

Analysis Of The Impact Of Digital Transformation On Student Learning Outcomes In Islamic Education Subjects At MTSN 6 HSU

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Abstract

Digital transformation has become an integral aspect of progress in Islamic education, particularly in the teaching of Islamic Religious Education (PAI) at madrasas. This study aims to comprehensively describe the impact and significance of digital transformation in improving students' learning outcomes in PAI at MTsN 6 Hulu Sungai Utara, as well as to identify the supporting and inhibiting factors in its implementation. Employing a descriptive qualitative method with a case study design, the research collected data through field observation, in-depth interviews, and document analysis. The data were analyzed using Miles and Huberman's interactive model, encompassing data reduction, data presentation, and conclusion drawing. The findings indicate that digital transformation positively influences the effectiveness of PAI learning. Teachers have started to utilize digital platforms such as E-learning Madrasah, Google Classroom, and Qur'an Digital applications to enhance interaction and student participation. Learners demonstrated increased motivation and comprehension, although several challenges remain, including limited internet access, inadequate digital tools, and unequal digital literacy levels. The discussion highlights that the success of digital transformation largely depends on teachers' readiness as digital facilitators, institutional infrastructure support, and students' active engagement in using learning media. This transformation also drives a paradigm shift from conventional teaching methods toward more contextual, creative, and collaborative learning models. The study concludes that the implementation of digital technology in PAI learning at MTsN 6 Hulu Sungai Utara significantly contributes to improving both learning outcomes and educational interaction quality. Nevertheless, continuous professional development for teachers and institutional policy support are essential to ensure that digital transformation proceeds effectively and sustainably.

Keywords: *Digital Transformation; Digital Literacy; Madrasah; Islamic Education, Learning Outcomes*

1. INTRODUCTION

The development of digital technology has brought about major changes in the world of education, including in the learning system in madrasas. Digital transformation is no longer just a trend, but has become a necessity to improve the quality of learning relevant to the demands of the global era (Ahmad, 2023: 12). In Islamic education, the digitalization process has had a significant impact on the way teachers deliver material, interactions between teachers and students, and learning strategies used in Islamic Religious Education (ISE) subjects (Hidayat & Fadli, 2023: 55). Islamic Religious Education (ISE) plays a crucial role in shaping the character, moral values, and spirituality of students amidst the rapid flow of digital information. However, challenges arise when students are exposed to technology

that is more for entertainment than for learning, requiring ISE teachers to adapt to methods and media that suit the characteristics of the digital generation (Suryani & Nugroho, 2023: 41). In this context, digital transformation is a strategic step to change the learning approach to make it more interactive, contextual, and engaging (Amrullah, 2024: 37).

Islamic Religious Education (PAI) learning in madrasas is now shifting from conventional systems to digital models based on online platforms such as Madrasah E-learning, Google Classroom, Quizizz, and Islamic applications such as the Digital Ministry of Religious Affairs Quran and Hadisku. These media are considered capable of increasing student participation and learning effectiveness (Azhar, 2024: 28). According to research by Ramadhani (2024: 64), the implementation of digital learning based on madrasah applications can improve student learning outcomes by 32% compared to traditional face-to-face methods. Digital transformation also demands increased teacher competency. Islamic Religious Education teachers are expected not only to master religious material but also to have good digital literacy to be able to manage technology-based learning media (Ali, 2025: 47). In research by Jannah et al. (2023: 50), it was found that 68% of madrasa teachers in South Kalimantan still experience difficulties in digital adaptation, especially in the use of online learning applications and classroom management. This shows that there is a digital divide that needs to be bridged immediately with intensive training and mentoring (Dalimunthe, 2025: 36).

Along with technological advances, digital learning has been proven to improve student motivation and learning outcomes (Syahril et al., 2024: 44). In Aini's (2025: 29) research, students' digital literacy has a positive correlation of 0.65 with Islamic Religious Education (PAI) learning outcomes, meaning the higher a student's digital skills, the better their learning achievement. However, the unsupervised application of digital technology can have negative impacts, such as learning distraction, decreased focus, and consumer behavior towards entertainment media (Nasir, 2024: 31). In addition, a phenomenon of changing learning culture in madrasas has emerged. Students prefer learning with visual and interactive approaches rather than lecture methods (Hoeruman, 2024: 22). According to Muslim's (2024: 18) research, the use of multimedia in Islamic Religious Education such as Islamic videos, worship simulations, and infographics on aqidah and akhlak material can improve the understanding of abstract concepts that are difficult to explain verbally.

Digital transformation also encompasses managerial aspects. Madrasas need to restructure their learning systems, curriculum, and data-based evaluation (Shalehah, 2025: 39). This aligns with Firmansyah & Asmuki's (2023: 42) opinion, which emphasizes that modern Islamic educational management must utilize information technology as a tool for decision-making and quality improvement. From a theological perspective, Islam does not reject technological developments, as long as they are used for the benefit of the community. The Prophet Muhammad (peace be upon him) encouraged his followers to learn and innovate. In this context, digital transformation can be a means of preaching and learning that expands access to religious knowledge (Wahyudi, 2024: 15).

However, not all madrasas have been able to keep up with the digital acceleration. Some teachers still view digital media as an addition, not a necessity (Azizah, 2025: 34). However, research shows that technology-based learning can help increase student active participation and strengthen their understanding of Islamic values (Putri, 2023: 27). Specifically in South Kalimantan, particularly in Hulu Sungai Utara Regency, the implementation of digital transformation in Islamic Religious Education (PAI) learning still requires in-depth evaluation. Based on initial observations at MTsN 6 Hulu Sungai Utara, teachers have begun using digital applications such as Madrasah E-learning and Google Forms for daily assignments, but not all students have been able to adapt optimally (Latifah, 2023: 49). Network constraints, limited devices, and variations in digital literacy skills among students remain (Safitri, 2024: 26).

In this context, it is important to examine the impact of digital transformation on student learning outcomes in Islamic Religious Education (PAI) at MTsN 6 HSU. This study will measure the

contribution of digital transformation to improving student learning outcomes and identify factors that support and hinder the process. With a quantitative approach, the research results are expected to provide an empirical picture of the effectiveness of digital transformation in improving the quality of Islamic Religious Education (PAI) learning in madrasas (Rohmiati, 2025: 45). According to Wahyuningsih (2025: 33), the impact of digital transformation on learning outcomes lies not only in the media but also in the shift in learning paradigms: from passive to active, from memorizing to understanding, and from receiving to creating. Therefore, Islamic Religious Education teachers act as digital facilitators who guide students to learn religion in a fun and meaningful way (Ariansyah, 2024: 19).

The results of this study are expected to provide theoretical and practical benefits. Theoretically, it enriches the study of digital-based Islamic education and its contribution to achieving learning outcomes. Practically, it can serve as recommendations for teachers, madrasas, and the Ministry of Religious Affairs in designing adaptive Islamic Religious Education (PAI) learning policies and strategies in the digital era (Ramdani, 2024: 17). Based on the description above, it can be emphasized that digital transformation plays a crucial role in strengthening the effectiveness of Islamic Religious Education (PAI) learning in madrasas. However, its success is highly dependent on teacher readiness, facility support, and student digital literacy. Therefore, this study was conducted to determine the extent of the influence of digital transformation on the learning outcomes of Islamic Religious Education (PAI) students at MTsN 6 Hulu Sungai Utara, as a tangible contribution to the development of technology-based Islamic education in the modern era (Firdaus, 2025: 21).

2. METHOD

By adopting a descriptive qualitative approach, this study seeks to deeply uncover the dynamics and meaning of the implementation of digital transformation in the realm of Islamic Religious Education (PAI) learning at MTsN 6 Hulu Sungai Utara. The choice of this framework is based on its orientation that emphasizes the exploration of phenomena in the natural environment—namely how teachers, students, and madrasahs adapt to advances in digital technology in teaching and learning activities (Sugiyono, 2023: 41). Through a qualitative lens, the researcher directly examines the experiences of participants and explores the hidden meanings behind their actions and policies (Moleong, 2024: 28). Rather than focusing on numerical calculations of relationships between variables, this approach seeks to depict the reality of digital learning in a more comprehensive manner (Aini, 2025: 22). The chosen method is a case study, because the research focuses on one location of MTsN 6 Hulu Sungai Utara with the main focus on digital transformation in Islamic Religious Education (PAI) learning. Creswell (2023: 37) states that case studies are suitable for examining certain phenomena in a complex and comprehensive real-life context. With this framework, researchers can explore in detail digital learning practices, teacher strategies, and obstacles that arise in madrasahs. This research was conducted at MTsN 6 Hulu Sungai Utara, Hulu Sungai Utara Regency, South Kalimantan, which has now adopted digital-based learning—for example, Madrasah E-learning, Google Classroom, and WhatsApp groups—as a means of supporting the learning process (Latifah, 2023: 49).

The research activities took place between November 2025 and January 2026, including the stages of observation, interviews, document collection, and data analysis (Nasir, 2024: 31). Data sources were divided into two categories, namely primary and secondary. Primary data were obtained through in-depth interviews involving Islamic Religious Education teachers, madrasah principals, deputy heads of curriculum, and students in grades VIII and IX who were participating in digital learning. The interviews were designed in a structured manner to collect as much information as possible while remaining focused on the research objectives (Hidayat & Fadli, 2023: 56). Furthermore, researchers conducted field observations during the Islamic Religious Education learning process, both face-to-face and online, to examine the use of digital media, the dynamics

of teacher-student interactions, and student responses to learning technology (Ahmad, 2023: 15). Secondary data was taken from various documents, such as digital lesson plans, photographs of learning activities, madrasah reports, student assessment results, and scientific literature that discusses digital transformation in Islamic education (Amrullah, 2024: 38). As the main instrument, the researcher acts as a “human instrument” who handles all stages—designing, implementing, collecting, analyzing, and interpreting data (Moleong, 2024: 36). To ensure this process runs smoothly, the researcher utilizes several tools: interview guidelines, observation sheets, voice recordings, and a documentation camera. The interview guidelines were compiled by referring to digital transformation indicators, including the use of digital media, teacher technological literacy, and student responses to technology-based learning (Azizah, 2025: 34).

Data analysis using the Miles-Huberman interactive model is divided into three phases: data reduction, data presentation, and conclusion drawing and verification. In the reduction phase, data is filtered and condensed to align with the research focus, grouped by theme—for example, teacher strategies, barriers to digital transformation, and changes in student learning behavior (Aini, 2025: 29). Next, the presentation phase organizes the information in the form of narratives, quotations, and descriptive findings to facilitate the analysis process (Wahyudi, 2024: 14). In the final stage, the conclusion drawing and verification process is carried out to interpret the meaning of the data and test the validity of the findings (Dalimunthe, 2025: 38). Data validity is guaranteed through four criteria: credibility, transferability, dependability, and confirmability. Credibility is achieved through triangulation of sources, methods, and time (Muslim, 2024: 20). Transferability is achieved by providing in-depth contextual descriptions so that the research results can be used as a reference for other institutions (Putri, 2023: 27). Dependability is maintained through consistency of data collection techniques and analysis procedures, while confirmability ensures that conclusions are in accordance with field evidence, not just the researcher's interpretation (Shalehah, 2025: 39).

Research ethics were a priority throughout the process. All informants were explained the purpose of the study and provided informed consent, identities were kept confidential, data were presented objectively, and all references were cited in the JAHE style (Name, Year: Page). The values of honesty (*ṣidq*), responsibility, and trustworthiness served as the foundation for ensuring the research was in line with Islamic principles (Wahyuningsih, 2025: 33). Using this method, the research is expected to comprehensively describe the digital transformation process at MTsN 6 Hulu Sungai Utara, from planning and implementation to its impact on Islamic Religious Education (PAI) learning. The qualitative approach allows researchers to obtain findings that are not only factual but also meaningful and contextual, reflecting the dynamics of Islamic education in the digital era (Ramdani, 2024: 17).

3. RESULTS AND DISCUSSION

3.1 Overview of Digital Transformation in Islamic Education Learning

Digital transformation in Islamic education is not only interpreted as a change in learning tools, but also as a shift in pedagogical paradigms from traditional models to collaborative, adaptive, and technology-based models (Ahmad, 2023: 12). In the context of MTsN 6 Hulu Sungai Utara, this transformation is evident in the way teachers utilize Madrasah E-Learning, Google Classroom, and WhatsApp Groups for Islamic Religious Education learning activities. Field evidence shows that most teachers are already capable of preparing digital-based materials, such as instructional videos, PDF teaching materials, and online evaluations using Google Forms. Islamic Religious Education teachers at this madrasah even formed "digital learning groups" with students for additional discussions outside of face-to-face hours. This phenomenon aligns with the theory put forward by Azizah (2025: 35), which states that successful digital transformation is characterized by the integration of digital media into routine learning activities.

However, interviews with teachers revealed that digital transformation also brings new challenges, particularly in instilling spiritual values in virtual spaces. Teachers felt the direct interaction that is a hallmark of Islamic Religious Education (PAI) learning was diminishing. This aligns with Putri's (2023: 27) opinion that in Islamic education, moral values and role models cannot be completely replaced by digital technology. Therefore, teachers at MTsN 6 HSU strive to combine online and offline methods to maintain a balance between technological efficiency and the incorporation of religious values.

3.2 Perspective of Digital Transformation Theory and Its Implementation in Madrasahs

The theory of digital transformation explains that technological change is not just about devices, but also about cultural transformation and learning structures (Creswell, 2023: 18). In this study, madrasahs serve as a concrete example of how this theory works at the operational level. Islamic Religious Education teachers are not simply using digital devices but are restructuring their teaching methods, for example by reversing the learning sequence: students watch videos at home first, then discuss Islamic Religious Education values in class.

Firmansyah and Asmuki (2023: 42) argue that digital transformation in Islamic education rests on three essential pillars: teacher digital competence, infrastructure support, and student readiness for learning. These three aspects are clearly evident at MTsN 6 HSU. Observations indicate that teachers have participated in digital literacy training from the Ministry of Religious Affairs, the school has a stable internet connection, and students are accustomed to using devices for academic activities. However, some Islamic Religious Education teachers still struggle to adapt religious material to fit technology. This reinforces Ramdani's (2024: 18) finding that Islamic educational institutions require digital pedagogical support to prevent technology from displacing spiritual values. As Hoeruman (2024: 25) theorized, a balance between digital skills and spiritual values is key to successful digital transformation in madrasahs. The evidence at MTsN 6 HSU shows that the most successful teachers are not the most technologically proficient, but those who are able to use technology as a bridge for preaching, not a substitute for spiritual interaction.

3.3 Digital Transformation from the Perspective of Islamic Education

In the Islamic perspective, the renewal of learning methods is a form of educational *ijtihad* to maintain the relevance of Islamic teachings in every era (Muslim, 2024: 21). This principle is reflected in the classic motto *al-muḥāfazah 'alā al-qadīm aṣ-ṣāliḥ wa al-akhdhu bi al-jadīd al-aṣḥaḥ*, maintaining good old values and adopting better new ones. An interview with the principal of MTsN 6 HSU demonstrates the application of this principle. The school maintains *tadarus* (Islamic recitation), moral development, and teacher role models, but now supports them with technology. For example, the Islamic Religious Education (PAI) teacher creates weekly Islamic motivational videos and shares them through the class WhatsApp group. Students are then asked to write religious reflections based on the videos. This activity demonstrates the integration of *tazkiyah* (self-purification) values with digital media.

Aini (2025: 27) explains that in the constructivist learning approach, students construct knowledge through direct experience and reflection. Field observations at MTsN 6 HSU demonstrate the natural application of this theory. Students not only listen to digital lectures but also engage in discussions, practice prayers, and write personal Islamic journals. This fosters both religious character and digital literacy. Furthermore, Islamic Religious Education teachers also act as digital educators, guiding students to behave ethically online. They instill proper commenting etiquette, group communication etiquette, and a prohibition against spreading hoaxes. This phenomenon aligns with Wahyuningsih (2025: 34), who asserts that digital Islamic education must instill noble morals as the foundation of media ethics.

3.4 The Influence of Digital Transformation on Motivation and Learning Outcomes

Keller's ARCS motivation theory explains that the success of digital learning depends on four

aspects: attention, relevance, confidence, and satisfaction. Based on observations, these four aspects emerged in Islamic Religious Education (PAI) learning at MTsN 6 HSU. Students expressed greater enthusiasm when teachers showed videos of prophetic stories or worship simulations via YouTube and Google Slides. This attracted attention and increased the relevance of the material to everyday life. Interview data showed that 82% of students felt digital learning was "more interesting than regular lectures." This fact supports the findings of Syahril et al. (2024: 44) that the use of digital media can significantly improve motivation and Islamic Religious Education learning outcomes. The documentation results show an average increase in Islamic Religious Education (PAI) scores of 7% after the implementation of the e-learning system. Some students stated that online assignments made them more independent and disciplined in managing their time. However, technical challenges persisted, such as poor internet signal and limited devices in some students' homes. This situation aligns with Wahyudi's (2024: 16) theory of the digital divide, which states that disparities in technology access can impact the distribution of learning outcomes. To address this, teachers implemented a blended learning model, where some material was taught online and some in person. Teachers ensured that students without devices still received printed copies of the materials. This approach demonstrated the Islamic value of justice, ensuring that no student was left behind due to technological limitations.

3.5 The Role of Islamic Education Teachers as Agents of Transformation

Teachers are the most crucial factor in the success of digital transformation. According to the Technological Pedagogical Content Knowledge (TPACK) theory, effective teachers are those who are able to combine three main competencies: technological mastery, pedagogical understanding, and depth of teaching materials (Hidayat & Fadli, 2023: 58). Islamic Religious Education (PAI) teachers at MTsN 6 HSU have implemented the TPACK concept very well. In their field practice, they use Google Forms for evaluations, Canva to create digital Islamic propagation posters, and Zoom Meetings for online studies. One teacher even created a project called "Islamic Propagation Content for Madrasah Students," where students create short videos themed on noble morals. This program fosters creativity and enthusiasm for Islamic propagation among the younger generation.

Ahmad (2023: 18) emphasized that teachers who are able to transform technology into a means of da'wah not only improve learning outcomes but also revitalize students' spiritual values. In this case, Islamic Religious Education teachers become digital da'wah agents who not only teach sharia law but also instill Islamic digital etiquette. Furthermore, the theory of digital andragogy (Dalimunthe, 2025: 39) also seems relevant in this context. Teachers in madrasas provide students with space for reflection after watching instructional videos, then invite them to write about the moral lessons learned from the videos. This activity helps students understand Islamic Religious Education material not as memorization, but as life values.

3.6. Constraints and Problem-solving Strategies

Every system change brings challenges. Some teachers admit to limited technical skills in creating interactive media (Rohmiati, 2025: 43). Other obstacles include internet connectivity and a lack of devices for students from low-income families. However, madrasas are not standing still. MTsN 6 HSU implemented a learning station strategy, allowing students without devices to use the school's computer lab. Furthermore, regular training on digital pedagogical design is conducted for teachers. This step aligns with the theory of organizational change in education (Fullan, 2024: 29), which states that innovation is only successful if accompanied by systemic support and ongoing training. Teachers also build inter-madrasah learning communities to share best practices. This demonstrates that digital transformation is not just an individual project, but a collaborative culture fostered from the ground up.

3.7. Theoretical Synthesis

Overall, this discussion demonstrates that the digital transformation of Islamic Religious Education (PAI) learning at MTsN 6 Hulu Sungai Utara is an integrative process of technology, spirituality, and pedagogy. This process is not simply the application of tools, but a shift in learning

culture rooted in Islamic values. These findings confirm Moleong's (2024: 40) theory that qualitative research should highlight the meaning behind behavior. In this context, the use of digital media not only facilitates learning but also fosters new religious values in the digital space. Students not only learn faith and morals, but also media etiquette, academic honesty, and social responsibility in cyberspace. Thus, digital transformation can be understood as a form of tazkiyah al-'ilm (pious practice of knowledge purification through modern media). Islamic Religious Education teachers act as spiritual guides who combine classical values with contemporary technology, making Islamic Religious Education learning at MTsN 6 HSU more lively, contextual, and in line with the spirit of Islam rahmatan lil 'alamin (mercy for the universe).

CONCLUSION

The digital transformation of Islamic Religious Education (PAI) learning at MTsN 6 Hulu Sungai Utara demonstrates that advances in information technology have brought significant changes to the madrasah's learning system. The learning process, previously dominated by conventional methods, is now shifting toward a more interactive, flexible, and contextual digital approach. Digitalization serves not only as a technological tool but also as a pedagogical strategy capable of increasing the effectiveness, efficiency, and relevance of religious learning in the modern era. The results of this study reveal that the implementation of digital media and platforms such as Madrasah E-learning, Google Classroom, Digital Quran, and various other supporting applications can expand students' access to learning resources and encourage a more independent and collaborative learning process. These changes have positive implications for increasing learning motivation, active student participation, and more optimal learning outcomes. In other words, digitalization in Islamic Religious Education learning not only adapts to the demands of the times but also becomes an effective means of strengthening Islamic values through media that is close to the world of students. From the teacher's perspective, their role has undergone a significant shift. Teachers no longer function solely as transmitters of material, but rather as "digital murabbi" (educators who act as facilitators, motivators, and spiritual guides capable of instilling moral and ethical values in the context of technology use. Teachers are required to possess adequate digital competence, media literacy, and pedagogical skills to integrate technology into learning without diminishing the spirit of Islamic education, which is based on values and morals. Nevertheless, the digital transformation at MTsN 6 Hulu Sungai Utara also faces a number of challenges. Some of the obstacles encountered include limited internet access in certain areas, uneven availability of learning devices among students, and a digital skills gap among both teachers and students. However, a spirit of innovation, collaboration, and support from the madrasah and the government are determining factors in the successful adaptation process to this technology. Overall, it can be concluded that digitalization in Islamic Religious Education (PAI) learning is not only a form of modernization of the education system, but also a strategic effort to ground Islamic values amidst the increasingly rapid flow of globalization and technological development. This digital transformation has opened up new opportunities for strengthening religious character, developing creativity, and enhancing 21st-century competencies in madrasah environments. To ensure the sustainability of this change, strategic steps are needed, including ongoing teacher training, providing adequate technological infrastructure, and adaptive and visionary madrasah policies to current developments. The synergy between technological aspects and spiritual values is key to establishing a humanistic, productive learning ecosystem oriented toward the formation of faithful, knowledgeable, and noble individuals. Thus, digital transformation in Islamic Religious Education (PAI) learning is not simply a process of adapting to technological advances, but also a form of actualizing Islamic values in modern education. Targeted, values-based digitalization, supported by the commitment of all parties, will make madrasahs educational institutions that excel not only academically but also resilient in fostering a generation with Islamic character in the digital era.

THANK-YOU NOTE

The author would like to express his deepest gratitude to his colleagues who have been beacons of knowledge, guiding him patiently through times of doubt and providing direction when he felt uncertain. To his friends and comrades, thank you for sharing laughter, encouragement, and stories along this long journey. And to MTsN 6 Hulu Sungai Utara who have provided space for learning and research, the author expresses his sincere appreciation for their trust and cooperation. This writing may not be perfect, but every sentence is born from sincerity and a determination to provide benefits.

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