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Improving Pancasila and Citizenship Education Based on Android Digital Pocket Book for Grade VIII Students

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ABSTRACT

The integration of digital media in education is crucial for enhancing student engagement and learning outcomes. At SMP Negeri 14 Kerinci, outdated printed teaching materials that do not align with the current syllabus contribute to low student performance. To address this issue, this study develops and evaluates an Android-based digital pocket book for Pancasila Citizenship Education. The research follows the Research and Development (R&D) approach using the ADDIE model, which includes Analysis, Design, Development, Implementation, and Evaluation. Validation was conducted by three experts specializing in media, materials, and language, assessing the application based on relevance, interactivity, language quality, and content. Practicality testing involved teachers and students, and effectiveness was determined through pretest-posttest comparisons. Validation results indicated high feasibility, with scores of 82 for media, 82 for materials, and 85 for language, all classified as "Very Good." Practicality testing yielded scores of 98 from teachers and 96 from students, categorizing the application as "Very Practical." Effectiveness analysis demonstrated significant improvements in student learning outcomes, as evidenced by pretest and posttest score differences and the achievement of classical completeness. The findings confirm that the digital pocket book is a viable and effective learning tool, enhancing students' understanding and engagement through multimedia features such as audio, video, images, and animations. This study provides an innovative digital learning solution with the potential to serve as a model for other educational subjects, contributing to the advancement of digital-based pedagogy.

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1. INTRODUCTION

Teaching materials are one of the important tools in learning that are designed to help students understand the material effectively. Teaching materials not only provide learning content, but also support the development of students' creative thinking skills. The selection of appropriate teaching materials, both printed and digital, plays an important role in improving the quality of learning by providing access to various relevant learning resources. According to Bentri, Hidayati, and Rahmi (2019), teaching materials function as a means that can strengthen the teaching and learning process, while

Syafril, Eldarni, and Rahmi (2018) emphasize the importance of innovation in the format of teaching materials to adapt to the needs of students in the digital era.

The implementation of the 2013 Curriculum, which began in the 2013/2014 academic year, emphasized the importance of preparing relevant teaching materials, teacher training, and structured supervision to support directed learning. This curriculum integrates innovative technology as part of its approach to improving the quality of education. In its full implementation in the 2014/2015 academic year, various parties worked together to ensure that digital teaching materials, including digital pocketbooks, could be widely accessed by teachers and students, especially in the Pancasila Citizenship Education course.

The development of educational technology opens up great opportunities to develop practical and easily accessible digital-based teaching materials. Digital pocket books, for example, provide concrete solutions to meet learning needs in the digital era while still prioritizing the principles of effectiveness and efficiency. This is not only in line with the demands of the 2013 Curriculum which supports the use of technology, but also provides practical benefits in helping students understand the material in depth. Research on digital pocketbooks shows its potential to increase student engagement and support independent learning in various educational contexts.

Along with the development of technology, educators are required to utilize technological devices in learning, as mandated in the Regulation of the Minister of National Education Number 16 of 2007 and the Regulation of the Government of the Republic of Indonesia Number 74 of 2008. The use of information technology by teachers is part of the pedagogical competence that supports learning management (Rohaeni, 2020; Rahmawati, Leksono, & Rohman, 2023;

This research is a unique research that develops an Android-based digital pocket book specifically designed for the subject of Pancasila and Citizenship Education (PPKN) for grade VIII of junior high school. This media combines the advantages of digital technology with an interactive approach that has not been applied comprehensively to the PPKN subject. This research also introduces a new application of Android-based offline technology to address accessibility challenges in areas with limited internet networks.

The main contribution of this study lies in the provision of effective and practical digital teaching materials, which not only increase student interest but are also relevant in supporting the overall PPKN learning objectives. By focusing on the integration of disaster mitigation materials, this digital pocketbook is expected to instill national insight while equipping students with knowledge about disaster preparedness from an early age (Anita et al., 2021; Hidayati, Fauzan, & Hakim, 2019). Based on the literature review, there is a gap in the development of Android-based digital learning media for PPKN subjects, especially those that can be used offline. Therefore, this study was designed to answer the following questions: What are the stages of developing an Android-based digital pocketbook for PPKN subjects for grade VIII junior high school? To what extent are the validity, practicality and effectiveness of Android-based digital pocketbooks in supporting PPKN learning? These questions are in line with the objectives of the study, namely to develop an Android-based digital pocketbook for PPKN for grade VIII junior high school and evaluate its validity, practicality, and effectiveness in improving the quality of learning. Thus, this research is expected to provide new insights in the field of educational technology, especially the application of offline-based interactive learning media.

2. METHODS

Teaching materials include all types of materials used by teachers to support students in achieving learning objectives. These materials facilitate the learning process, strengthen understanding, increase motivation, and encourage student creativity. Structured and relevant teaching materials can make learning more focused and meaningful (Rohaeni, 2020; Yusuf, Syafril, Zuwirna, & Hidayati, 2022; Itriano & Amsal, 2023).

In the context of the 2013 Curriculum which emphasizes activity-based learning and a scientific approach, the use of digital technology-based teaching materials is very relevant. Android-based pocket books, for example, can support the development of 21st-century skills. This technology provides interactive and interesting learning resources, so it can improve the quality of learning (Fadhila, Setyaningsih, Gatta, & Handziko, 2022; Rizka, Ade, & Anugrah, 2023; Rizka et al., 2023).

This study adopts a naturalistic paradigm, which emphasizes understanding phenomena within their real-life contexts, with the researcher serving as the primary instrument. This approach enables a deep interpretation of data while preserving the subjective and contextual dimensions of the research. In this framework, the researcher is actively involved in collecting, processing, and analyzing primary data through direct observation in the field.

Data collection methods employed in this study include observation, interviews, and documentation. Observations were conducted to examine student interactions with teaching materials and monitor the learning process in real-time. Semi-structured interviews were carried out to gather insights from both students and teachers regarding the effectiveness of digital pocket books, involving a sample of 20 eighth-grade students. Documentation involved collecting supporting materials such as teacher notes, student learning artifacts, and records of classroom activities.

The development of the digital pocketbook followed the ADDIE model, comprising five key stages. In the Analysis phase, researchers identified student learning needs, technological limitations, and curriculum alignment. During the Design phase, the structure and features of the pocketbook were planned, including visual elements, videos, typography, and audio components tailored to student preferences. The development stage involved creating a prototype using Android-based software and incorporating interactive features to enhance user engagement. In the Implementation phase, the digital pocket book was tested with eighth-grade students to evaluate usability and learning impact. Finally, the Evaluation phase assessed the product's validity, practicality, and effectiveness using student questionnaires and analysis of learning outcomes.

The design stage of teaching materials involves analyzing the needs of students and teachers through an initial survey. Graphics, illustrations, videos, fonts, and audio are designed and adjusted to the learning theme to increase its appeal. This process uses design software such as Adobe Photoshop and Canva, with a focus on attractive and relevant visualizations.

Indicators of the suitability of teaching materials include content validity, practicality of use, and effectiveness on learning outcomes. Validity is measured through expert testing, practicality is evaluated through teacher and student feedback, while effectiveness is measured based on improvements in student learning outcomes. Learning activities are integrated into digital pocketbooks through systematic steps that include: Exploration activities that motivate students to use technology, Analysis activities using interactive scientific content, and Evaluation of learning outcomes through quizzes designed in the application.

This research contributes to the development of technology-based teaching materials, which not only support curriculum implementation but also provide learning solutions in areas with limited internet access. This digital pocketbook increases student engagement and provides wider access to education, especially in remote areas.

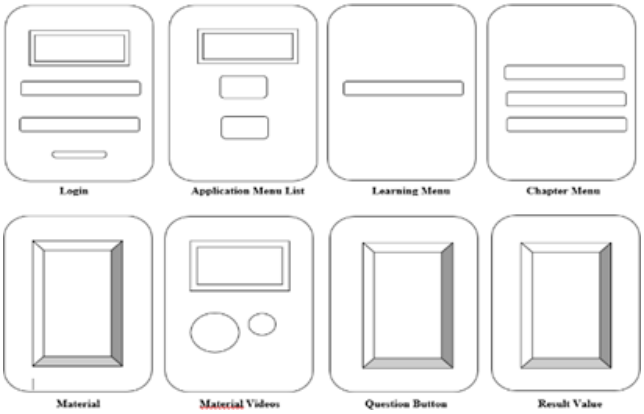

Figure 1. Design of Digital Pocket Book Learning Media

3. FINDINGS AND DISCUSSION

3.1 Research Findings

The results of this study led to the development of an Android-based digital pocketbook as a learning medium that is valid, practical, and effective for teaching Pancasila and Citizenship Education to eighth-grade junior high school students. The development process followed the ADDIE model, which includes the stages of Analysis, Design, Development, Implementation, and Evaluation. The validation, practicality, and effectiveness of the digital pocketbook were assessed through a series of evaluations involving expert reviews in media, language, and subject content. These assessments were conducted in accordance with established research procedures to ensure the quality and relevance of the learning media. A detailed discussion of each stage and the results is presented below.

3.1.1 Analysis Stage

This stage is carried out to obtain an overview of the conditions in the field related to the Pancasila and Citizenship Education subjects for class VIII of junior high school. The needs analysis was carried out through interviews for 2 days, namely on August 7-9, 2023, with 22 class VIII students of SMP Negeri 14 Kerinci. At this stage, the following steps are carried out: a) Curriculum and Material Analysis The results of the curriculum analysis at SMP Negeri 14 Kerinci show that this school implements the 2013 Curriculum (K13) well. The curriculum focuses on developing student competencies through a scientific approach that includes five main steps of observing, asking, collecting information, reasoning, and communicating; b) Analysis of the needs and users of junior high school students in grade VIII. At this stage, the researcher conducted observations to determine the characteristics of students before developing the Digital Pocket Book product that was created. Analysis of user needs will be a reference in developing the Digital Pocket Book, analysis of needs and users will be used as considerations in developing the Digital Pocket Book on the Pancasila and Citizenship Education subject, the material of the Spirit of National Awakening 1908, the Youth Pledge in the Frame of Bhineka Tunggal Ika, Strengthening National Commitment. The results of the analysis show that the age of class VIII students is around 12-13 years. years old, has emotional development and the ability to think with the characteristics of children having reversible thinking who can understand things in two directions, starting to convert certain thoughts, adapting a comprehensive picture, seeing an object from various points of view;

Next c) Specification Analysis, This Digital Pocket Book Specification Analysis is specifically designed to facilitate easily accessible learning for students and teachers. This application was developed using the Articulate Storyline application, which supports interactive content such as text, images, videos, and questions. To ensure its quality, this application has undergone user trials involving media, material, and language validator experts. In addition, this application has been actively used by students and teachers, in accordance with the Core Competencies (KI) and Basic

Competencies (KD) that have been set to match the learning objectives. Based on the results of the Core Competencies (KI) and Basic Competencies (KD), students must understand the material according to KI and KD so that learning objectives can be achieved and the Digital Pocket Book based on Android This not only meets the needs of learning accessibility, but also ensures the suitability of the curriculum and the quality of the content presented, through a careful development process and proven trials. Based on Core Competencies and Basic Competencies, learning is then formulated.

3.1.2 Design Stage

This stage includes several important steps in the development of the Android-based digital pocketbook for the Pancasila and Citizenship Education subject. The first step involves preparing test instruments, including pre-tests and post-tests, to evaluate students' understanding before and after using the digital pocketbook. These tests, consisting of multiple-choice questions (10 per chapter), are designed in accordance with the Competency Standards (SK) and serve as tools to measure learning outcomes and assess the effectiveness of the media. The next step is the selection of appropriate media. In this study, the digital pocketbook was developed using *Articulate Storyline*, a software application chosen for its ability to create interactive content by integrating text, images, audio, video, animations, buttons, and navigational features. This software supports the development of web-based content compatible with both Android devices and computers, making it suitable for diverse learning environments. The format selection stage focuses on organizing the learning content and designing its presentation in alignment with the basic competencies outlined in the curriculum. The material is structured to include both content delivery and integrated assessments. In the initial design phase, a comprehensive framework for the digital pocketbook is developed, starting with the creation of a storyboard to visualize the content flow and structure. This is followed by the actual development of the digital pocketbook using *Articulate Storyline*, which includes designing key components such as the workspace, login and home pages, instructional sections, user guidance, content pages, interactive features, evaluation tools, and finally, converting the entire product into an Android application.

Figure 1. Log in page

Figure 2. Main Page

Figure 3. Material Page

Figure 4. Android

3.1.3 Development Stage

The next phase is the development stage, which focuses on producing an Android-based digital pocketbook as a valid, practical, and effective learning medium. This stage involves several key processes, beginning with expert validation to assess the quality and relevance of the media. Validation is carried out by media experts, material content experts, and language experts to ensure that the

product meets educational, technical, and linguistic standards. Following the validation, the practicality of the digital pocketbook is evaluated through user testing involving students to determine ease of use and engagement. Finally, an effectiveness test is conducted to assess the impact of the digital pocketbook on student learning outcomes. The detailed procedures involved in each phase of this development process are described as follows:

Instrument Validity

The instrument used in this study was a questionnaire. Prior to its distribution to material, media, and language experts, the instrument underwent a validation process to ensure its reliability and accuracy. This step was essential to confirm that the questionnaire could effectively measure the intended aspects of material, media, and language validation. The results of this instrument validation provided the foundation for assessing the quality and appropriateness of the Android-based digital pocketbook.

Digital Pocket Book Validation

The validity of the Android-based digital pocket book was assessed in three key areas: media, material, and language. Validity data was collected through expert input using structured questionnaires. Media validity was evaluated by a lecturer in Educational Technology with expertise in both web-based and Android learning media. The media expert reviewed several aspects, including ease of use, visual design, accessibility, functionality, navigation, and interactivity. The ease of use section, reflected in statements 1 to 7, received high ratings, with three items scoring 5 and four items scoring 4 out of a maximum of 5. For visual appearance, based on statements 8 to 13, the expert gave scores of 3 for three items and 4 for the other three, indicating a generally favorable assessment. The aspect of media accessibility, covered in statements 11 to 14, received perfect scores across all items. Similarly, functionality and navigation, addressed in statements 15 and 16, were rated at the highest level. The interactivity section, consisting of statements 17 to 21, also received positive feedback, with four items scoring 5 and one item scoring 4. The media expert suggested increasing the variation of interactive questions to further enhance engagement.

Material validity was assessed by a subject matter expert using the same questionnaire-based evaluation. The expert examined the relevance, presentation, and practical application of the content. The relevance of the material, addressed in questions 1 to 3, received consistent scores of 4, while the material presentation, evaluated through questions 4 to 9, received three scores of 4 and three scores of 5. Practical application, based on questions 10 and 11, was rated 4 across both items. Comments from the material expert included suggestions to provide more contextual examples suited to junior high school students and to increase the variety of multiple-choice questions. Based on these results, the material component of the digital pocket book was classified as "Very Valid" and deemed suitable for use with minor revisions.

Language validity was evaluated by a language expert who assessed conformity to linguistic rules, sentence structure, and appropriateness for the target audience. Statements 1 and 2, focusing on grammar and language accuracy, received scores of 5 and 4 respectively. Sentence structure, addressed in statements 3 to 6, was rated highly, with three items receiving a score of 5 and one item a score of 4. The suitability of the language for students, based on statements 7 to 12, was rated 5 on five items and 4 on one item. The language expert recommended incorporating more varied sentence lengths and including different types of sentences, such as interrogative and responsive forms, to enhance clarity and engagement. Overall, the average score for language validity was 4.75, corresponding to a 95% validity rate. Consequently, the digital pocket book was categorized as "Very Valid" and considered suitable for use without revision.

The Practicality of Digital Pocket Book

After the classroom learning activities were completed, both teachers and students participated in the practicality testing of the Android-based digital pocket book. The teacher practicality test was conducted with one PPKn teacher from SMP Negeri 14 Kerinci. Based on the teacher's evaluation, data indicated that the digital pocket book learning media was highly practical for teaching Pancasila and Citizenship Education to eighth-grade students, specifically on the topics of the Spirit of National Awakening 1908, the Youth Pledge within the framework of Bhinneka Tunggal Ika, and Strengthening National Commitment. The teacher's practicality rating reached 98%, placing it in the "very practical" category.

The practicality test involving students included all 22 students from class VIII D. Their assessments also reflected highly favorable results. According to the students' evaluation, the practicality of the Android-based digital pocket book for learning the same material—Spirit of National Awakening 1908, the Youth Pledge, and Strengthening Commitment—was rated at 96%, also categorized as "very practical."

Based on the combined evaluations from both teacher and student perspectives, it can be concluded that the Android-based digital pocket book is a highly practical learning tool for supporting the teaching and learning process in Pancasila and Citizenship Education for class VIII. These results affirm the media's suitability for classroom use in delivering key national values and historical content effectively.

Effectiveness of Digital Pocket Book-Based Learning Media Android

The effectiveness analysis was conducted by comparing students' test scores before and after the learning intervention, using a pretest and posttest design. The effectiveness of the Android-based digital pocket book as a learning medium was evaluated through students' learning outcomes. These outcomes were measured using objective tests administered before and after the implementation of the digital pocket book to assess its impact on student achievement.

The pretest and posttest were carried out in class VIII D at SMP Negeri 14 Kerinci, involving a total of 22 students. Based on the calculation of the results, the average gain score from the comparison between the pretest and posttest results was 0.84. According to the N-Gain interpretation scale, this score falls within the "High" category (N-Gain ≥ 0.7), indicating a significant improvement in student learning outcomes.

This increase in average scores demonstrates that the use of the Android-based digital pocketbook effectively enhanced students' understanding of the subject matter. Specifically, it contributed to improved knowledge in Pancasila and Citizenship Education, focusing on the subtopics of the Spirit of National Awakening 1908, the Youth Pledge within the framework of Bhinneka Tunggal Ika, and Strengthening National Commitment. These findings suggest that the digital pocketbook is an effective instructional tool for supporting learning in this subject area.

3.2 Discussion

This research and development study employed the ADDIE model, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation (Andrianti, Yeni, & Susanti, 2016). The first stage, analysis, involves systematically observing and describing the object of study to gain a detailed understanding (Arnol, 2018). In this stage, four key activities were conducted: competency analysis, analysis of student characteristics, content analysis, and learning content analysis.

The competency analysis was conducted through interviews with Pancasila and Citizenship Education teachers. The interviews revealed that students showed low interest in the subject, which was reflected in their learning outcomes. One of the main contributing factors identified was the lack of engaging instructional media. This finding aligns with previous research by Hastri, Viarti, and Riski (2020), which demonstrated that Android-based digital pocketbooks can effectively increase student

interest in learning. The analysis of student characteristics included a review of their interests, cognitive development, learning styles, motivation, and social development. In line with Hidayati (2019), this study confirms that difficulties in learning often arise due to the limited use of media that caters to diverse student needs. Based on Piaget's theory, cognitive development in children evolves with age and includes not just knowledge acquisition but also mental restructuring (Rifin, Wahyuni, & Septanto, 2018). The students in this study, aged between 12 and 13 years, were found to have developed reversible thinking abilities, enabling them to understand concepts from multiple perspectives. However, their low motivation and varied learning styles were not adequately addressed in the existing learning methods, contributing to suboptimal learning outcomes. Socially, the students showed strong interpersonal skills, demonstrating the ability to interact effectively with peers and adapt to new environments.

Content analysis revealed that the presentation of material in the Android-based digital pocketbook was aligned with the core competencies (KI) and basic competencies (KD) of the 2013 curriculum. All instructional content, including text, images, videos, and assessment items, was developed in accordance with relevant educational regulations and tailored to the real classroom context. This is consistent with the findings of Kusumawati and Setyadi (2021), who emphasized the importance of aligning digital learning content with curriculum standards and teacher guidebooks to enhance instructional quality. The selection of instructional strategies was also adapted to students' needs and learning conditions, as required by the curriculum used at SMP Negeri 14 Kerinci.

In the design stage, the development team created the interface and structure of the digital pocketbook. This included designing the cover, usage instructions, and the main menu, which features the school profile and instructional materials. The school profile page contains the institution's vision and mission, accompanied by an introductory video. The materials are organized into three sub-chapters, each containing videos, images, and supporting electronic books. At the end of each chapter, a summary video is presented, followed by an interactive assessment screen to reinforce understanding (Hernawan et al., 2012).

The development stage involved the creation and validation of the digital pocketbook. Validation was conducted by four experts: an instrument validator, a material expert, a media expert, and a language expert. Revisions were made based on their feedback to ensure the media met quality standards and were suitable for classroom use. According to research by Alifia Rohimatul (2021), learning media are considered valid when they meet at least the "good" criteria, aligning with student characteristics, learning objectives, and educational quality standards.

During the implementation stage, a large-scale field trial was conducted with students from class VIII D at SMP Negeri 14 Kerinci. This trial aimed to assess the practicality of the digital pocketbook in a real classroom setting and to gather suggestions for further refinement. Feedback from this trial informed minor revisions to enhance usability and instructional effectiveness.

The final stage, evaluation, focused on summative evaluation to measure the overall effectiveness of the developed media. As supported by Rizma and Indrati (2020), summative evaluation involves analyzing post-test results to determine whether the learning media achieves its intended outcomes. The results of this evaluation confirmed the practicality and effectiveness of the Android-based digital pocket book as a teaching tool for Pancasila and Citizenship Education.

4. CONCLUSION

The results of this study indicate that the developed Android-based digital pocketbook learning media achieved a high level of validity, with an average score falling within the "very valid" category based on expert evaluations. In a small-scale user trial, the media also demonstrated strong practicality, receiving an average score indicating it is highly usable and well-received by students. These findings suggest that the digital pocketbook serves as an effective and relevant alternative learning resource, capable of supporting student engagement and improving accessibility to educational content. The

integration of this media into classroom practice has meaningful implications for enhancing technology-based learning, particularly in environments with limited access to conventional educational resources. Educators and institutions can adopt this tool to provide more interactive, flexible, and cost-effective learning experiences. However, this study is limited by the small sample size and the restricted testing environment, which may not fully capture the media's effectiveness across diverse educational settings. Therefore, future research should explore the implementation of digital pocketbook media on a larger scale and in a variety of contexts. Longitudinal studies are also recommended to assess its long-term impact on student motivation, engagement, and academic achievement. Further validation across different learning environments will help strengthen the generalizability and reliability of these findings.

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