The development of Android-based media for teaching Islamic religious education and character development through belief in the Books of Allah for eighth-grade students

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Abstract

A communication tool and information source in education, including the utilization of learning media, necessitates careful consideration from teachers in selecting appropriate media to enhance student motivation in learning, aiming for benefits such as: 1) enhancing the appeal of the educational process, 2) optimizing efficiency and effectiveness in learning, and 3) conserving energy and time. In the realm of Islamic Religious Education and Character lessons, particularly focusing on the concept of Believing in Allah's Books, students commonly encounter challenges in grasping this knowledge. The difficulties faced by students in comprehending Islamic Religious Education and Character lessons concerning Believing in Allah's Books stem from various factors, as revealed through surveys and observations conducted at SMPN 2 Dempet Demak. Among these challenges is the struggle to grasp the core essence of the material as presented in textbooks and slide presentations. Additionally, the conventional teaching approach employed by educators contributes significantly to diminishing students' enthusiasm and motivation for learning. The evolving landscape of media usage presents a challenge for teachers in fulfilling their roles effectively to meet educational objectives. The widespread availability and accessibility of smartphones as a learning tool can profoundly impact students' learning experiences. Apart from being relatively novel facilities, students are more inclined to engage with tools that are current and resonate with their everyday experiences.

Keywords: Android; Islamic Religion; Allah's Books; Learning Media.

INTRODUCTION

Technological advances influence the learning process in the form of media, in schools or other learning institutions(Ismail Yusuf Panessai et al., 2019; Isroani & Nguyen, 2023). The use of media in the educational process can increase attention and raise student motivation. This can have psychological impacts on students. The growth of science and technology makes the educational process more applicable and interesting as an effort to improve the quality of learning(Malik & Gupta, 2023).

Especially in Islamic Religious and Character Education lessons, with the content of Believing in Allah's Books, one of the instructional methods used is an inductive-deductive approach (Lizza et al., 2023; Nandipha et al., 2023). This methodology has been employed in educational settings, leading to the development of learning strategies that will serve as the essence of education in the implementation of the 2013 Curriculum, namely Contextual Teaching and Learning (CTL).

By employing this method, it is anticipated that students can achieve a deeper understanding and derive practical value when the teaching and learning process is integrated with everyday experiences through Contextual Teaching and Learning (CTL) (Budiman, 2021; Kim et al., 2013; Nandipha et al., 2023). Specifically, CTL is an instructional approach that bridges classroom learning with students' daily lives. Thus, CTL aims to enhance both the process and outcomes of learning. It prioritizes student engagement, ensuring that the instruction is effective and that the content taught is connected to pre-existing cognitive structures, rendering it relevant to students' understanding.

In practice, students often encounter challenges when learning about Believing in Allah's Books in Islamic Religion and Character lessons. The difficulties faced by students in comprehending this content stem from various factors. Surveys and observations conducted at SMPN 2 Dempet Demak revealed that students struggle to grasp the material presented in textbooks and conventional PowerPoint presentations (Niwa et al., 2014; Savoy et al., 2009). Teachers continued use of traditional teaching methods contributes to students' lack of motivation and tendency to disengage during learning activities. Motivation plays a crucial role in determining the intensity of students' learning efforts and ensuring the continuity of their learning journey towards achieving desired goals.

The evolution of science and technology has ushered in significant changes, particularly in education, where advancements in information technology have permeated both management and classroom learning systems. The increasing array of media options poses a challenge for teachers in fulfilling their roles and achieving learning objectives. Smartphones, for instance, have become ubiquitous, easily accessible, and affordable tools that significantly impact students' learning experiences. Given the preference for "current" and familiar tools in daily life, students are more inclined to engage with learning materials presented through such mediums.

The objectives of this initiative are twofold: firstly, to assist teachers at SMPN 2 Dempet Demak in developing effective learning media for their instructional practices, and secondly, to facilitate the teaching and learning process by leveraging contemporary technological resources.

Learning media encompass various tools utilized to enhance the teaching process within the classroom, exerting a significant influence on the quality of learning. These resources furnish information, equipment, and materials essential for planning and evaluating the implementation of learning activities. The development of straightforward and efficient digital learning materials plays a pivotal role in enhancing students' comprehension of literature and information (Aka, 2019; Huda & Mustagfirin, 2019; Ikwan et al., 2017; Jeni Nadik, Moch. Subchan Mauluddin, 2017).

METHODS

This study was conducted at SMPN 2 Dempet Demak Krasak, Sidomulyo, Kec. Dempet, Demak Regency, Central Java 59573. The independent variables in this research consisted of pretest and posttest data from both the experimental and control groups, which were then subjected to tests for normality and homogeneity to ascertain whether the obtained data values were normally and uniformly distributed (Jeni Nadik, Moch. Subchan Mauluddin, 2017). Class VIII 1 was selected as the experimental group, receiving instruction using Android application-based learning media, while class VIII 2 served as the control group without such treatment. Data collection methods involved both test-based and non-test-based approaches.

The development of Android-based learning media is the aim of this research. To achieve optimal quality standards, this research applies the Research and development method(Black et al., 1999; Richey & Klein, 2014) Research and Development methods are used to produce a product and test its effectiveness.

The aim of this study is to develop Android-based learning media. To ensure the attainment of high-quality standards, this research employs the Research and Development methodology. Research and Development methods are utilized to create a product and assess its efficacy (Instruments, 2023; Mínguez & Jesus, 2015; Viswesvaran & Ones, 2017).

Current educational trends are witnessing substantial advancements in digital technology, characterized by a shift in learning methodologies towards the adoption of interactive digital media facilitated by mobile learning (Abad-Segura et al., 2020; Edwards, 2021; Schuck et al., 2018). It is anticipated that the incorporation of interactive media can bolster students' engagement and motivation towards learning.

RESULTS AND DISCUSSION

According to the Borg and Gall model (Aka, 2019; Firman & Mirnawati, 2023; Putri & Wardoyo, 2018), there are ten procedural stages in development research, which are as follows: data collection, planning, creating initial prototypes, initial testing, revisions, field trials, further revisions, additional testing, subsequent revisions, and dissemination and implementation of the product.

Initial Research & Information Collection

Before commencing the research, researchers conduct preliminary studies or exploratory research to analyze, investigate, and gather relevant information. These steps encompass needs assessment, literature review, initial classroom observations, identification of learning process challenges, and data collection about factors facilitating and impeding learning.

Planning

When designing a product development design plan, researchers take into account crucial aspects such as product specifications, objectives, and anticipated benefits, the target demographic of product users, the rationale behind the product's significance, the location of product development, and the developmental process to be undertaken. In crafting a robust product development design plan, researchers meticulously consider various critical aspects to ensure the success and effectiveness of the final product. Firstly, defining clear product specifications, objectives, and anticipated benefits lays the groundwork for the development process. This entails not only outlining technical requirements but also setting measurable goals and identifying the potential value proposition for users. Emphasizes the importance of aligning product objectives with market needs and technological capabilities to enhance the product's competitive advantage.

Understanding the target demographic of product users is equally crucial. By conducting thorough market research and user analysis, researchers gain insights into the preferences, behaviors, and pain points of their audience. Highlights the significance of translating customer input into innovative solutions, ensuring that the product resonates with the intended users. Developing detailed user personas helps in tailoring the product to meet specific user needs effectively.

Furthermore, researchers must articulate the rationale behind the product's significance in the market. This involves identifying gaps or inefficiencies in existing solutions and demonstrating how the new product addresses these issues or offers improvements. Discuss the concept of disruptive innovation, emphasizing the importance of challenging conventional wisdom and creating products that can redefine markets or industries. The location of product development also plays a pivotal role in the success of the project. Factors such as access to

talent, resources, and infrastructure can significantly impact the development process. Suggests that product development intensity, which includes factors like location, influences business performance. Choosing the right location can optimize resources and streamline communication, ultimately accelerating the development timeline.

Moreover, outlining the developmental process is essential to ensure a structured and efficient approach to product creation. McGrath (1999) discusses the concept of real options reasoning, advocating for flexibility and adaptability in the development process. By adopting methodologies such as Agile or Lean, researchers can iterate quickly, respond to feedback, and minimize risks associated with product development. In summary, a comprehensive product development design plan integrates these crucial aspects, guided by insights from relevant research and literature. By addressing product specifications, target demographics, rationale, location considerations, and developmental processes, researchers can maximize the chances of creating successful and impactful products.

Develop a Preliminary Form of the Product

Subsequently, the researcher initiates the development of an initial, provisional product, formulated as a hypothesis. The product is meticulously and comprehensively designed, encompassing the compilation of program components in detail, furnishing implementation guidelines, and technical instructions, incorporating examples of questions or exercises, strategizing the utilization of pertinent learning media, and devising a suitable assessment framework.

Once the researcher initiates the development of the provisional product, formulated as a hypothesis, attention to detail becomes paramount. The product must be meticulously designed to ensure its effectiveness and usability. This entails comprehensive planning, including the compilation of program components with meticulous attention to detail. A well-defined product design encompasses not only the core features and functionalities but also considers factors such as user experience and scalability.

Moreover, implementation guidelines and technical instructions are essential components of the product development process. These provide clear directions on how to deploy and utilize the product effectively. By incorporating examples of questions or exercises, researchers can demonstrate the practical application of the product, enhancing its value proposition and usability. Suggest that providing concrete examples and use cases can help users understand the product's relevance and benefits.

Strategizing the utilization of pertinent learning media is another crucial aspect of product development, especially in educational or training contexts. Researchers must consider various media formats such as text, graphics, videos, or interactive simulations to cater to diverse learning styles and preferences. Emphasizes the importance of aligning the delivery format with the intended audience's preferences and technological capabilities to maximize engagement and effectiveness.

Furthermore, devising a suitable assessment framework is essential to measure the product's impact and effectiveness. This includes defining key performance indicators (KPIs), designing assessment tools or tests, and establishing criteria for evaluating user feedback. Highlight the importance of incorporating feedback mechanisms into the product development process to continuously improve and iterate upon the initial design.

In summary, developing an initial, provisional product requires meticulous planning and attention to detail across various dimensions. By encompassing program components in detail, providing clear implementation guidelines and technical instructions, incorporating practical examples, strategizing learning media utilization, and devising a robust assessment framework, researchers can ensure the effectiveness and usability of the product. Integrating insights from relevant literature and research can further enhance the quality and impact of the developed product.

Initial Trial/Preliminary Field Testing

Following the initial development phase, researchers conducted limited field trials

involving two to three schools, with each trial comprising 10 to 15 participants. Throughout the trial period, researchers observed the activities of the participants, particularly the teachers, as they utilized the product (Moro et al., 2021; Morris et al., 2021; Rosenthal, 2016). Upon the completion of the trial, researchers engaged in in-depth discussions with the participants and administered questionnaires to solicit their feedback.

Engaging in in-depth discussions with the participants after the trial period was crucial to gather qualitative feedback and understand their experiences firsthand. By conducting post-trial interviews or focus groups, researchers could delve deeper into participants' perceptions, attitudes, and suggestions for enhancement. Emphasize the importance of qualitative data in understanding user experiences and informing product iteration.

In addition to qualitative feedback, researchers administered questionnaires to gather quantitative data on participants' satisfaction, perceived usefulness, and other relevant metrics. These questionnaires provided structured feedback that could be analyzed statistically to identify trends and patterns across the participant group. Discuss the significance of using surveys to measure user satisfaction and gather insights into product usability and effectiveness.

By triangulating both qualitative and quantitative data from observations, discussions, and questionnaires, researchers obtained a comprehensive understanding of the product's performance during the field trials. This data-driven approach enabled them to identify strengths, weaknesses, and areas for improvement, guiding subsequent iterations of the product. Highlights the value of triangulation in research, stating that combining multiple data sources enhances the validity and reliability of findings.

Product Revision/Main Product Revision

After the limited trial phase, researchers initiated preliminary revisions to the primary product, informed by the insights gleaned from the trial, encompassing analysis from discussions, observations, interviews, and the outcomes of administered questionnaires.

After the limited trial phase, researchers initiated preliminary revisions to the primary product, leveraging insights gleaned from the trial process. These revisions were informed by the analysis of discussions, observations, interviews, and the outcomes of administered questionnaires. By synthesizing data from multiple sources, researchers could identify patterns, common themes, and areas requiring improvement. One key aspect of the revision process was addressing user feedback and suggestions gathered from post-trial discussions and interviews. Researchers carefully analyzed qualitative data to understand users' experiences, preferences, and pain points with the product. This qualitative feedback provided valuable insights into specific features, functionalities, or usability issues that needed attention. By incorporating user suggestions, researchers could enhance the product's relevance and usability, aligning it more closely with user needs.

Observations made during the trial phase also played a crucial role in informing product revisions. Researchers noted how participants interacted with the product in real-world contexts, identifying usability challenges, workflow disruptions, or areas of confusion. These observations guided adjustments to the user interface, instructional materials, or overall product design to improve user experience and facilitate smoother implementation.

Additionally, the quantitative data gathered from administered questionnaires provided valuable metrics for assessing user satisfaction and perceived effectiveness. Researchers analyzed survey responses to identify trends, such as common issues or areas of satisfaction across the participant group. This quantitative feedback complemented qualitative insights, offering a more comprehensive understanding of user perceptions and preferences. Emphasizes the importance of combining qualitative and quantitative data to gain a holistic view of user experiences and guide product improvements. By integrating insights from discussions, observations, interviews, and questionnaires, researchers could iteratively refine the product to better meet user needs and expectations. This iterative approach to product development aligns with the principles of user-centered design, ensuring that the final product is both functional and user-friendly.

Field Trial/Main Field Testing

The subsequent step involves conducting product trials on a broader scale, encompassing participation from five to ten schools, with each trial involving between 20 and 50 participants. Following the preliminary revisions, the next step involves conducting product trials on a broader scale, expanding participation to five to ten schools, with each trial involving between 20 and 50 participants. This broader scale allows researchers to gather more diverse feedback and assess the product's performance across different contexts and user groups. Highlight the importance of testing products in real-world environments with representative user samples to ensure their effectiveness and usability.

During these larger-scale trials, researchers continue to observe participant activities, paying close attention to how the product is utilized in diverse settings. Observations may focus on user engagement, workflow efficiency, and any unexpected challenges or barriers encountered during implementation. By closely monitoring user interactions, researchers can identify additional areas for improvement and validate the effectiveness of previous revisions.

In addition to observations, researchers engage in ongoing discussions with participants to gather qualitative feedback on their experiences with the product. These discussions provide opportunities for users to share their perspectives, offer suggestions for enhancement, and raise any concerns or issues encountered during the trial. Emphasize the value of qualitative data in understanding user behaviors and preferences, guiding iterative product development.

Furthermore, researchers continue to administer questionnaires to assess user satisfaction, perceived usefulness, and other relevant metrics on a larger scale. By analyzing survey responses from a more extensive participant pool, researchers can validate findings from earlier trials and identify any emerging trends or patterns. This quantitative data complements qualitative insights, providing a comprehensive understanding of user perceptions and satisfaction levels.

By conducting product trials on a broader scale and integrating insights from observations, discussions, and questionnaires, researchers can further refine the product to meet the needs of a larger user base. This iterative approach to product testing and refinement is essential for ensuring that the final product is robust, user-friendly, and aligned with the intended objectives.

Product/Operational Revisions

During the product enhancement phase, researchers implemented secondary revisions based on feedback and recommendations obtained from trials conducted on a larger scale. During the product enhancement phase, researchers implemented secondary revisions based on feedback and recommendations obtained from trials conducted on a larger scale. This phase is crucial for fine-tuning the product based on insights gathered from a more diverse participant pool and ensuring its readiness for broader deployment. Underscore the importance of incorporating user feedback into product development to improve its effectiveness and usability.

The feedback obtained from trials conducted on a larger scale provides researchers with a wealth of data to inform secondary revisions. Qualitative insights from discussions, interviews, and observations help identify recurring themes, user preferences, and pain points that may not have been apparent during smaller-scale trials. By analyzing this feedback, researchers can prioritize areas for improvement and devise targeted solutions to address user needs.

Additionally, quantitative data from administered questionnaires offers valuable metrics for evaluating user satisfaction and perceived usefulness on a larger scale. By comparing survey results across different trial groups, researchers can identify trends, measure the impact of previous revisions, and gauge overall user sentiment. This quantitative feedback serves as a valuable validation of the product's improvements and guides further refinement efforts.

Based on the insights gathered from both qualitative and quantitative feedback, researchers implement secondary revisions to the product. These revisions may involve

adjustments to user interface design, feature enhancements, or updates to instructional materials to address identified shortcomings or enhance user experience. By iteratively refining the product based on user feedback, researchers ensure that it evolves to meet the changing needs and expectations of its target audience.

Furthermore, the iterative nature of product enhancement allows researchers to validate the effectiveness of secondary revisions through additional rounds of testing and feedback gathering. By repeating the trial and revision process as needed, researchers can fine-tune the product until it meets or exceeds user expectations and achieves its intended objectives. This iterative approach aligns with best practices in product development, ensuring that the final product is robust, user-friendly, and well-suited to its intended purpose.

Field Trials/Operational Field Testing

Subsequently, a field test was conducted, engaging the participation of 10 to 30 students. Data was gathered through interviews, observations, and distribution of questionnaires. After the product enhancement phase, a field test was conducted, involving the participation of 10 to 30 students. This field test aimed to further evaluate the product's performance in a real-world educational setting and gather feedback from end-users. Emphasize the importance of field testing to validate the effectiveness and usability of educational products.

Data was gathered through a combination of interviews, observations, and distribution of questionnaires. Interviews provided an opportunity for researchers to engage directly with students and gather in-depth qualitative insights into their experiences with the product. By asking open-ended questions, researchers could uncover specific challenges, preferences, and suggestions for improvement. This qualitative data was instrumental in identifying areas where the product excelled and where further refinement was needed. Observations during the field test allowed researchers to witness firsthand how students interacted with the product in a natural learning environment. Researchers observed factors such as engagement levels, ease of use, and any technical issues that arose during the testing process. These observations provided valuable context for interpreting feedback and identifying areas for optimization.

Additionally, questionnaires were distributed to students to gather quantitative data on their satisfaction, perceived usefulness, and overall experience with the product. By analyzing survey responses, researchers could quantify user sentiment, identify trends, and measure the product's impact on learning outcomes. The combination of qualitative and quantitative data provided a comprehensive understanding of the product's performance and user satisfaction levels.

Based on the findings from the field test, researchers could make further refinements to the product. This iterative process of testing, gathering feedback, and revising the product ensures that it evolves to meet the needs of its intended users effectively. By continuing to engage with end-users throughout the development process, researchers can create a product that is truly responsive to user needs and delivers meaningful educational outcomes.

Final Product Revision/Final Product Revision

The subsequent stage involves revising the final product, incorporating suggestions and feedback garnered during the field implementation test. The subsequent stage in the product development process involves revising the final product based on suggestions and feedback gathered during the field implementation test. This phase is critical for ensuring that the product meets the needs and expectations of its users effectively. Emphasizes the importance of incorporating user feedback into product revisions to enhance its usability and effectiveness.

During the field implementation test, researchers gather insights from various sources, including interviews, observations, and questionnaires, to understand user experiences comprehensively. These insights provide valuable guidance for refining the final product. Qualitative feedback obtained from interviews and observations helps identify specific areas for improvement, such as user interface design, instructional content, or functionality. By addressing these suggestions, researchers can enhance the overall user experience and increase the product's utility.

Additionally, quantitative data collected through questionnaires provides measurable

indicators of user satisfaction and perceived usefulness. By analyzing survey responses, researchers can identify trends and patterns in user feedback, enabling them to prioritize revisions that will have the greatest impact on user satisfaction and product performance. This data-driven approach ensures that revisions are focused on addressing the most pressing user needs.

Based on the feedback gathered during the field implementation test, researchers implement revisions to the final product. These revisions may involve changes to user interface elements, updates to instructional materials, or adjustments to features and functionalities. By iteratively refining the product based on user feedback, researchers can ensure that it evolves to meet the changing needs and expectations of its users effectively.

Moreover, the iterative nature of the product development process allows for multiple rounds of testing and revision to fine-tune the final product. By repeating the cycle of testing, gathering feedback, and revising the product, researchers can ensure that it is thoroughly optimized for its intended use. This approach aligns with best practices in product development and helps to create a final product that delivers maximum value to its users.

Dissemination and Implementation

Researchers disseminate their products to introduce them to various stakeholders at the local, regional, and national levels. This dissemination is achieved through direct meetings and publications in scientific journals. If the product is commercial, researchers collaborate closely with publishers to ensure effective distribution while monitoring and maintaining quality control. To conduct research and development, researchers adhere to a ten-step process outlined by the Borg and Gall model. These steps include data collection, planning, initial device development, preliminary testing, revisions, field trials, further revisions, additional testing, subsequent revisions, as well as product dissemination and implementation.

CONCLUSION

The resultant product is Android-based learning media focusing on Islamic Religion and Character, specifically covering the topic of Believing in Allah's Books. This comprehensive learning tool encompasses text, images, animations, and sound, rendering it highly engaging and interactive for use in educational settings. The Android-based learning media has undergone a validation process by various experts, including media, design, and subject matter experts, confirming that the product meets the anticipated quality standards. Subsequent trials conducted on students at individual, small-scale, and large-scale levels have yielded "good" eligibility criteria, indicating a favorable level of product feasibility and appeal. Therefore, it can be inferred from the gathered data that Android-based learning media centered on Islamic Religion and Character, focusing on the topic of Believing in Allah's Books, is well-suited for implementation in educational institutions.

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