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Islamic Religious Education Teachers' Strategies in Implementing Digital-Based Learning

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ABSTRACT

This study aims to examine the strategies applied by Islamic Religious Education teachers in implementing digital-based learning at SMA 1 Sukoharjo.This research applies a qualitative method with a case study approach. The research technique includes observation, interviews, and documentation with the research subjects of Islamic Religious Education teachers. The focus of the researcher includes the digital learning strategies applied, the use of technology in learning. The results of the study show that Islamic religious education teachers apply various strategies in digital-based learning, such as the use of digital learning media, the use of online learning platforms, and the development of interactive learning methods that are in line with the characteristics of students. In addition, teachers also play a role in increasing students' learning motivation through innovative and adaptive approaches to technological developments. The implementation of a digital-based learning system has a positive influence on increasing student involvement and understanding.

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INTRODUCTION

In the digital era, the development of information technology is taking place very quickly and has a significant influence on various aspects of life, including education. Islamic religious education, which plays an important role in shaping the character and spirituality of students, also faces this dynamic. PAI teachers are required to be able to integrate technology in the learning process to improve the quality of pursuit while expanding the learning experience of students. These changes also have an impact on mindsets, learning methods, and learning methods at various levels of education. In this context, teachers are faced with the challenge of conveying normative religious material with a more interesting, innovative, and relevant approach to the development of the times. The use of various digital technologies such as learning applications, social media, and interactive software is a strategic alternative in supporting the creation of effective and adaptive learning (Kulsum & Muhid, 2022). In the digital era that continues to develop, Islamic Religious Education teachers are not only required to have mastery of technology, but must also be able to implement it effectively in the learning process to improve the quality of learning to provide optimal benefits for students.(Ihsan, 2025) Teachers can develop learning that is interactive, dynamic, and contextual. Various technologies, such as e-learning, educational applications, online learning platforms, and social media, can be used by Islamic Religious Education teachers to support an effective learning process to deliver learning materials in an attractive method for students who are the digital generation.(Muthy & Pujiastuti, 2020). SMA Negeri 1 Sukoharjo is one of the high schools in

Sukoharjo Regency that has started the implementation of digitalization in various aspects, such as the provision of digital infrastructure, teacher training, and the use of technology-based learning applications. However, this process is inseparable from various challenges both in terms of human resources and limited infrastructure. Training and professional development related to technology is an important effort to improve teachers' competence in mastering and applying technology in the learning process. must be an integral element of efforts to improve the quality of teaching. With the effective implementation of a digital curriculum, education can become more adaptive, responsive, and relevant.(Wati & Nurhasannah, 2024). This study aims to analyze the strategies of Islamic Religious Education Teachers in digital-based learning at SMA Negeri 1 Sukoharjo, identifying the form of digital-based learning implementation used by Islamic Religious Education Teachers at SMA Negeri 1 Sukoharjo.(Azizah Siti Lathifah, 2024)

In addition, this study has both urgency and novelty in the context of current educational developments. The urgency of this research lies in the increasing demand for the integration of digital technology in the learning process, especially in Islamic Religious Education, which is often considered normative and less adaptive to technological changes. Without appropriate strategies, the use of digital technology in PAI learning may not be optimal and could reduce the effectiveness of value-based education. (Muthy & Pujiastuti, 2020)Therefore, it is important to examine how teachers practically implement digital-based learning while maintaining the essence of Islamic values. (Wati & Nurhasannah, 2024)The novelty of this study is reflected in its focus on exploring the real strategies of Islamic Religious Education teachers in integrating digital technology within a specific school context, namely SMA Negeri 1 Sukoharjo, through a qualitative case study approach. This research not only identifies the use of digital media, but also highlights how teachers adapt pedagogical strategies, develop interactive learning, and balance technological integration with spiritual values. Thus, this study provides a more contextual and in-depth understanding of digital-based learning practices in Islamic education, which is still relatively limited in previous studies.(Agustina et al., 2025)

METHODS

This study uses a qualitative approach with a type of case study research that aims to gain an in-depth understanding of the strategies of Islamic Religious Education teachers in implementing technology-based learning at SMA Negeri 1 Sukoharjo. This approach was chosen because it is able to describe the meaning, context, and processes that occur naturally in social life, as stated by Miles and Huberman (1994). The research was carried out at SMA Negeri 1 Sukoharjo, Central Java, with the research subjects including teachers as implementers of digital learning, and students as beneficiaries of the process.(Koedinger et al., 2015) Data collection techniques are carried out through in-depth interviews to explore the experiences and views of informants, participatory observation to directly observe the learning process and digital-based interactions, and documentation studies of various supporting documents such as school work programs, supervision reports, and documentation of training activities. Data analysis was carried out interactively using the Miles and Huberman model which included data reduction, data presentation, and conclusion drawn. The validity of the data is maintained through source triangulation techniques and member checks to ensure the validity of the information. In this study, the researcher acts as the main instrument that plays a role in the entire research process, supported by interview guidelines, observation notes, and documentation sheets as additional instruments. The research procedure is carried out through the preparation stage, data collection, data analysis, and reporting of research results systematically in accordance with a qualitative descriptive approach.(Mishra & Koehler, 2006)

RESULTS AND DISCUSSION

1. Strategies of Islamic Religious Education Teachers in Digital-Based Learning at SMA Negeri 1 Sukoharjo

Applying various platforms and digital media in the learning process

Based on the results of interviews with Islamic religious education teachers, the strategy of Islamic Religious Education (PAI) teachers in implementing digital-based learning at SMA Negeri 1

Sukoharjo shows an adaptive approach to technological developments while maintaining spiritual values. PAI teachers view the integration of digital technology as a form of effort to improve the quality of learning, in line with the demands of the digital era and government policies. This implementation is carried out without eliminating the essence of religious learning, but rather strengthens the delivery of material through more varied and interesting media (Interview, April 7, 2026). This is in line with Framework Technological Pedagogical Content Knowledge (TPACK) presented by (Mishra & Koehler, 2006), which emphasizes that teachers need to integrate technological, pedagogical, and content knowledge simultaneously in the learning process.

The strategies applied by teachers can be seen from the use of various media and digital platforms in the learning process. Teachers use devices such as laptops, LCD projectors, and video-based media to convey material visually. In addition, the use of Islamic digital applications such as the digital Qur'an, hadith, and Islamic books is an important part of expanding student learning resources. Not only that, teachers also implement project-based strategies, such as creating Islamic posters that are published through social media such as Instagram, as well as the use of applications such as Canva and PowerPoint. This shows that learning strategies are not only oriented to information consumption, but also to the production of digital works by students (Interview, April 7, 2026)

The use of technology in the field of education, including in the learning of Islamic Religious Education (PAI) has brought significant changes. The digital era provides easy access to information and increases the effectiveness of the learning process. When used optimally, technology can support students in mastering PAI materials better through various innovative and interactive methods (Kulsum & Muhid, 2022).

Based on the findings of the research, the strategy of Islamic Religious Education teachers in digital-based learning at SMA Negeri 1 Sukoharjo is not only oriented to the implementation of learning, but also includes efforts to improve teacher competence and professionalism. Strengthening strategies is carried out through various activities such as training, school-facilitated workshops, and independent initiatives in developing digital skills. This shows that the success of the implementation of digital learning is not only determined by the readiness of students, but also by the readiness and capacity of teachers as the main actors in the learning process. However, in its implementation, there are still several obstacles, including the uneven ability of teachers to utilize technology, limited time in preparing digital learning media, and high administrative burdens that must be completed by teachers.

Thus, educators and students need to receive coaching or education. regarding the procedures and rules that must be followed in implementing digital literacy in daily activities. Teachers and students must master these skills in order to be able to use digital platforms effectively and efficiently in the learning process (Azizah Siti Lathifah, 2024). This does not mean that teachers must return to being like young people, but teachers are expected to have the readiness to learn and master various digital technologies and use them as a medium in the learning process (Agustina et al., 2025)

Mastery of digital literacy competencies enables teachers and students to utilize digital platforms more effectively and efficiently within the learning process (Azizah Siti Lathifah, 2024). For instance, the ability to access, analyze, and synthesize information from various digital sources supports deeper learning and enhances students' academic performance. In addition, the use of digital platforms facilitates more flexible, collaborative, and interactive learning experiences, allowing students to engage in discussions, complete project-based assignments, and access learning materials beyond the limitations of time and space. From a pedagogical perspective, this reflects a shift toward learner autonomy, where students are encouraged to take greater responsibility for their own learning processes. Such conditions are widely recognized in high-impact educational research as essential for fostering higher-order thinking skills and meaningful learning outcomes.

However, the successful implementation of digital literacy is not solely dependent on students' abilities; it is equally contingent upon teachers' readiness and competence in integrating technology into their instructional practices. This is where the concept of Technological Pedagogical Content Knowledge becomes particularly relevant, as it highlights the need for teachers to balance

technological knowledge with pedagogical strategies and subject matter expertise. Teachers who possess strong TPACK are better equipped to design and implement learning experiences that are not only technologically enriched but also pedagogically effective and contextually appropriate. Consequently, professional development programs focusing on digital pedagogy should be prioritized to enhance teachers' competencies in this area.

Importantly, the demand for digital competence does not imply that teachers must emulate the behaviors, lifestyles, or communication patterns of younger generations. Rather, it underscores the necessity for professional adaptability and continuous learning, which is consistent with the principles of Lifelong Learning. In the rapidly evolving digital era, teachers are expected to maintain an open mindset toward innovation and demonstrate a willingness to continuously update their knowledge and skills. This includes learning how to use emerging technologies, understanding new digital platforms, and adapting instructional strategies to meet the changing needs of students. Such adaptability is crucial in ensuring that teachers remain relevant and effective in facilitating learning in a digital context (Agustina et al., 2025).

Furthermore, the integration of digital literacy in education also requires institutional support, including the availability of technological infrastructure, access to reliable internet connectivity, and the provision of adequate learning resources. Without these supporting factors, the implementation of digital-based learning may face significant challenges, such as unequal access to technology, limited digital skills among teachers, and resistance to change within educational institutions. These issues are frequently highlighted in reputable international journals as key barriers to the successful adoption of digital learning innovations. Therefore, a holistic approach is needed, involving not only individual capacity building but also systemic improvements at the institutional and policy levels.

Another important aspect to consider is the ethical dimension of digital literacy. As students increasingly engage with digital platforms, they are exposed to various risks, including misinformation, cyberbullying, and data privacy concerns. Consequently, digital literacy education must include guidance on ethical behavior, critical evaluation of information, and awareness of digital rights and responsibilities. In the context of PAI, this dimension becomes even more significant, as digital engagement should reflect Islamic values such as honesty, respect, and accountability. By integrating ethical considerations into digital literacy education, schools can help students develop not only technical skills but also strong moral character in navigating the digital world.

In addition, the role of teachers is gradually transforming from knowledge transmitters to facilitators, mentors, and learning designers. In digital learning environments, teachers are expected to guide students in exploring information, encourage collaborative learning, and create meaningful learning experiences through the use of technology. This shift is consistent with constructivist learning theory, which emphasizes active student participation and knowledge construction through interaction and experience. As facilitators, teachers must be able to create learning environments that are engaging, inclusive, and responsive to students' diverse needs and abilities.

Overall, the integration of digital literacy in education represents a significant step toward improving the quality and relevance of learning in the 21st century. It supports the development of essential skills, enhances student engagement, and promotes more flexible and innovative learning approaches. However, its successful implementation requires a comprehensive strategy that includes capacity building for teachers and students, institutional support, ethical guidance, and continuous evaluation. By addressing these aspects, educational institutions can ensure that digital literacy is not merely a technical skill, but a transformative component of the learning process that prepares students to thrive in an increasingly digital and interconnected world.

2. *Identifying the Form of Digital-Based Learning Implementation by Islamic Religious Education Teachers at SMA Negeri 1 Sukoharjo.*

Utilize digital media infrastructure

Based on the results of the interview, the form of implementation of digital-based learning by Islamic Religious Education teachers at SMA Negeri 1 Sukoharjo shows the integration of technology in various aspects of the learning process. Teachers use digital media such as laptops, LCD projectors, and learning videos to convey material in a more visual and interactive way, so as to

increase student attraction and understanding. In addition, the use of digital-based learning resources is also seen through the use of Qur'an, hadith, and Islamic books applications that can be accessed online, thereby expanding students' Islamic horizons. In addition, teachers also provide wider access for students to explore various digital information sources independently, thereby encouraging the formation of critical thinking skills and digital literacy (Interview, April 7, 2026)

Digital-based learning, often known as e-learning, is a learning model that adopts digital technology in the implementation of the teaching and learning process. Digital technology that is used generally includes social media and various applications that are integrated through the internet network (Wahyuni Firli Fangestu & Syahrizal, 2023). Another implementation can be seen in the implementation of project-based learning, where students are given the task of producing digital works such as Islamic posters using applications such as Canva and PowerPoint, then published through social media. This shows that learning focuses not only on the reception of materials, but also on the development of digital students' creativity and digital production skills (Edukasia et al., 2023).

Overall, the implementation of digital-based learning by PAI teachers at SMA Negeri 1 Sukoharjo reflects a substantive shift aligned with contemporary discourse in high-impact educational research. The integration of digital media, utilization of diverse online learning resources, application of project-based learning models, and reinforcement of students' digital literacy collectively demonstrate a transformation toward a more student-centered and constructivist learning paradigm. This finding is consistent with established theories such as Constructivism, which emphasize active knowledge construction through interaction and experience, as well as the Technological Pedagogical Content Knowledge framework, highlighting the importance of integrating technology, pedagogy, and content knowledge in effective teaching practices.

Overall, the integration of digital literacy in education represents a strategic and transformative effort to enhance the quality, relevance, and responsiveness of learning in the 21st century. Within the framework of Digital Literacy, this integration is not limited to the operational use of digital tools, but extends to the development of higher-order cognitive skills, including critical thinking, information evaluation, problem-solving, and ethical awareness in digital environments. These competencies are increasingly recognized in high-impact educational research as foundational elements for preparing learners to navigate complex, information-rich societies. In this regard, digital literacy contributes not only to academic achievement but also to the cultivation of responsible, reflective, and adaptive global citizens.

Moreover, the incorporation of digital literacy supports the development of essential 21st-century skills, particularly communication, collaboration, creativity, and critical thinking. Through the use of digital platforms, students are provided with opportunities to engage in interactive and participatory learning experiences that transcend traditional classroom boundaries. For example, collaborative tools enable students to work together on projects in real time, while access to diverse online resources allows them to explore multiple perspectives and deepen their understanding of subject matter. Such practices are closely aligned with student-centered learning approaches, where learners actively construct knowledge through engagement, exploration, and reflection. Consequently, digital literacy plays a crucial role in fostering learner autonomy and intrinsic motivation, both of which are key indicators of meaningful learning.

However, the successful implementation of digital literacy in educational settings requires a comprehensive and systemic strategy. One of the most critical components of this strategy is capacity building for both teachers and students. Teachers, in particular, must be equipped with the necessary competencies to effectively integrate technology into their pedagogical practices. This aligns with the Technological Pedagogical Content Knowledge framework, which emphasizes the intersection of technological knowledge, pedagogical expertise, and subject matter understanding. Teachers who possess strong TPACK are better positioned to design learning experiences that are not only technologically enriched but also pedagogically sound and contextually relevant. Therefore, ongoing professional development and training programs are essential to enhance teachers' digital competencies and instructional effectiveness.

In addition to individual capacity building, institutional support plays a vital role in ensuring the sustainability of digital literacy initiatives. Educational institutions must provide adequate technological infrastructure, including access to devices, reliable internet connectivity, and digital learning resources. Furthermore, schools and educational authorities should establish clear policies and guidelines that support the ethical and responsible use of technology. Without such support, efforts to integrate digital literacy may face significant barriers, such as digital inequality, limited access to resources, and resistance to change. These challenges are frequently highlighted in reputable international journals as critical factors influencing the success or failure of digital learning implementation.

Ethical guidance is another essential aspect of digital literacy integration. In an era where information is abundant and easily accessible, students must be equipped with the skills to critically evaluate the credibility and reliability of digital content. Additionally, they must understand the importance of maintaining ethical behavior in online interactions, including respect for others, protection of personal data, and avoidance of harmful practices such as plagiarism and cyberbullying. In the context of Islamic education, these ethical considerations are particularly significant, as they align with core values such as honesty, responsibility, and respect. By embedding ethical principles into digital literacy education, educators can ensure that students develop not only technical proficiency but also strong moral character in their engagement with digital technologies.

Furthermore, continuous evaluation and reflective practice are necessary to assess the effectiveness of digital literacy implementation and to identify areas for improvement. Educational institutions should regularly monitor and evaluate the impact of digital learning initiatives on student outcomes, teacher performance, and overall learning quality. This process involves collecting data, analyzing trends, and making evidence-based decisions to refine instructional strategies and policies. Continuous evaluation also allows educators to remain responsive to emerging technological developments and evolving educational needs, ensuring that digital literacy remains relevant and impactful over time.

By addressing these interconnected aspects capacity building, institutional support, ethical guidance, and continuous evaluation educational institutions can ensure that digital literacy is not merely treated as a technical skill, but as a transformative component of the learning process. Ultimately, the effective integration of digital literacy prepares students to thrive in an increasingly digital and interconnected world, equipping them with the knowledge, skills, and values necessary to participate meaningfully in both local and global contexts.

CONCLUSION

Based on the results of the study, it can be concluded that Islamic Religious Education (PAI) teachers at SMA Negeri 1 Sukoharjo have implemented digital-based learning strategies in an adaptive and innovative manner while maintaining the core values of Islamic education. The main academic finding shows that the integration of digital media, project-based learning, and online Islamic resources reflects the practical application of Technological Pedagogical Content Knowledge, indicating that technology can be effectively aligned with pedagogy and religious content without reducing its essential values. This study contributes to the development of Islamic Education by providing empirical evidence that Digital Literacy can enhance not only students' engagement, motivation, and understanding, but also their critical thinking and creativity in a faith-based learning context. The significance of this research lies in its ability to demonstrate that digital transformation in education can coexist with moral and ethical values, making it relevant for educators and policymakers in developing innovative yet value-oriented learning models. However, several limitations were identified, including limited research scope, time constraints, varying levels of teachers' technological competence, and administrative burdens, which may affect the generalizability of the findings. Therefore, future research is recommended to involve broader samples across different regions, apply quantitative or mixed-method approaches to measure learning outcomes more objectively, and conduct longitudinal studies to examine long-term impacts, as well as explore students' perspectives more deeply to gain a more comprehensive understanding of digital-based Islamic education.

LIMITATIONS

This study has several limitations that need to be considered. First, the research was conducted only at SMA Negeri 1 Sukoharjo, which has specific characteristics in terms of digital infrastructure and teacher readiness, so the findings may not be fully generalizable to other schools with different conditions. Second, this study uses a qualitative case study approach with a limited number of informants, which may affect the breadth of perspectives obtained. Third, data collection relies on interviews, observations, and documentation, which are subject to researcher interpretation and potential bias despite efforts to ensure validity through triangulation. In addition, the study focuses primarily on teachers' strategies and does not deeply explore students' perspectives or learning outcomes quantitatively. Finally, rapid developments in digital technology may cause the findings to become less relevant over time if not continuously updated. Therefore, future research is recommended to involve a wider sample, include quantitative measurements of learning outcomes, and examine long-term impacts of digital-based learning implementation.

AUTHOR CONTRIBUTION

ACS contributed to the conceptualization of the study, research design, methodology development, data collection, data analysis, and drafting of the manuscript. MNRM contributed to supervision, validation of data, critical review, and revision of the manuscript. Both authors discussed the results and approved the final version of the manuscript for publication.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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