as very feasible. In conclusion, this research contributes by providing well-tailored, effective e-book teaching materials in alignment with curriculum requirements, positively impacting the educational landscape.

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1. Introduction

Law Number 20 of 2003, concerning the National Education System, asserts that education constitutes a conscious and planned effort to establish a conducive learning environment and process, enabling students to actively develop their potential in terms of religious, spiritual strength, self-control, personality, intelligence, noble character, and the skills necessary for themselves, society, the nation, and the state [1]. This explanation underscores the significance of education in the cognitive, social, and personality development of students. Education is paramount in fostering the holistic development of students, addressing cognitive, social, and personality dimensions [2]. Academically, it equips them with essential knowledge and critical thinking skills, laying the foundation for intellectual growth [3]. Socially, education serves as a crucible for interpersonal interactions [4], honing communication [5], teamwork, and cultural understanding [6]. Furthermore, education shapes the moral compass and ethical framework, contributing significantly to the formation of one's character and values [7]. In essence, it not only imparts information but also cultivates resilience, adaptability, and a sense of civic responsibility, preparing students to navigate life's challenges, contribute meaningfully to

society, and become well-rounded, engaged citizens [8]. A critical element in addressing these challenges is educators, who serve as the vanguard influencing students in the acquisition of knowledge and skills [9]. To realize this educational objective, teachers play a pivotal role, extending beyond the mere provision of subject matter to motivating students during classroom learning activities. Christian Religious Education Teachers are expected to follow suit, not merely imparting information but also inspiring and motivating students throughout the learning process. The goal of Christian religious education is to empower students to comprehend and value God's salvation in Jesus Christ [10], believe in it, and embody it in their actions as individuals within the context of their relationship with God, others, and the natural world [11]. This aligns with Hokenson assertion regarding Christian educators, emphasizing their comprehensive responsibility as leaders in both formal and non-formal educational institutions [12].

In reality, educators encounter obstacles in fulfilling their educational roles. Teachers are responsible for imparting subject-specific knowledge, and students are expected to comprehend the provided material. Researchers have identified challenges in the implementation of Christian religious education in schools, such as teachers adopting monotonous lecturing styles and employing uncreative teaching models and media. Students have expressed dissatisfaction with the perceived dullness of the learning experience, and some fail to achieve the expected academic completeness. This monotony results in students feeling disinterested and unenthusiastic about participating in the PAK teachers' instructional processes. One viable solution for teachers to address this issue is to enhance the development of their instructional materials. Learning media serves as a channel for conveying messages, stimulating students' thoughts, emotions, learning approaches, and interest in the educational process facilitated by the teacher [13]. The selection of learning media is diverse and contingent on the subject matter's needs and suitability. Consequently, different teachers may employ distinct learning media. Both teachers and students use learning media to facilitate the effective delivery of lesson content. Traditionally, the blackboard has been a frequently used learning medium. However, its efficacy depends on the teacher's competence in utilizing it. Inadequate use may result in less efficient content delivery, leading to student disengagement and boredom. In the contemporary educational landscape, teachers need to carefully consider and employ learning media that align with current technological trends. In light of these considerations, the research questions can be formulated as follows: (1) What are the characteristics of interactive e-book-based PAK teaching materials? (2) What is the impact of implementing teaching materials from PAK Kristen Dian?

The objective of this development research is to create interactive electronic book (e-book)-based teaching materials that align with curriculum requirements, addressing the development of learning resources tailored to students' characteristics. The resultant product from this research will be interactive e-book teaching materials developed using the ADDIE development model. The specific interactive e-book under consideration encompasses content that enhances the narration of Christian Religious Education learning in an engaging manner. E-books possess four distinct characteristics, as outlined by Nguyen [14]; (1) E-books are software products resembling traditional books in their mechanical structure. Users can navigate e-book pages randomly, similar to conventional book pages; (2) E-books, as book software products, function both with and without internet connectivity. They allow users to incorporate animations, videos, etc., enhancing the depth and comprehensibility of lessons; (3) E-books always come with e-book readers. Therefore, in addition to transmitting content, e-books must cater to e-reader devices. They should be compatible with personal computers (PCs, laptops), Android Tablets (Galaxy Tab, Kindle Fire, etc.), or smartphones; (4) E-books possess the capability to integrate advanced and modern technology, making them an optimal medium for information transmission. In consideration of the digital nature of the developed e-book, or electronic book (e-book), the following specifications are outlined: (1) The product is an e-book containing K.D 3.1 Understanding that God forgives and saves humans in Jesus Christ; (2) The e-book was developed using the Flip HTML 5 application, requiring a computer (laptop) for usage; (3) Visual content (images and videos) embedded in e-books serve to elucidate the material, making it more engaging and memorable for students; (4) Audio content is included as a means of

delivering information through sound, facilitating easier material retention for students who learn by listening. The inserted audio serves multiple purposes, such as making material recall easier, capturing students' attention, complementing the e-book's appearance and features, and reducing textual content in e-books.

Technology has become a necessity to support various aspects of contemporary life, evident in domains such as banking, health, commerce, and education. Particularly in the field of education, technology proves highly beneficial, as exemplified by the prevalence of online discussion forums, digital libraries, material-providing applications, practice questions, and online courses. According to Kwartolo [15], technology plays an extraordinary role in supporting the learning process, contributing to: (1) Activeness, allowing students to actively engage in interesting and meaningful learning processes; (2) Constructiveness, enabling students to integrate new ideas with existing knowledge to understand meaning and address curiosity and doubts; (3) Collaborativeness, facilitating group or community collaboration where students share ideas, suggestions, experiences, advice, and input; (4) Intentionality, empowering students to actively and enthusiastically pursue desired goals; (5) Conversationality, turning the learning process into a social and dialogical experience where students benefit from communication both within and outside the school; (6) Contextualization, directing learning situations toward a meaningful (real-world) process through a "problem-based or case-based learning" approach; and (7) Reflectiveness, allowing students to recognize and reflect on their learning as an integral part of the learning process itself.

Interactive e-books, equipped with multimedia features and dynamic animations, aim to facilitate students' comprehension of the subject matter [16]. These electronic books serve as teaching materials, presenting attractive multimedia features that enhance students' absorption of learning material and information. The selection of a development model in educational research is crucial for yielding efficient and effective results or products. A well-developed product not only offers numerous benefits but is also utilized effectively. Favorable and appropriate product development outcomes enhance students' motivation and eagerness to delve deeper into the presented material [17]. This engaging development product is anticipated to simplify the understanding of the studied material for students. The development of teaching materials, often referred to as instructional development, holds significant importance in education. Instructional Design, a systematic process, ensures the consistent and reliable development of educational and training programs [18]. Instructional development undergoes continual refinement in the process of creating teaching materials, instilling trust in its application. Among the various learning development models, the ADDIE model stands out for its systematic approach.

2. Method

This research aims to create interactive e-book-based teaching materials aligned with curriculum demands, ensuring adjustments to suit students' unique characteristics. The research method adopted is a research and development methodology, emphasizing a systematic approach in creating effective and tailored educational materials, aligning with specific needs [19]. The study utilizes the ADDIE model, comprising five main phases [20]: (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation, providing a structured framework for learning design and development. Conducted at Kristen Dian Middle School, the research involves class VII students as the target population. The data collection method employs a questionnaire to gain insight into class VII students' preferences, learning styles, and needs regarding interactive e-book teaching materials. The trial phase engages 10 class VII students, facilitating practical evaluations of the interactive PAK e-book teaching materials being developed. Additionally, it involves two media experts and two material experts to evaluate the e-book teaching materials, providing valuable insights into their effectiveness and suitability. Descriptive data analysis is employed to interpret and understand the collected data, offering a comprehensive overview of the research findings. Subsequently, a study assesses the suitability of the developed e-book teaching materials through expert evaluation and student assessment, aiming to determine their practicality and effectiveness. The research

yields two significant results: the development of interactive PAK e-book teaching materials and the results of the feasibility assessment. With this method, researchers can conclude and highlight their contributions by emphasizing the provision of well-designed and effective e-book teaching materials that positively impact the educational landscape in line with curriculum requirements.

3. Results and Discussion

3.1. Media Expert Validation

Validation by material experts aims to garner assessments, suggestions, and input concerning the developed learning media. This validation encompasses two aspects: graphic feasibility and electronic media feasibility. The input acquired from material experts serves as reference material for revising learning media products. Further details will be presented in Table 1.

Table 1. Distribution of Total Media Expert Assessment Scores 1

Category	Total score	Percentage (%)
Excellent	44	63.8
Good	24	34.8
Fair	0	0
Poor	1	1.45
Quantity	69	100

Moreover, the distribution of the total scores for Media Expert 2 can be observed in Table 2. Material experts assessed 20 items. The aspect rated "Excellent" by Media Expert 1 was 63.8%, while Media Expert 2 rated it at 68.8%. Validator 1 rated it as "good" at 34.8%, and Validator 2 rated it at 14.1%. This validation indicates that the interactive e-book product is suitable for development, with room for improvement or revision based on the input provided by the PDTM Lathe and Milling learning media. The product is deemed appropriate for development, considering potential improvements or revisions aligned with the provided input.

Table 2. Distribution of Total Media Expert Assessment Scores 2

Category	Total score	Percentage (%)
Excellent	44	68.8
Good	9	14.1
Fair	10	15.6
Poor	1	1.6
Quantity	64	100

3.2. Material expert validation

Validation by material experts aims to acquire assessments, suggestions, and input concerning the developed learning media. This validation encompasses three aspects: the appropriateness of content, the appropriateness of presentation, and the appropriateness of language. The input obtained from material experts serves as reference material for revising learning media products. Additional details will be presented in Table 3.

Table 3. Distribution of the Number of Assessment Scores by Material Experts

Category	Total score	Percentage (%)
Excellent	16	21.9
Good	39	53.4
Fair	18	24.7
Poor	0	0
Quantity	73	100

Moreover, the distribution of the total scores for Material Expert 2 can be observed in Table 4. Material experts assessed 26 items. The aspects rated as "Excellent" by Material Expert 1 were 21.9%, and rated as "good" at 53.4%. Material Expert 2 rated the aspects as "Excellent" at 75%, and "good" at 25%. This validation indicates that the electronic ebook products are suitable for development through revisions based on the provided input.

Table 4. Distribusi Jumlah Skor Penilaian Ahli Materi

Category	Total score	Percentage (%)
Excellent	72	75
Good	24	25
Fair	0	0
Poor	0	0
Quantity	96	100

3.3. Field Trials

The data obtained from field trials were analyzed to assess student responses to the developed product. Ten students provided responses. Out of the 19 assessment items, 52.91% were considered "Excellent," and 43.92% were rated as "good." Consequently, it can be concluded that the assessment of interactive e-books is suitable for use. The distribution of total scores can be observed in Table 5.

Table 5. Distribution of the Number of Field Trial Assessment Scores Displaying Aspects

Category	Total score	Percentage (%)
Excellent	100	52.91
Good	83	43.92
Fair	6	3.17
Poor	0	0
Quantity	189	100

3.4. Feasibility Analysis of Learning Media

At this stage, the interactive ebook being developed has undergone validation by material experts and learning media experts. It has been revised based on the input from the validators before the media is used for learning. Below, we will discuss the results of validation by material experts, media experts, and respondents (students).

3.5. Media Expert Validation

The assessment results from media expert validation for learning media show that the media validation obtained a score after conversion of 3.45 and 3.2 in the "Very Decent" category. Thus, it can be concluded that the ebook developed is suitable for use as teaching material at Dian Christian Middle School.

3.6. Material Expert Validation

The assessment results from material expert validation for learning media show that the material validation obtained a score after conversion of 2.81 in the "Decent" category. Therefore, it can be concluded that the material expert validator gave an assessment in the appropriate category. This indicates that the material in the interactive ebook developed is deemed suitable for use as teaching material at Dian Christian Middle School.

3.7. Respondent Assessment (Students)

Data collection for the feasibility trial of learning media was conducted with 10 respondents in class VII of SMP Kristen Dian. The results of the value analysis from the 10 respondents showed 3.49 in the "very feasible" category, see Table 6.

Table 6. Feasibility Test Table

Subject	Average Score	Appropriateness
Media Expert 1	3,45	Very Worth It
Media Expert 2	3,2	Very Worth It
Material Expert 1	2,81	Worthy
Material Expert 2	3,69	Very Worth It
Respondent Assessment (Students)	3,49	Very Worth It

4. Conclusion

In the process of developing an interactive ebook, researchers carried out the following stages: analysis, design, development, validation, revision, trial use, and product revision. The

implementation of interactive ebooks was conducted in the odd semester of the 2021/2022 academic year in class VII of Kristen Dian Middle School, initially involving 10 students as respondents, followed by implementation in larger classes with 30 students. The developed interactive ebook media is deemed suitable for use based on the media expert validation results, scoring 3.45 and 3.2, while the material expert's score is 2.81, and the student assessment is 3.49. The results also indicate an increase in student motivation, as evidenced by the pretest and posttest outcomes.

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