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Physical Education Learning Application Based on Android Platform

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Abstract

Objective. This study is focused on creating an Android-based physical education learning system for 7th-grade students at SMPN 3 Cibinong. The goal is to enable students to easily access physical education resources anytime and anywhere. The Android application being developed will feature an appealing splash screen, a home screen with chapters for learning, a section for physical education study materials, an evaluation screen with assessment questions, a reference section with a bibliography, and comprehensive learning materials including videos, images, and written content aligned with the learning objectives.

Materials and methods. This research was conducted using the research and development method and implemented the ADDIE model, which includes analysis, design, development, implementation, and evaluation to achieve suitable development of Android-based physical education learning.

Results. Based on the findings of the study, the application appears to facilitate easier and more effective learning, making it simpler for students to comprehend all aspects of physical education. The expert evaluation involved three learning experts, two physical education lecturers, and a physical education teacher.

Conclusion. The Android-based physical education learning application was found to have an overall satisfaction rate of 95%. It is considered suitable for use as a learning resource because of its ease of access and clear, comprehensive content including videos, images, and text. It also makes the learning process easier and can be used repeatedly.

Keywords: Learning, Development, Android Based, Physical Education

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Introduction

Education and learning are inherently interconnected, as the methods employed by instructors directly impact how pupils acquire knowledge. Teachers must possess the ability to cultivate a conducive learning environment and effectively engage pupils in their educational pursuits (Gunawan & Muhajir, 2022). Utilizing educational media can serve as a viable option in the instructional and educational process. According to I. Kadek et al. (2021), video tutorials are a very effective form of learning medium for providing learning material in a comprehensive and detailed manner. Video tutorials are typically created to offer help or instructions to students while they are studying.

Learning media refers to software that utilizes tools to effectively (Kuswoyo & Hiskya, 2021) transmit knowledge or educational content to pupils (Wahyudi et al., 2023). Muchson & Widyartono (2023) defined learning media as tools or facilities employed during the learning process to facilitate students' comprehension and mastery of educational content. Learning media encompasses many formats such as textbooks, audiovisual materials, computers, and educational software (Arsyad, 2002). The utilization of media aims to provoke students' cognition, emotions, inclinations, and focus, thus facilitating their comprehension and retention of the conveyed knowledge (Rahail et al., 2022).

The aforementioned opinion suggests that learning media serves as a valuable tool or intermediary that facilitates teaching for teachers and enhances students' comprehension and reception of the subject matter (Riyanto & Kuswoyo, 2019). To enhance the learning experience, it is important to utilize educational media that can engage students and make the learning process more captivating and interactive. Utilizing suitable and pertinent educational resources can enhance the learning process and facilitate students in attaining their learning objectives (Budiman, 2021).

Based on the aforementioned issues, it can be inferred that education requires learning materials that can adapt to information and communication technology advancements. To fulfill learning goals, teachers must possess the ability to select appropriate learning materials (Rahmatullah, 2019). A suitable medium to utilize is technology as a means of facilitating learning. Utilizing learning media can facilitate the learning process, and one such medium is physical education (Lorenza & Sihabudin, 2022). Physical education mostly focuses on outside or field-based learning. Students depend solely on sports courses at school to enhance their abilities (Kuswoyo & Rahail, 2023; Tafonao et al., 2019).

Physical education is an academic discipline that employs the pedagogical approach of kinesthetic learning (Mahendra & Jabar, 2021), which involves acquiring knowledge via

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physical movement (Wayan et al., 2020). During the learning process, the majority of students tend to overlook the intricate details of the movements demonstrated by the teacher. Additionally, students frequently struggle to retain the exemplified movements, resulting in difficulties in the learning process and suboptimal learning outcomes. The students' limited knowledge and comprehension of the subject matter results in their reliance on the teacher.

The development of Android-based applications has become extensively utilized as an educational tool. An Android-based learning application will enhance the learning process for students, enabling them to access and comprehend the material more effectively due to its availability and flexibility. Hence, researchers are intrigued by the prospect of developing a Physical Education instructional application at SMPN 3 Cibinong. This is because none of the teachers at the school have utilized an instructional application for Physical Education. Additionally, the school solely relies on outdoor or field-based practical exercises, without providing students with any textbooks or modules.

This educational application will provide learning materials in the form of theoretical and practical resources, offering comprehensive and detailed phases throughout the learning process. Practically, this can manifest as a movie accompanied by a detailed elucidation of the procedural procedures. By developing this educational application, students will have enhanced convenience and comprehension as they may access the curriculum at their convenience, regardless of location or time. The curriculum utilized in this physical education learning application is the self-directed learning curriculum.

Materials and Methods

Study Participants.

The distinguishing feature of the created approach is its aim to facilitate practical learning that is readily accessible regardless of location or time. This is achieved through the utilization of learning media, namely an Android-based physical education learning application. The presence of learning media facilitates practical and accessible learning for students, enabling them to access materials at any time and location. Additionally, it enhances students' comprehension of course materials. Researchers will administer product trials on 7th-grade junior high school students to assess the effectiveness of Android-based physical education learning applications. These applications have been deemed suitable by experts in learning media, learning, and physical education.

Study Organization.

The researchers conducted a study utilizing research and development methodologies to create and verify an Android-based physical education learning application for grade 7

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students at SMPN 3 Cibinong. The ADDIE model consists of five distinct stages in the process of research and development: analysis, design, development, implementation, and evaluation.

Statistical analysis.

Experts specializing in the development of Android-based physical education learning applications should conduct studies to evaluate the application for any necessary repairs or removals. These evaluations will be conducted by expert lecturers in the field of learning media, expert lecturers in the field of learning, and a physical education teacher from a state junior high school in Cibinong.

Results

The research aims to develop an Android-based physical education learning application that provides instructional materials and exercises, including videos and explanations. This educational application for physical education was developed with the aim of enhancing students' comprehension of the subject matter and providing convenient access to the material at any time and from any location. In addition, it can serve as a valuable resource for physical education instructors during the teaching and learning process.

This Android-based physical education learning application has undergone rigorous validation testing by experts in the field, including physical education learning expert lecturers, physical education learning media expert lecturers, and physical education teachers. It has also undergone product revisions and trials to ensure its quality and effectiveness. The objective of this study is to develop an Android-based educational application for physical education, which will serve as a learning tool to enhance students' comprehension of the subject matter.

1. Results of Needs Analysis

Based on the observations during the Physical Education lessons, it is evident that the majority of students do not give sufficient attention to the specific details of the movements demonstrated by the teacher. Additionally, students frequently forget the movements that have been demonstrated, resulting in difficulties in learning and ultimately leading to suboptimal learning outcomes. The students' inadequate knowledge and comprehension of the subject matter results in their reliance on the teacher.

Therefore, the researcher analyzed with the assistance of learning media specialists, learning experts, and physical education teachers to validate the hypotheses. Following the researcher's examination and validation of the Android-based physical education learning application, descriptive and analytical data results were obtained and analyzed. The researcher's analysis of the data aligns with the goals of the preliminary study.

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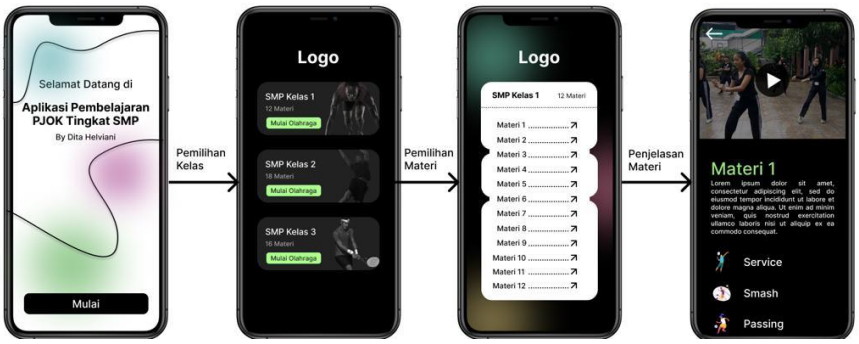
2. Initial Draft Product

Once the analysis, design, development, and construction stages of an Android-based physical education application have been completed, the next step is to conduct testing with experts to examine the viability and validate the model. The model was evaluated by conducting tests on three specialists in their respective fields: a specialist in physical education learning media, a specialist in physical education learning, and a physical education teacher. The validation results of the initial draft model of an Android-based physical education application can be characterized as follows:



Picture 1. Initial Draft Product

(*Source*: Personal Documentation)

The initial draft model of the product has four primary screens, shown from left to right: slash screen, home screen, chapter screen, and material screen. The monochrome backdrop and gray and green product chapters and buttons vary with the screen display. On the first screen after downloading the program, a slash screen displays the product start page. It looks like the far left image. After choosing "start", the home screen displays the titles of the 10 chapters of the curriculum-specific material pupils will study. When you click on a material to study, the chapter screen will indicate the amount of material in that chapter. Finally, selecting a material to study will display a video and description on the material screen.

3. Final Product

The final model has undergone revisions based on input and product enhancements derived from the validation findings provided by professional lecturers. After undergoing expert validation and feasibility analysis, the basic product design of an Android-based physical education application has been deemed viable and ready for testing.

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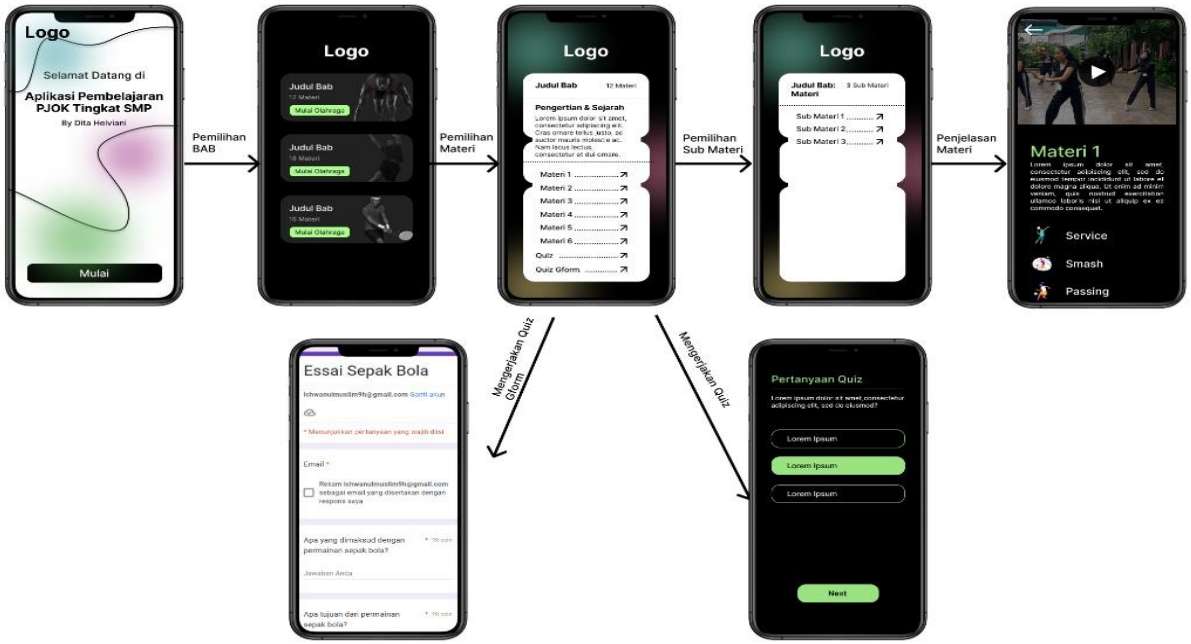

Picture 2. Final Product

(*Source*: Personal Documentation)

The image provided showcases the updated version of the final product model, which has a total of 7 primary screens arranged in a sequential manner from left to right. These screens are as follows: slash screen, home screen, chapter screen, sub-chapter screen, material screen, pg quiz screen, and essay quiz screen. It is worth noting that these panels are implemented using Google Forms.

Discussion

One learning media expert, one learning expert, and one physical education instructor were tested for validity or feasibility based on the media development outcomes. The three experts determined that the application's media design and physical education content were ready for field testing. At this stage, the goal is to create an Android app with videos of physical education learning materials that researchers have developed from book references to meet the rules of the learning process. After expert validation, evaluation, and correction. Expert testing indicates that the Android-based physical education learning application is feasible and can be utilized in physical education. Expert evaluation suggests various ways to improve this Android-based physical education learning application, including:

1. It is imperative to provide an introductory explanation of the subject that aligns with the content covered in the chapter being studied.
2. Implemented a display panel to distinguish between main chapters and sub-chapters.
3. Require inclusion of attitude evaluation in Google Form.

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Once the necessary enhancements have been implemented and assessed by specialists, the physical education learning application developed by the researcher proceeds to the subsequent phase, which involves conducting trials or implementing it. The experiment was conducted on seventh-grade students at SMP Negeri 3 Cibinong in November 2023. The participants who evaluated this application consisted of 23 students.

1. Product Revision

   Tests done by researchers on two experienced lecturers and one physical education teacher yielded valuable suggestions for enhancing Android-based physical education learning applications. These proposals include:

   a) The frequency of assessments or quizzes should be augmented and incorporated with Google Forms to enhance their efficacy.
   b) Users need to be provided with an explanation of the concepts and history of each material chapter to facilitate their existing evaluations.
   c) Including supplementary resources within each chapter to elucidate the subject matter, thereby enhancing its organization, clarity, and comprehensibility.
   d) It is crucial to optimize the navigation mechanism in the application to ensure that users have a seamless and user-friendly experience.

2. Implementation

   An experimental implementation of an Android-based physical education learning application was conducted at SMP Negeri 3 Cibinong, with the participation of 23 students from the same school. The installation was supervised by a physical education teacher from SMP Negeri 3 Cibinong. The trials are conducted through application introductions, material explanations, videos, and evaluation or quiz assignments.

3. Evaluation

   The evaluation was conducted by testing the application with students at SMP Negeri 3 Cibinong. The students provided their replies through a questionnaire that consisted of 10 statement questions. The application installation trial results were analyzed based on the responses from the questionnaire, which included options for strongly agree, agree, disagree, and strongly disagree.

Conclusions

The Android-based physical education learning application received an overall satisfaction rate of 95%. It is recommended for use as a learning resource due to its easy accessibility and clear, comprehensive content, which includes videos, images, and text. The application facilitates the learning process and can be used multiple times. The product

underwent a thorough evaluation, with a series of rigorous tests conducted by field experts. These tests assessed the product's material composition, its compatibility with various forms of media, and its overall usability. As a result of the meticulous assessment, the product consistently demonstrated its robustness and potential for success, achieving a "feasible" categorization at every stage of testing.

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