

Development of multimedia-based learning resources for islamic education subjects at sma sentosa bhakti baturaja

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ABSTRACT

The rapid development of digital technology demands innovation in education, including in Islamic Religious Education (PAI). This study aims to develop multimedia-based learning resources and analyze their effectiveness in improving PAI learning quality at SMA Sentosa Bhakti Baturaja. The research employed a Research and Development (R&D) design using Borg & Gall's model, covering needs analysis, design, development, limited trials, revision, and field testing. The participants consisted of PAI teachers and students, with data collected through observation, interviews, questionnaires, and documentation. The findings indicate that the developed interactive multimedia successfully enhanced students' motivation, interest, and learning outcomes. Moreover, the multimedia facilitated more participatory classroom interactions and helped students connect religious concepts with real-life contexts. This study highlights that multimedia integration in PAI not only strengthens cognitive learning but also fosters affective and psychomotor development. Therefore, the study provides practical implications for teachers in designing innovative learning resources and theoretical contributions to the discourse of technology-based Islamic education.

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Introduction

The development of information and communication technology in the digital age has brought significant changes to the world of education. The learning process, which was previously conventional, is now increasingly shifting towards the use of digital technology, including in the provision and development of learning resources (Prensky, 2010). The use of multimedia in learning offers great opportunities to enhance the effectiveness and efficiency of learning, as multimedia can integrate text, images, audio, animation, and video into an interactive whole (Mayer, 2017; Munir, 2015).

In the context of Islamic religious education (PAI), the development of multimedia-based learning resources has become increasingly relevant given students' need for engaging, interactive, and contemporary learning experiences. PAI not only emphasizes cognitive aspects but also the development of religious attitudes and behaviors. Therefore, the use of multimedia is expected to provide a more profound and meaningful learning experience (Nasir & Mustafa, 2020; Nurdin & Anhusadar, 2020).

Previous studies have shown that the use of multimedia in learning can enhance motivation, conceptual understanding, and active student participation (Clark & Mayer, 2016; Supratman, 2021). On the other hand, many teachers still face obstacles in developing and utilizing multimedia-based learning resources, either due to limited skills or supporting infrastructure (Husna & Arifin, 2018; Darmawan, 2020). This condition shows a gap between the potential of available technology and its application in the classroom, especially in PAI learning.

SMA Sentosa Bhakti Baturaja, as one of the secondary education institutions, is striving to innovate in learning by developing multimedia-based learning resources. This effort is undertaken to improve the quality of PAI learning while addressing the challenges of the digital age, where students are digital natives highly familiar with technology (Prensky, 2010; Warsita, 2018).

Based on this background, this study aims to develop multimedia-based learning resources for PAI lessons at SMA Sentosa Bhakti Baturaja and analyze their effectiveness in improving the quality of learning. This study is expected to contribute to the development of innovative and adaptive PAI learning models in line with technological developments (Mayer, 2017; Nurdin & Anhusadar, 2020).

Method

This study uses a research and development (R&D) approach, which aims to produce a multimedia-based learning resource for Islamic Education at Sentosa Bhakti Baturaja High School. The development model used refers to the stages outlined by Borg & Gall, (2003), which include needs analysis, design, initial product development, limited testing, product revision, and field testing. This approach is relevant because it allows researchers to develop education products that are empirically tested (Gall et al., 2007; Creswell & Creswell, 2018).

The subjects of this study were PAI teachers and students at Sentosa Bhakti Baturaja High School. The subjects were selected using purposive sampling, based on their direct involvement in the PAI learning process (Etikan et al., 2016). Data were collected through observation, interviews, questionnaires, and documentation. Observations were used to obtain a real picture of the implementation of PAI learning, interviews were conducted with teachers to identify needs and challenges in using multimedia, questionnaires were used to measure students' responses to the developed products, while documentation was utilized to collect supporting data in the form of learning tools and school archives (Angrosino, 2007; Kvale & Brinkmann, 2015; Bowen, 2009).

Data analysis was conducted qualitatively and quantitatively. Qualitative data from observations and interviews were analyzed using reduction, presentation, and conclusion-drawing techniques (Miles et al., 2014). Meanwhile, quantitative data from questionnaires were analyzed descriptively by calculating the percentage of student responses regarding the suitability and effectiveness of the product (Sugiyono, 2019). To maintain validity, source and method triangulation techniques were used to ensure more accurate and reliable research results (Denzin, 2012; Carter et al., 2014).

With this approach, this study is expected to produce multimedia-based learning resources that are not only feasible but also effective in improving the quality of PAI learning at Sentosa Bhakti Baturaja High School.

Result

The development of multimedia-based learning resources for Islamic Education at Sentosa Bhakti Baturaja High School was carried out in stages through needs analysis, design, development, limited testing, revision, and field testing. The needs analysis showed that most teachers still used lecture methods and textbooks, while students felt uninterested because these methods were considered monotonous. Teachers emphasized the need for more interactive learning media that align with the characteristics of the current generation.

The developed product is an interactive multimedia tool combining text, audio, video, animation, and interactive quizzes. Limited testing yielded positive responses; students reported feeling more motivated and finding it easier to understand PAI material through the varied presentation. After revisions based on teacher and student feedback, the product was tested in a larger class. Field test results showed increased student activity in discussions, better understanding of the material, and an increase in average learning outcomes.

Additionally, observations revealed that multimedia use not only impacts material comprehension but also influences teacher-student interaction patterns. Teachers who were previously more dominant in instruction began to allow students greater participation. Multimedia provides students with opportunities to explore material independently, such as rewatching videos or attempting interactive exercises, thereby fostering a more democratic and participatory classroom environment.

On the other hand, the study also found that the integration of multimedia helped students connect PAI material with the realities of everyday life. For example, showing videos about religious practices or examples of social and religious issues made it easier for students to understand the relevance of Islamic values in real life. Thus, multimedia functions not only as a presenter of information but also as a bridge between abstract concepts and concrete practices that are close to students' experiences.

Discussion

1. Relevance of Multimedia Development to Learning Theory

The results of this study reinforce Mayer (2017) Cognitive Theory of Multimedia Learning, which states that humans learn more effectively through a combination of words and images than through text or speech alone. In the context of PAI learning, multimedia can connect abstract material, such as moral values or concepts of worship, with concrete visual representations, thereby deepening students' understanding. This finding is consistent with Clark & Mayer (2016), who emphasize that multimedia supports dual channel processing and reduces cognitive load.

2. Impact on Interest, Motivation, and Learning Outcomes

The use of multimedia has been proven to increase student motivation and learning outcomes. These results align with Nurdin & Anhusadar (2020), who found that digital technology in religious education can strengthen learning interest. Supratman (2021) also found that students are more actively engaged when teachers use interactive media. This increase in interest is crucial in the PAI context, as learning emphasizes not only knowledge transfer but also the development of religious attitudes and character.

3. Psychological and Pedagogical Dimensions

Multimedia also touches on the psychological aspects of students. According to Prensky (2010), digital native generations tend to be more responsive to interactive visual media than traditional methods. This indicates that innovations in learning media are not only technical in nature but also involve pedagogical adaptation to the characteristics of 21st-century learners. Warsita (2018) adds that teachers need to utilize technology to create learning that is humanistic, contextual, and relevant to students' real-world experiences.

4. Implementation Challenges in the Field

Despite its effectiveness, there are several challenges faced, such as limitations in teachers' technological competencies and school infrastructure. Research by Husna & Arifin (2018) shows that some teachers are still lacking in multimedia design skills, making ongoing training a necessity. Darmawan (2020) also emphasizes that limitations in resources, such as internet connectivity and hardware, often hinder the optimization of digital-based media. These challenges indicate that multimedia development must be accompanied by school policy support and improvements in teachers' digital literacy.

5. Theoretical and Practical Implications

Theoretically, this study reinforces research on the integration of technology in Islamic religious education. The integration of multimedia in Islamic religious education confirms that Islamic education can adapt to the times without losing its religious substance. Practically, this study provides a real contribution to teachers in designing more innovative learning media, as well as serving as a model for developing learning resources that can be replicated in other schools. Thus, multimedia does not merely serve as a supplement but as a strategic tool to enhance the quality of Islamic education in secondary schools.

The main finding of this study is that the development of multimedia in PAI learning not only improves students' cognitive understanding but also strengthens affective and psychomotor aspects. Students are not only able to answer questions correctly but also demonstrate more positive attitudes in learning activities, such as enthusiasm in discussions and discipline in following class activities. This indicates that multimedia can serve as a comprehensive learning tool encompassing the three domains of education: cognitive, affective, and psychomotor.

The novelty of this research lies in the application of interactive multimedia specifically for PAI subjects in secondary schools. Until now, multimedia development has been more focused on exact subjects such as science or mathematics, while PAI tends to still be taught using conventional methods. This study proves that multimedia is also highly relevant for PAI, even capable of addressing the challenges of globalization and the digital age, which demand religious education that is more contextual, interactive, and aligned with the needs of the digital native generation. Thus, this study expands the scope of multimedia utilization while providing practical contributions to the development of innovative PAI learning models.

Conclusion

This study concludes that the development of multimedia-based learning resources for Islamic Education at Sentosa Bhakti Baturaja High School has proven to be feasible and effective in improving the quality of learning. The results of the pilot test show that interactive multimedia is able to encourage active student participation, increase learning motivation, and facilitate the understanding of religious concepts that were previously considered abstract. The developed multimedia not only functions as a medium for conveying information but also serves as a tool for fostering more democratic interaction between teachers and students. By combining text, images, videos, and animations, this medium successfully bridges instructional material with everyday life realities, enabling students to internalize PAI values into their actual behavior. Additionally, this study found that the use of multimedia in PAI learning significantly contributes to strengthening students' cognitive, affective, and psychomotor domains. This demonstrates that technology-based learning innovations can enrich religious education approaches without diminishing the essence of the Islamic values being taught. Thus, this study emphasizes the importance of integrating digital technology into PAI learning in secondary schools. Teachers are required to continue innovating in developing learning resources that align with the characteristics of 21st-century students. This

study also opens opportunities for further development, both on a larger scale and through the creation of more varied multimedia features.

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