
Integration of Digital Learning in Islamic Schools to Support Education in Nusantara Capital

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ABSTRACT: The application of digital technology in education has become an increasingly essential need, especially in enhancing the quality of learning in Islamic-based schools. However, the integration of this technology must be carried out without compromising the Islamic values and principles that form the foundation of education. This study aims to explore how Islamic-based schools in the Nusantara Capital integrate digital learning, along with the challenges and strategies employed to ensure that this integration remains in accordance with Sharia law.

This research uses a qualitative method with a case study approach conducted at a pesantren school. Data were collected through in-depth interviews with teachers, administrative staff, and students, as well as direct observation of the classroom learning process using digital technology. Data analysis was performed through triangulation, combining interview and observation results to derive comprehensive conclusions.

The results show that the integration of digital technology in pesantren schools was well-received by all stakeholders. Despite challenges in implementation, such as limited infrastructure and the need for strict supervision, the use of technology has successfully increased students' interest in learning, particularly in literacy and numeracy. The implementation of digital technology was supported by adequate supervision to ensure its use remains aligned with Islamic values.

KEYWORDS: Digital learning, Islamic education, Technology integration, Sharia compliance, Pesantren schools, Student engagement

I. INTRODUCTION

The rapid advancement of digital technology has significantly impacted various sectors, including education. In the digital age, traditional learning systems are progressively evolving, utilizing technology as a core medium. Digital learning not only broadens access to information but also enhances pedagogical methods, offering more interactive and flexible approaches that allow students to engage with learning materials anytime and anywhere (Ally, 2024). However, within the context of Islamic-based schools, a particular challenge arises: integrating digital technology while upholding the religious values and principles that underpin the educational framework (Shodikun, Shodikun; Zaduqisti, Esti; Subhi, 2023).

The critical importance of this research lies in addressing the necessity for Islamic-based educational institutions to adopt technology in a manner that supports educational quality without undermining Islamic teachings. Amidst global efforts to improve education through technological advancements, it is imperative that these schools maintain equilibrium between technological progress and the moral values central to Islamic pedagogy. This concern is especially pertinent given the development of the Nusantara Capital, which is projected to become a hub for educational and technological growth in Indonesia (Muzadi & Mutholingah, 2019). Therefore, this study is crucial in formulating strategies that ensure technology integration in Islamic education adheres to the essence of religious instruction while enhancing academic standards.

This research offers a unique contribution by focusing on the Nusantara Capital, a region characterized by distinctive social and educational features. Previous studies have explored technology integration broadly, yet this research provides a nuanced analysis by considering the interplay between Islamic values and local challenges specific to this region (Muiz, 2023). Furthermore, by adopting a holistic approach that incorporates pedagogical, technical, and moral dimensions, the research aims to deliver a more comprehensive understanding of the long-term implications of digital learning within Islamic-based schools.

The key research question addressed in this study is how the integration of digital technology within Islamic-based schools in the Nusantara Capital can improve educational quality while adhering to religious values and principles. To answer this question, the study seeks to evaluate the effectiveness of digital technology implementation in these schools and to propose strategies that ensure its application serves as a supportive educational tool, aligned with Islamic teachings.

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II. METHOD

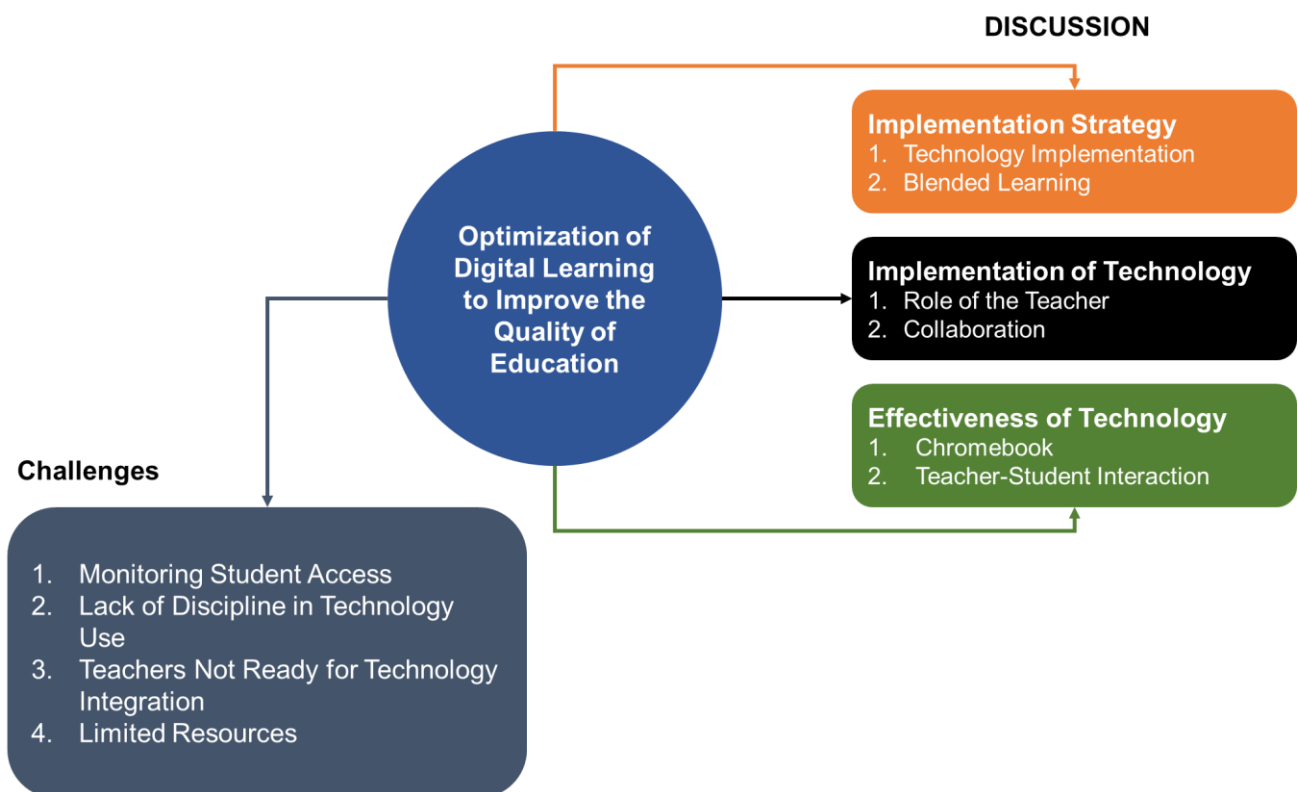
This research employs a qualitative approach with a case study method, aimed at deeply exploring the implementation of digital learning in Islamic-based schools in the Capital City of Nusantara. The qualitative approach was chosen because it can capture the complexity of phenomena and understand the social and cultural contexts related to the integration of technology in education within Islamic school environments. This method involves collecting data through in-depth interviews, observations, and document analysis, in order to obtain a comprehensive picture of the experiences and perspectives of the stakeholders involved.

This research was conducted at Muhammadiyah 2 Al-Mujahidin High School, a boarding Islamic school in Balikpapan, East Kalimantan. The research subjects include the school principal, the vice principal for curriculum, the vice principal for facilities and infrastructure, as well as the teachers involved in the implementation of digital learning. The selection of this location is based on the school's efforts to integrate digital technology as part of educational innovation, while also upholding Islamic values in the learning process. Data collection was carried out through semi-structured interviews with key stakeholders, direct observations in classrooms using digital technology, and documentation in the form of learning modules and lesson plans (RPP).

III. RESULTS AND DISCUSSION

A. Optimization of Digital Learning to Enhance the Quality of Education

In the current digital era, the application of technology in educational environments, especially in Islamic boarding schools (pesantren), is becoming increasingly important to support effective learning processes. This discussion will elaborate on various aspects related to the use of technology, specifically Chromebooks, in learning at Islamic boarding schools. Starting from the challenges faced in the implementation of technology, the implementation strategies adopted by schools, to perceptions of the effectiveness of using these devices in supporting student creativity and learning. Although there are obstacles that need to be addressed, such as student discipline and teachers' limitations in utilizing technology, this research shows that with the right approach, technology integration can enhance the quality of education and facilitate more active and independent learning.



1. The Use of Technology in the Classroom

Research findings indicate that the use of Chromebook-based learning technology in boarding schools has yielded positive results, although it still faces some challenges. In the context of education, the implementation of technology often faces challenges, such as limited infrastructure and initial user resistance to technological changes (Ertmer, 1999). In this school, the use of personal devices such as phones is prohibited, so students have to share Chromebooks, which has become one of the obstacles in the learning process. Previous research also indicates that the implementation of technology requires adjustments in the school environment as well as supportive policies (Hew & Brush, 2007).

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The Chromebook-based learning system at this school is designed to remain effective through a limited usage approach, tailored to the needs of each subject. This approach aligns with controlled learning theory, which emphasizes the importance of regulation and control in the use of technology to avoid distractions and ensure focus on learning objectives. (Becker et al., 2020). This principle also reflects the blended learning model, where technology is used to support and enrich the learning experience, rather than completely replacing traditional methods (Graham, 2006).

The use of additional devices, such as projectors and televisions, also supports the gradual integration of technology. This aligns with the gradual approach to the adoption of educational technology, where the transition is made slowly to allow for adjustment and training for stakeholders (Dearing, 2021). The implementation in the 10th grade as an initial step also supports the theory of diffusion of innovations, which states that the adoption of technology typically begins with a small group before being expanded (Dearing, 2021).

Overall, despite the challenges, the implementation of technology in this school demonstrates that technology integration can be effectively achieved with careful planning, infrastructure support, and a gradual approach. This supports the literature that emphasizes the importance of planning and systemic support in the application of technology in the field of education.

2. Implementation Strategy

This research also reveals the strategies used by Islamic boarding schools in implementing learning technology. Based on the interview, it appears that the school is using a collaborative approach by involving providers of electronic book products, such as Chromebooks, to facilitate students' access to learning materials. This strategy supports the theory of diffusion of innovation, which emphasizes that the adoption of technology requires support from various parties, including service providers and devices (Dearing, 2021).

In addition, the school also uses digital tools such as e-books and computer labs to integrate general subjects and religious material. This is in line with the principles of blended learning, which allows for the use of technology to enrich the learning experience without completely replacing traditional methods. The constructivist theory supports that students need flexible access to various learning resources to encourage independent and active learning (D. et al., 1979).

Technology also makes it easier for teachers to deliver learning materials, such as through presentations using PowerPoint and videos. This active learning model emphasizes the importance of student interaction with the material through engaging interactive media. This approach is also in line with the concept of Merdeka Belajar, which focuses on student-centered learning, where students are encouraged to be more independent and creative in managing their own learning (Sumarmi et al., 2022).

Schools continue to strive to utilize technology, even though there are restrictions on the use of electronic devices in Islamic boarding schools. This shows that technology adaptation needs to be tailored to the local context and existing policies. Teachers play a crucial role as facilitators in utilizing technology for learning and preparing students for various competitions.

3. Perception of Effectiveness

The use of Chromebooks in this school is seen as very effective in supporting learning. The interview results indicate that this device assists students in finding references and learning materials, which supports constructivist theory, where access to various learning resources is essential for active and independent learning (D. et al., 1979). Chromebooks also make it easier for students to access the information they need, thereby enhancing the quality of learning and encouraging innovation and critical thinking skills.

The effectiveness of Chromebooks is also evident in the ease of access to materials that support students' creativity in competition activities. This supports the principle of project-based learning, which emphasizes the development of analytical and creative skills through real projects (Thomas, John, 2021). With the presence of Chromebooks, students can be more independent in seeking information and learning materials, supporting a more directed and personalized learning experience.

Although the implementation of Chromebooks in this school is still in its early stages, training has been provided to teachers, and implementation for students will begin in the 10th grade. According to the theory of diffusion of innovations, the adoption of technology starts with a small group before being expanded. Teacher training is an important step to ensure that the use of technology is effective and efficient (Dearing, 2021).

4. Challenges Faced

This research also found several challenges in the implementation of digital technology in schools. The biggest challenge is the lack of student discipline and the limitations of teachers in using technology. The success of technology implementation greatly depends on the mental readiness of students and their discipline in utilizing the tools. Without self-discipline, students may not be able to maximize the potential of technology for learning (Hirschi & Gottfredson, 2000).

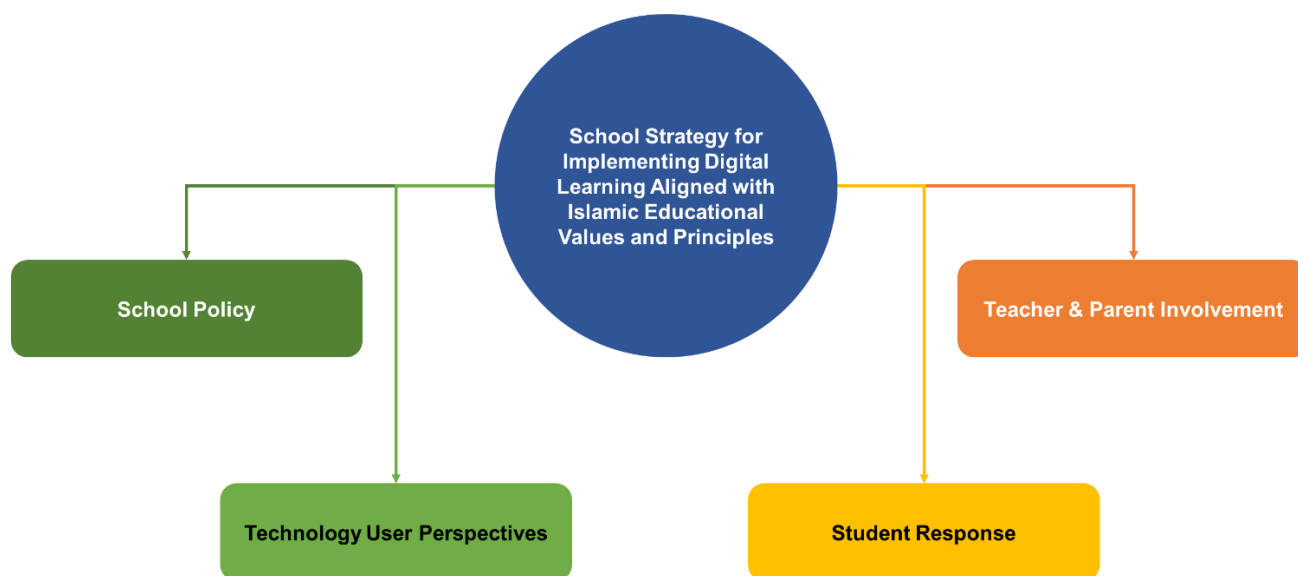
In addition, the resistance from teachers who are less open to change also poses a challenge. According to the diffusion of innovation theory, technology users must be able to adapt to technological advancements. Teachers need to step out of their comfort zones to keep up with technological advancements so they can optimally utilize technology in the learning process (Dearing, 2021).

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The availability of budget also poses a challenge, considering that the procurement of technology requires significant costs. Without adequate funding, the implementation of technology will be hindered. In addition, students' ability to adapt to technology is also a significant challenge. Students need to be monitored to prevent them from misusing technology outside of the learning context. Strict supervision is necessary to ensure that technology is used wisely and in accordance with learning objectives. The implemented solutions involve monitoring access to technology as well as training for teachers to ensure that technology is used optimally in the learning process.

B. School Strategies for Implementing Digital Learning that Align with Islamic Educational Values and Principles

The integration of digital technology in the pesantren environment has become an important issue that requires a balance between technological advancement and religious values. In this discussion, various aspects related to the application of technology in Islamic boarding schools will be addressed, starting from school policies that regulate the use of technology in accordance with Islamic law, views on the importance of using technology to support moral and intellectual development, the role of teachers and parents in supervision, to the positive response of students towards technology. Each of these aspects illustrates the efforts of the pesantren in ensuring that technology is used wisely, responsibly, and in harmony with Islamic values.



1. School Policy

The use of technology in Islamic boarding schools is strictly monitored with clear regulations. This regulation includes a ban on accessing content that is not in accordance with Islamic law and restricts the use of technology at certain times. Technicians and teachers are responsible for monitoring the use of technology and imposing sanctions in case of violations. In addition, regular Islamic guidance helps students internalize Islamic values in their daily use of technology (Muttaqien et al., 2023). Devices like Chromebooks are used to facilitate supervision and ensure that technology is used safely and responsibly in accordance with Islamic principles.

2. Perspectives on the Use of Technology

This research emphasizes the importance of integrating digital technology while maintaining the values of faith and morality in Islamic-based schools, particularly in pesantren. Technology must be used wisely, with the aim of building strong character in students and fostering moral responsibility. The education of faith is an important foundation that helps students understand the proper use of technology in accordance with Islamic teachings (Ridwan, 2022). In addition, social control theory emphasizes the importance of regulation and oversight in the use of technology to remain focused on the intellectual, affective, and moral development of students (Hirschi & Gottfredson, 2000). With the presence of internal control and strong motivation, technology can support the holistic development of students without violating Islamic principles.

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3. Teacher and Parents Involvement

Collaboration between schools and parents is crucial in the implementation of digital technology. Parents play a significant role in educating their children to use technology wisely. Schools and parents must communicate effectively to ensure that technology is used positively to support the learning process (Cahyono, 2023). Parents also hope that schools will continue to uphold Islamic principles in the use of technology. Therefore, the school continues to provide clear guidance and policies to parents to support the implementation of technology that aligns with religious values.

4. Student Responses

The research results show that students respond positively to the integration of digital technology in Islamic boarding schools. Despite the challenges, the implementation of this technology remains in accordance with the principles of Islamic law. Students show a high interest in using technology to seek information, which is closely monitored by the school. This supervision is important to ensure that students use technology in accordance with educational objectives (Becker et al., 2020). Technology is expected to enhance students' interest in reading, literacy, and numeracy, as well as strengthen their motivation to learn.

Overall, despite the challenges in implementing technology in Islamic-based schools, the acceptance of technology remains high as it is accompanied by the aim of collective good and the strict application of Islamic values.

IV. CONCLUSION

This study concludes that the integration of digital technology in learning at pesantren schools has received positive responses from various stakeholders, including teachers, administrative staff, and students. Despite challenges in its implementation, the acceptance of this technology is driven by a shared goal for the common good and a commitment to adhering to the principles of Sharia law. The enthusiasm and eagerness to embrace technology are balanced by the awareness of the importance of understanding and applying Islamic values.

Additionally, students have shown great interest in technology, especially in the context of boarding schools, where they are given the freedom to access learning materials but remain under supervision to ensure safety and compliance with regulations. The use of digital technology is expected to increase students' interest in reading, literacy, and numeracy, aligning with educational theories that emphasize the importance of cultural context, social supervision, and motivation in the learning process.

Overall, this study demonstrates that the integration of digital technology in pesantren schools can be an effective tool in improving the quality of learning, as long as it remains grounded in Islamic values and is supported by adequate supervision.

REFERENCES

- 1) Ally, M. (2024). 1. Foundations of Educational Theory for Online Learning. In *The Theory and Practice of Online Learning*. <https://doi.org/10.15215/aupress/9781897425084.003>
- 2) Becker, S., Klein, P., Gößling, A., & Kuhn, J. (2020). Using mobile devices to enhance inquiry-based learning processes. *Learning and Instruction, 69*. <https://doi.org/10.1016/j.learninstruc.2020.101350>
- 3) Cahyono, B. (2023). PEMANFAATAN APLIKASI DIGITAL FLIPBOOK SEBAGAI MEDIA PEMBELAJARAN DI ERA TEKNOLOGI DIGITAL. *Jurnal Dharmabakti Nagri, 1*(2). <https://doi.org/10.58776/jdn.v1i2.26>
- 4) D., C. P., Vygotsky, L. S., Cole, M., John-Steiner, V., Scribner, S., Souberman, E., & Wertsch, J. V. (1979). L. S. Vygotsky: Mind in Society. The Development of Higher Psychological Processes. *The American Journal of Psychology, 92*(1). <https://doi.org/10.2307/1421493>
- 5) Dearing, J. W. (2021). Diffusion of Innovations. In *The Oxford Handbook of Organizational Change and Innovation*. <https://doi.org/10.1093/oxfordhb/9780198845973.013.23>
- 6) Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development, 47*(4). <https://doi.org/10.1007/BF02299597>
- 7) Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In *Handbook of blended learning: Global perspectives, local designs*.
- 8) Hew, K. F., & Brush, T. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology Research and Development, 55*(3). <https://doi.org/10.1007/s11423-006-9022-5>
- 9) Hirschi, T., & Gottfredson, M. R. (2000). In Defense of Self-Control. *Theoretical Criminology, 4*(1). <https://doi.org/10.1177/1362480600004001003>
- 10) Muiz, A. (2023). Pesantren in the Digital Era: Looking for the Chances and the Challenges. *At-Tarbawi: Jurnal Kajian Kependidikan Islam, 8*(1). <https://doi.org/10.22515/attarbawi.v8i1.6246>
- 11) Muttaqien, I. Z., Maryati, M., & Permana, H. (2023). Strategi Pengelolaan Kinerja Tenaga Kependidikan Dalam Menghadapi Era Digitalisasi Pada Lembaga Pendidikan Islam. *Innovative: Journal Of Social Science Research, 3*(3).

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- 12) Muzadi, A., & Mutholingah, S. (2019). INTEGRASI PENDIDIKAN BERWAWASAN LINGKUNGAN HIDUP (GREEN SCHOOL) MELALUI PEMBELAJARAN PAI DI SEKOLAH. *Journal TA'LIMUNA*, 8(2).
<https://doi.org/10.32478/talimuna.v8i2.292>
- 13) Ridwan, R. (2022). Integrasi Teknologi Digital dalam Pembelajaran Pendidikan Agama Islam di Era Industri 4.0. *Proceedings Series on Social Sciences & Humanities*, 4. <https://doi.org/10.30595/pssh.v4i.287>
- 14) Shodikun, Shodikun; Zaduqisti, Esti; Subhi, M. R. (2023). Implementasi Pembelajaran Humanisme Dalam Pembelajaran Pendidikan Agama Islam Di Era Modern. *Muaddib: Jurnal Pendidikan Agama Islam*, 1(1).
- 15) Sumarmi, Wahyuningtyas, N., Sahrina, A., & Aliman, M. (2022). The Effect of Environmental Volunteer Integrated with Service Learning (EV_SL) to Improve Student's Environment Care Attitudes and Soft Skills. *Pegem Egitim ve Ogretim Dergisi*, 12(1). <https://doi.org/10.47750/pegegog.12.01.16>
- 16) Thomas, John, W. (2021). A REVIEW OF RESEARCH ON PROJECT-BASED LEARNING John. *International Geology Review*, 63(1).