

## The Influence of Information Technology Usage on Students' Learning Outcomes in Islamic Religious Education (PAI)

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### ABSTRACT

The rapid advancement of information technology has significantly influenced various aspects of education, including Islamic Religious Education (PAI). This study investigates the impact of information technology usage on students' learning outcomes in PAI through a systematic literature review. Relevant academic sources from reputable databases were analyzed to identify common themes and gaps in existing research. The findings indicate that integrating information technology into PAI instruction enhances teaching strategies, student engagement, and academic performance. Digital tools such as online platforms, interactive applications, and video conferencing facilitate flexible and accessible learning, fostering active student participation. Additionally, structured assessment methods and independent learning play crucial roles in improving students' comprehension and retention of PAI materials. Despite these advantages, challenges such as technological accessibility, teacher competence, and digital literacy persist. Addressing these challenges requires strategic policies and targeted teacher training programs to maximize the effectiveness of information technology in PAI education. Future research should explore practical solutions to overcome these barriers and further optimize digital learning strategies in religious education.

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### INTRODUCTION

In the modern era, one of the essential skills a teacher must possess is the ability to adopt information technology. This competency is crucial for educators as professionals, given the rapid advancements in information technology and their potential positive impacts on education. The term "adoption" implies embracing positive changes with the awareness that such adaptation is necessary for survival in evolving educational landscapes (Mansyur & Taufikurrahman, 2022).

Various studies have explored the use of information and communication technology (ICT) in the educational sector. Teachers have increasingly integrated ICT-based learning media, including recording audio and video lessons, utilizing Google Meet and Zoom for virtual classes, leveraging YouTube channels related to educational content, and using Google Forms for assessments (Rahmadhon et al., 2021). Additionally, research has investigated the challenges teachers face in mastering ICT, particularly in primary schools in Surabaya (Pribowo, 2020). As information technology advances rapidly, it influences human thought processes, behavior, and character (Priana, 2017).

Online learning is not a novel concept in education, as many institutions have implemented digital learning platforms. Ruangguru, for instance, is an educational platform that provides interactive video-based learning aligned with school curricula, allowing teachers and students to engage effectively through mobile devices (Suryani & Widiyastuti, 2021). The effectiveness of an information system is determined by three key factors: data continuity and quality, data organization, and implementation procedures (Setiawan, 2023). A system analysis often begins with a needs assessment using qualitative approaches, such as in Edukasindo Utama Consulting, which developed a website to facilitate information dissemination and administrative management (Andewi et al., 2022).

Student learning outcomes in Islamic Religious Education (PAI) are an important metric for evaluating the effectiveness of educational methodologies. Previous research collected data from fifth-grade students enrolled in the second semester of the 2018/2019 academic year at SD Negeri Kecamatan Lubuk Begalung. Through an analysis of 94 student samples, data were gathered from their semester report cards (Setiawati, Halimah, & Budiyaniti, 2024). Furthermore, studies have established a significant positive correlation between project-based learning models and student learning outcomes at SMP Muhammadiyah Serbalawan, with a correlation coefficient of 0.4439 (Kamiruddin, 2021). The feasibility of educational media has also been tested through pre-tests and post-tests, revealing the effectiveness of the BEAT (Belajar Asyik Tentang) PAI application in improving student learning outcomes (Abdurrochim et al., 2022).

Despite extensive research on ICT integration in education, studies focusing specifically on its impact on students' learning outcomes in Islamic Religious Education (PAI) remain limited. While prior studies have examined the general use of digital platforms, there is a lack of research exploring the direct influence of ICT on PAI learning achievements. This study aims to fill that gap by analyzing how ICT usage affects students' performance in PAI.

This study aims to assess the influence of information technology usage on students' learning outcomes in Islamic Religious Education (PAI). The findings will contribute to the field of educational technology by providing empirical data on the effectiveness of ICT in PAI instruction. Additionally, this research will offer insights for educators, policymakers, and curriculum developers to enhance digital learning strategies, ultimately improving students' comprehension and engagement in PAI subjects.

## **METHOD**

This study employed a systematic literature review method to examine the influence of information technology usage on students' learning outcomes in Islamic Religious Education (PAI). Relevant academic sources, including journal articles, books, and conference papers, were collected from reputable databases such as Google Scholar, Scopus, and Web of Science. The selection criteria were based on relevance to the research topic, publication within the last ten years, and empirical studies that provided qualitative or quantitative evidence on the relationship between information technology and students' academic performance.

The process began with keyword searches using terms such as information technology in education, learning outcomes in Islamic education, and ICT-based learning methods. After retrieving the initial set of studies, duplicate and irrelevant sources were eliminated. The remaining studies were then analyzed based on their objectives, methodologies, key findings, and theoretical frameworks. Particular attention was given to research that focused on the integration of digital learning tools, such as online platforms, video conferencing, and interactive media, in Islamic education settings.

A thematic analysis was conducted to identify common patterns and gaps in the existing literature. The findings were categorized based on the impact of technology on teaching strategies, student engagement, and academic achievement. Furthermore, previous studies that examined the challenges and opportunities of implementing technology in religious education were critically reviewed to provide a comprehensive understanding of the topic.

The results of this literature review served as a foundation for identifying the research gap and formulating the study's objectives. By synthesizing prior findings, this study contributed to a deeper understanding of how technological advancements affected students' learning experiences in Islamic Religious Education.

## **RESULTS**

The findings of this study indicated that the use of information technology in Islamic Religious Education (PAI) had a significant influence on students' learning outcomes. The analysis of relevant literature revealed several key aspects related to the impact of technology on learning, including teaching strategies, student engagement, and academic achievement.

### **Teaching Strategies and Student Engagement**

The integration of information technology facilitated innovative teaching strategies that enhanced students' engagement in PAI learning. Online learning, as defined by Hanum (2013), was a learning model supported by information and communication technology, allowing students and teachers to interact without face-to-face meetings. This approach enabled flexibility in learning and improved accessibility to educational resources. The use of digital applications such as Kahoot, Mentimeter, and Google applications in online learning was well received by students, with an average satisfaction rating of 4.48 (Sebayang et al., 2020). These findings suggested that technology-driven learning tools played a crucial role in enhancing students' motivation and participation in class activities.

Furthermore, teachers played a pivotal role in assessing students' learning abilities through activities such as aperception, which involved reviewing previous lessons to evaluate students' comprehension levels (Abdullah, Syahid, & Kadir, 2019). This method ensured that students retained prior knowledge and were prepared for new material.

### **Academic Achievement and Learning Outcomes**

The analysis of previous studies demonstrated that the implementation of technology in PAI learning positively influenced students' academic performance. According to Hikmah, Qodir, and Wahdah (2022), hypothesis testing using two-way ANOVA indicated that learning outcomes were significantly affected by assessment methods and students' learning motivation. Additionally, research by Saputra, Akil, and Kejora (2021) showed that students' learning activities, motivation, and PAI learning outcomes could be measured using average scores. These results emphasized the importance of utilizing digital learning strategies to improve students' comprehension and academic achievements in PAI subjects.

Moreover, the role of independent learning was critical in determining students' success. Data collection regarding students' independent learning was conducted using an online questionnaire, focusing on indicators such as class attendance, participation, note-taking, assignment completion, and discipline (Sunarso & Atmojo, 2023). The findings revealed that students who actively engaged in these activities demonstrated higher academic achievements.

### **Challenges and Implementation of Technology in PAI Learning**

Despite the benefits, challenges in implementing technology in Islamic education remained. The literature highlighted that the decision-making process in educational research often involved

comparing significance values with alpha ( $\alpha$ ) values to determine the validity of findings (Sianipar, 2018). Additionally, retrieving stored information required search tools such as catalogs in libraries or search engines for internet-based research (Sari, Huda, & Muthohari, n.d.).

Furthermore, the correlation between learning opportunities at home and PAI learning outcomes was analyzed using correlation tests, demonstrating a positive and meaningful relationship (Destion, 2023). This indicated that students who utilized home learning opportunities effectively showed improved academic performance.

Overall, the findings of this study confirmed that information technology played a vital role in enhancing students' learning outcomes in Islamic Religious Education. The integration of digital tools, structured assessment strategies, and independent learning significantly contributed to student engagement and academic success. However, challenges such as accessibility and technological literacy needed to be addressed to maximize the effectiveness of technology in PAI instruction. Future research should explore practical solutions to overcome these challenges and further optimize digital learning strategies in religious education.

## DISCUSSION

The findings of this study indicate that the use of information technology in Islamic Religious Education (PAI) significantly influences students' learning outcomes. This impact is observed through increased engagement, improved comprehension, and enhanced academic achievement. The integration of technology has facilitated flexible and interactive learning methods, allowing students to access educational materials beyond the traditional classroom setting. As reported by Sebayang et al. (2020), the use of digital learning tools such as Kahoot, Mentimeter, and Google applications received a high satisfaction rating of 4.48, suggesting their effectiveness in motivating students. Additionally, independent learning plays a crucial role in academic success, as supported by Sunarso & Atmojo (2023), who found that students engaged in self-regulated learning activities demonstrated higher performance levels.

The results align with previous research highlighting the role of information technology in improving educational outcomes. For instance, Hanum (2013) emphasized that online learning provides a flexible learning model that enhances students' accessibility to educational resources. Similarly, Abdullah, Syahid, & Kadir (2019) demonstrated the effectiveness of digital tools in a perception activities, ensuring students retain prior knowledge before engaging with new material. Furthermore, research by Hikmah, Qodir, and Wahdah (2022) confirmed that students' learning motivation and assessment methods significantly affect learning outcomes, reinforcing the findings of this study.

Despite these positive outcomes, challenges persist in the implementation of technology in Islamic education. The findings of Sianipar (2018) suggest that decision-making processes in educational research often rely on statistical significance testing, requiring careful consideration in interpreting results. Additionally, Sari, Huda, & Muthohari (n.d.) highlight the necessity of efficient search tools for retrieving relevant information, which is essential for technology-enhanced learning. Moreover, Destion (2023) found a strong correlation between learning opportunities at home and academic performance in PAI, further supporting the argument that technology integration in home-based learning contributes to students' success.

The findings of this study contribute to the existing literature by providing empirical evidence on the effectiveness of technology in PAI instruction. The results emphasize the need for educators to integrate digital tools into their teaching strategies to enhance student engagement and comprehension. Furthermore, these findings have practical implications for policymakers and curriculum developers, highlighting the importance of incorporating technology-driven learning

approaches into the educational system. By leveraging digital platforms, educators can create an inclusive learning environment that accommodates diverse learning styles and preferences.

While this study provides valuable insights, certain limitations should be acknowledged. First, the sample size may not fully represent the broader student population, limiting the generalizability of the findings. Second, the study primarily focuses on the impact of technology on learning outcomes without considering external factors such as students' socioeconomic backgrounds and access to technological resources. Lastly, challenges such as digital literacy among educators and students may have influenced the effectiveness of technology integration in PAI instruction. Future research should address these limitations by incorporating a larger and more diverse sample and examining additional variables that may affect learning outcomes.

In conclusion, the integration of information technology in PAI learning has a significant impact on students' academic performance, engagement, and comprehension. The findings suggest that digital learning tools play a crucial role in enhancing motivation and accessibility to educational resources. However, challenges such as technological literacy and accessibility need to be addressed to maximize the benefits of technology in Islamic education. Future studies should explore strategies to overcome these barriers and further optimize digital learning approaches in PAI instruction.

## CONCLUSION

This study highlights the significant influence of information technology on students' learning outcomes in Islamic Religious Education (PAI). The integration of digital learning tools has proven to be an effective approach to enhancing teaching strategies, increasing student engagement, and improving academic achievement. Online platforms, interactive applications, and video conferencing facilitate flexible learning, providing students with greater access to educational resources. Furthermore, structured assessment strategies and independent learning contribute to students' comprehension and retention of PAI materials. However, despite these benefits, challenges remain in implementing technology-based learning in PAI education. Issues such as limited technological access, varying levels of teacher competence, and the digital literacy gap need to be addressed to fully realize the potential of information technology in religious education. Policymakers and educators must focus on developing targeted training programs and infrastructure improvements to support the effective use of technology in PAI instruction. Future research should delve deeper into practical solutions for overcoming these challenges, including investigating the role of artificial intelligence, gamification, and adaptive learning systems in PAI education. By continuously refining and optimizing digital learning strategies, Islamic Religious Education can become more engaging, effective, and accessible for students in the modern era.

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