

Utilization of Digital Technology in Educational Administration and Communication in Islamic Elementary Schools

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Abstract:

This study aims to analyze the optimization of digital technology utilization in educational administration and communication at Madrasah Ibtidaiyah Nurul Istiqomah Al-Musri, West Lampung. This research employs a qualitative case study approach, with data collected through observation, in-depth interviews, and documentation, and analyzed using the Miles and Huberman interactive model. The findings show that digital technology has been utilized in student data management, financial administration, learning administration, communication with parents, and document archiving; however, its implementation remains partial and not yet integrated, indicating a transitional phase toward digital-based systems. Supporting factors include leadership, availability of devices, and awareness of technology importance, while inhibiting factors involve limited human resource competencies, inadequate infrastructure, resistance to change, and lack of training. Optimization efforts have been carried out through motivation, self-learning, and gradual provision of facilities, but they remain unstructured and require strengthening through integrated systems, continuous training, and improved infrastructure. This study contributes to the development of digital-based Islamic education management at the elementary level.

Abstrak:

Penelitian ini bertujuan untuk menganalisis optimalisasi pemanfaatan teknologi digital dalam administrasi dan komunikasi pendidikan di Madrasah Ibtidaiyah Nurul Istiqomah Al-Musri Lampung Barat. Penelitian menggunakan pendekatan kualitatif dengan studi kasus, dengan teknik pengumpulan data melalui observasi, wawancara mendalam, dan dokumentasi, serta dianalisis menggunakan model interaktif Miles dan Huberman. Hasil penelitian menunjukkan bahwa pemanfaatan teknologi digital telah diterapkan dalam pengelolaan data siswa, administrasi keuangan, administrasi pembelajaran, komunikasi dengan orang tua, dan pengarsipan dokumen, namun masih bersifat parsial dan belum terintegrasi sehingga menunjukkan adanya fase transisi menuju sistem digital. Faktor pendukung meliputi kepemimpinan, ketersediaan perangkat, dan kesadaran akan pentingnya teknologi, sedangkan faktor penghambat meliputi keterbatasan kompetensi sumber daya manusia, sarana prasarana, resistensi terhadap perubahan, dan kurangnya pelatihan. Upaya optimalisasi dilakukan melalui motivasi, pembelajaran mandiri, dan pengadaan sarana secara bertahap, namun masih belum terstruktur sehingga memerlukan penguatan melalui pengembangan sistem terintegrasi, pelatihan berkelanjutan, dan peningkatan infrastruktur. Penelitian ini berkontribusi pada pengembangan manajemen pendidikan Islam berbasis teknologi digital pada tingkat madrasah ibtidaiyah.

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INTRODUCTION

The development of information and communication technology in the digital era has brought significant changes in various aspects of life, including education. Digital transformation not only affects the learning process in the classroom but also impacts educational administration and communication systems, which demand speed, accuracy, and transparency. Educational administration, which was previously carried out manually, is now shifting toward technology-based systems that are more effective, efficient, and accountable. In the context of Islamic education, particularly at the Islamic elementary school (Madrasah Ibtidaiyah) level, the utilization of digital technology has become a strategic necessity to improve the quality of educational services while strengthening institutional competitiveness in the global era (Yahya 2025).

In the contemporary digital landscape, the integration of technology in education is no longer optional but has become an essential component in ensuring institutional effectiveness and sustainability. Rapid advancements in digital tools, data systems, and communication platforms have reshaped how educational institutions operate, manage information, and interact with stakeholders. This transformation requires schools, including Islamic elementary institutions, to adapt not only in terms of infrastructure but also in organizational culture and human resource readiness (Selwyn 2022; Fullan 2023).

Madrasahs, as Islamic educational institutions, play an important role in shaping generations who excel academically and possess strong religious character. Therefore, the management of educational administration and communication must be conducted professionally and adaptively in response to current developments (Rumra and Usman 2025). Educational administration includes the management of student data, personnel, curriculum, facilities and infrastructure, and finances. If these processes are still carried out manually, various problems may arise, such as delays in data processing, recording errors, and low transparency (Prihatini et al. 2022). In this regard, digital technology functions not only as an administrative tool but also as a communication medium that connects schools with teachers, students, and parents more effectively. This is in line with the demands of the Industrial Revolution 4.0, which emphasizes digitalization across various sectors, including education (Norman et al. 2024).

Furthermore, the growing expectations from society regarding transparency, accountability, and service quality have intensified the need for modern administrative systems. Parents and communities increasingly demand fast and accurate access to information related to students' academic progress, school programs, and financial matters. In this regard, digital technology serves as a bridge that connects educational institutions with stakeholders in a more responsive and interactive manner (UNESCO 2023; OECD 2024).

However, the implementation of digital technology in educational administration and communication in Madrasah Ibtidaiyah still faces various challenges. Limited human resources with adequate technological competence, insufficient facilities and infrastructure, and resistance to change are major obstacles in the digital transformation process. These conditions indicate that the utilization of technology has not yet been optimal and still requires appropriate strategies to maximize its impact on the effectiveness of educational administration and communication management.

In addition, the shift toward digitalization in education aligns with global trends emphasizing data-driven decision-making. Educational administrators are now expected to utilize digital data not only for record-keeping but also for planning, evaluation, and policy formulation. Therefore, optimizing the use of digital technology in administration and communication is a strategic step toward improving institutional performance and educational outcomes in a sustainable way (Prinsloo and Slade 2022; World Bank 2023).

Madrasah Ibtidaiyah Nurul Istiqomah Al-Musri in West Lampung, as one of the Islamic elementary education institutions, also experiences these dynamics. Based on initial observations during internship activities, it was found that the madrasah has utilized digital technology in several administrative aspects, such as student data processing and financial management, as well as in communication through digital media. However, this utilization remains partial and not yet optimally integrated. Some administrative processes are still carried out manually, and digital communication has not been fully utilized as an effective interaction medium between the madrasah and parents. This condition indicates a gap between the potential of digital technology and its practical implementation in the field.

Several previous studies have examined the use of technology in educational administration. Research by (Nugraha and Rochimat, n.d.) shows that education management information systems can improve the efficiency of school administration and financial transparency. (Nurhidayanti 2025) found that information technology has a positive effect on the performance of administrative staff, although it is constrained by a lack of training. Furthermore, (Adelia et al. 2025) revealed that administrative digitalization can enhance the effectiveness of archiving and internal communication, although infrastructure disparities between regions still exist. Other studies emphasize the important role of school leadership in encouraging technology implementation, where the digital vision of leaders significantly determines the success of technology integration (Rosmini et al. 2024). In addition, (Rismawati et al., n.d.) indicate that online-based technology can improve service quality for students and parents, although it requires organizational readiness.

Despite these contributions, there are still research gaps that need further exploration. Most previous studies focus on general schools, while research on

Madrasah Ibtidaiyah remains limited. Moreover, earlier studies tend to emphasize effectiveness and outcomes, with limited attention to the implementation process and optimization strategies in contexts with resource constraints. Field-based studies are also relatively scarce, even though such approaches are crucial for understanding real conditions and dynamics within educational institutions.

Based on these considerations, this study offers novelty by examining the optimization of digital technology utilization in educational administration and communication contextually in Madrasah Ibtidaiyah. This study not only highlights the benefits of technology but also analyzes the implementation process, challenges encountered, and strategies employed to optimize its use. Therefore, this research has significant urgency in contributing to the development of technology-based Islamic education management.

The objectives of this study are to describe the utilization of digital technology in educational administration and communication in Madrasah Ibtidaiyah, identify supporting and inhibiting factors, and analyze efforts made to optimize its use. This research is expected to contribute theoretically by enriching the study of technology-based Islamic education management, and practically by providing insights for educational institutions in improving the quality of administrative and communication practices in the digital era.

RESEARCH METHOD

This study employs a qualitative approach with a descriptive case study design to examine in depth the optimization of digital technology utilization in educational administration and communication at Madrasah Ibtidaiyah. This approach was chosen because it enables a contextual understanding of phenomena based on real conditions in the field, particularly regarding the implementation process, challenges, and optimization strategies carried out by the madrasah. The case study is focused on a single research site, namely Madrasah Ibtidaiyah Nurul Istiqomah Al-Musri, West Lampung, allowing the researcher to obtain a comprehensive and in-depth understanding of technology-based administrative and communication practices (Suharti, n.d.).

The research subjects include individuals involved in managing educational administration and communication, namely the head of the madrasah, administrative staff, teachers, and other supporting personnel such as school operators. Informants were selected using purposive sampling based on their relevance to the research focus (Himam and Anam 2026). The data consist of primary data obtained through observation and in-depth interviews, as well as secondary data in the form of administrative documents, digital archives, and school reports (Jannah et al., n.d.). Data collection techniques include observation of technology use in administration and communication, interviews to explore experiences and challenges, and documentation as supporting data (Hidayat et al. 2020). Data validity was ensured through triangulation of sources, techniques, and

time to maintain consistency and accuracy (Susanto et al. 2023).

Data analysis was conducted using the interactive model of Miles and Huberman, which includes data reduction, data display, and conclusion drawing and verification carried out continuously (Nurrisa and Hermina 2025). Data reduction was performed by focusing on key themes such as forms of digital technology utilization, supporting and inhibiting factors, and optimization efforts. The data were then presented in descriptive narrative form to facilitate understanding and analysis of relationships among findings. Conclusions were drawn gradually and verified to ensure validity. The research procedure consisted of preparation, implementation, analysis, and reporting stages. Through this method, the study is expected to provide a comprehensive understanding of the optimization of digital technology utilization in educational administration and communication in Madrasah Ibtidaiyah.

RESULTS AND DISCUSSION

Utilization of Digital Technology in Educational Administration and Communication

The findings indicate that the utilization of digital technology in educational administration and communication at this madrasah has begun to be implemented, although it is not yet fully optimal. In administrative aspects, technology is used in student data management through computers and simple applications such as Microsoft Excel. The use of these applications facilitates more systematic data storage, processing, and updating compared to manual methods. In addition, in financial administration, the madrasah has begun to use technology to record income and expenditures, thereby increasing transparency, although manual recording is still maintained as a backup.

In learning administration, teachers have utilized technology in preparing instructional documents such as lesson plans, syllabi, and student progress reports. Some teachers have also begun using digital media in classroom administration, such as online assignment submission. Meanwhile, in educational communication, technology is used through instant messaging applications such as WhatsApp as a communication medium between the madrasah and parents. This facilitates faster, more flexible, and efficient information delivery. Furthermore, some administrative documents have been archived digitally, making retrieval easier and reducing the risk of document loss.

However, the findings also reveal that the use of digital technology remains partial and has not yet been integrated into a comprehensive educational management system. As a result, its effectiveness is not fully maximized and still depends largely on individual initiatives.

These findings are consistent with (Nugraha and Rochimat, n.d.) who state that the use of technology in educational administration can improve efficiency in data management and reporting. Similarly, (Yahya, 2025) emphasizes that

technology enhances the quality of educational services, particularly in communication with parents. However, the lack of integration is also in line with (Hidayat, 2021) who notes that administrative digitalization in madrasahs often remains incomplete, especially in institutions with limited infrastructure.

Thus, it can be concluded that the utilization of digital technology in this madrasah is still at an early stage of digitalization and requires further development toward a more integrated system to support the overall effectiveness of educational administration and communication.

In addition, the findings indicate that the current pattern of technology utilization reflects a transitional phase from conventional to digital-based administration (Hidayat et al., 2020). This condition shows that the madrasah has begun to adapt to technological developments, although the transformation has not yet been carried out systematically. The reliance on simple applications and non-integrated platforms suggests that digital adoption is still oriented toward practical needs rather than strategic management (Adelia et al., 2025). Therefore, more structured efforts are needed, such as the development of an integrated educational management information system, strengthening human resource competencies through continuous training, and establishing clear operational standards. Through these measures, digital technology is expected to function not only as a supporting tool but also as a core system that enhances efficiency, transparency, and effectiveness in educational administration and communication (Norman et al., 2024).

Supporting and Inhibiting Factors in the Utilization of Digital Technology

The findings show that the success of digital technology utilization in educational administration and communication is influenced by various supporting and inhibiting factors. The primary supporting factor is the encouragement from the head of the madrasah to adopt technology in administrative activities. Such leadership plays a crucial role in creating an environment that is adaptive to change. In addition, the availability of basic devices such as computers and smartphones facilitates the implementation of technology. Teachers with basic technological skills also serve as initial capital in the digitalization process.

Another supporting factor is the awareness among madrasah stakeholders of the importance of efficiency and effectiveness in managing educational administration and communication. This awareness drives efforts to adapt to technological developments despite existing limitations.

However, several significant inhibiting factors were identified. Limited human resources with advanced technological competence constitute a major obstacle in developing more complex digital systems. In addition, inadequate facilities and infrastructure, such as a limited number of computers and unstable internet access, hinder the optimization of technology use.

The absence of an integrated technology-based administrative system results in sporadic and uncoordinated technology use. Furthermore, resistance from some educators who are accustomed to manual methods poses a challenge to digital transformation. The lack of training and technical support further exacerbates these constraints.

These findings align with (Rosmini et al. 2024) who highlight the critical role of school leadership in driving technological innovation. Similarly, (Rumra and Usman, 2025) identify limited technological competence and insufficient training as major barriers to technology implementation in educational administration.

Additionally, resistance to change indicates that digital transformation is not merely a technical issue but also a matter of organizational culture. This underscores that successful implementation requires changes in mindset and the readiness of all institutional members.

Therefore, the supporting and inhibiting factors identified in this study suggest that optimizing digital technology utilization requires a comprehensive approach, encompassing not only technological aspects but also human resources, leadership, and organizational culture.

Furthermore, the interaction between supporting and inhibiting factors demonstrates that the success of digital transformation is highly dependent on the balance between internal readiness and external support (Rosmini et al., 2024). Leadership commitment and stakeholder awareness can act as driving forces, but without adequate infrastructure and continuous capacity building, the implementation process will remain constrained (Rumra dan Usman, 2025). This indicates the need for a strategic and sustainable approach that integrates policy support, institutional planning, and ongoing professional development. By strengthening these aspects simultaneously, educational institutions can minimize barriers and maximize the potential of digital technology utilization in a more effective and systematic manner.

Efforts to Optimize the Utilization of Digital Technology

The findings show that the madrasah has undertaken various efforts to optimize the use of digital technology in educational administration and communication. One of these efforts is motivating teachers and administrative staff to begin utilizing technology in their daily tasks, aiming to increase awareness and readiness for digital transformation.

In addition, educators and administrative staff engage in self-directed learning to improve their skills in using administrative applications, such as data processing and digital document management. The madrasah also gradually provides supporting facilities based on its available resources. Moreover, enhancing communication and coordination among stakeholders in the use of technology has become an important step to ensure more effective implementation. Nevertheless, these efforts are still in the early stages and have not yet been systematically

structured. Therefore, more strategic and planned actions are required, such as continuous training programs, the development of an integrated educational management information system, and improved technological infrastructure.

These findings indicate that optimizing digital technology utilization depends not only on the availability of devices but also on the readiness of human resources and supporting systems. This is consistent with the concept of innovation in educational management, which emphasizes the integration of technology, human resources, and systems to improve the quality of educational services (Rumra and Usman, 2025). Overall, the results show that the use of digital technology in educational administration and communication at Madrasah Ibtidaiyah Nurul Istiqomah Al-Musri, West Lampung, has been implemented but is not yet optimal. Its use remains limited to certain aspects and has not been fully integrated into a comprehensive management system.

This study also confirms that the success of technology utilization is influenced by both internal and external factors. Leadership support, availability of devices, and awareness of the importance of technology are key supporting factors. Meanwhile, limitations in human resources, infrastructure, and resistance to change remain major obstacles. The optimization efforts undertaken reflect an awareness of the need for improvement but still require strengthening in planning, training, and system integration. Therefore, synergy among leadership, educators, policy support, and infrastructure is essential to achieve more effective and sustainable technology-based educational administration and communication.

In conclusion, this study contributes to enriching the discourse on Islamic educational management, particularly in the field of digital technology-based administration and communication, and provides empirical insights that can serve as a basis for future educational policy and practice development.

Furthermore, the optimization efforts identified in this study highlight the importance of a long-term strategic framework in implementing digital transformation within educational institutions. Incremental and unstructured initiatives, although beneficial at the initial stage, need to be followed by systematic planning that includes clear roadmaps, performance indicators, and continuous evaluation mechanisms. In this context, institutional commitment to fostering a culture of innovation and lifelong learning becomes essential to ensure sustainability (Adelia et al., 2025). Therefore, strengthening policy alignment, improving technological infrastructure, and enhancing professional development programs are critical steps to ensure that digital technology utilization can be optimized in a more integrated, effective, and sustainable manner.

CONCLUSION

Based on the research findings, it can be concluded that the utilization of digital technology in educational administration and communication at Madrasah Ibtidaiyah Nurul Istiqomah Al-Musri, West Lampung, has been implemented but

remains partial and not yet optimally integrated. Technology has been utilized in student data management, financial administration, learning administration, and communication with parents; however, its use is still limited to certain aspects and has not developed into a comprehensive and integrated educational management system. These findings indicate that the madrasah is currently in a transitional phase from conventional administration toward digital-based systems.

The success of technology utilization is influenced by several supporting factors, including the leadership of the madrasah head, the availability of basic technological devices, and stakeholders' awareness of the importance of digitalization. On the other hand, inhibiting factors include limited human resource competencies, inadequate infrastructure, resistance to change, and the lack of structured training and technical support. These factors show that digital transformation is not only a technical process but also involves organizational readiness and cultural adaptation.

Efforts to optimize technology utilization have been carried out through motivation, self-directed learning, and gradual provision of facilities. However, these efforts are still relatively unstructured and need to be strengthened through more strategic and systematic approaches. Therefore, optimizing the use of digital technology requires the development of an integrated educational management information system, continuous professional development, and improved technological infrastructure. In addition, a long-term strategic framework, including clear planning, implementation, and evaluation mechanisms, is essential to ensure sustainable and effective digital transformation in educational administration and communication.

REFERENCES

- Adelia, Nabila, Amin Ikhlasul Amal, and Hasfi Fiqri Hidayah. 2025. "Peran Manajemen Perkantoran dalam Meningkatkan Kualitas Pelayanan Administrasi." *Jurnal Budi Pekerti Agama Islam* 3 (3): 181–92. <https://doi.org/10.61132/jbpai.v3i3.1178>.
- Fullan, Michael. 2023. *The New Meaning of Educational Change*. 6th ed. New York: Teachers College Press.
- Hidayat, Wahyu, Jaja Jahari, and Chika Nurul Shyfa. 2020. "Manajemen Kelas Dalam Meningkatkan Proses Pembelajaran Di Madrasah." *Jurnal Pendidikan UNIGA* 14 (1): 308. <https://doi.org/10.52434/jp.v14i1.913>.
- Himam, Muh Khusnul, and Saeful Anam. 2026. *TEKNIK PEMILIHAN INFORMAN DALAM PENELITIAN KUALITATIF: STRATEGI DAN IMPLEMENTASI*. 5.
- Jannah, Miftahul, Endang Erawan, and H. Burhanuddin. n.d. *IMPLEMENTASI PROGRAM PENERIMAAN PESERTA DIDIK BARU (PPDB) ONLINE DI SMP NEGERI 21 SAMARINDA*. 8 (21).
- Norman, Efrita, Arman Paramansyah, Enah Pahlawati, and Imail Mutaqim. 2024. "PENGUATAN SISTEM MANAJEMEN BERBASIS TEKNOLOGI DI PESANTREN

- UNTUK MENINGKATKAN KUALITAS LAYANAN PENDIDIKAN." *Pandalungan: Jurnal Pengabdian kepada Masyarakat* 3 (1): 176–82. <https://doi.org/10.62097/pandalungan.v3i1.1928>.
- Nugraha, Mulyawan Safwandy, and Hendi Rochimat. n.d. *Efektivitas Penerapan Sistem Informasi Manajemen Pendidikan Berbasis Cloud dalam Meningkatkan Efisiensi Administrasi Sekolah Menengah*.
- Nurhidayanti, Mimi. 2025. *Implementasi Sistem Informasi Manajemen Pendidikan dalam Optimalisasi Administrasi Sekolah*. 1 (1).
- Nurrisa, Fahriana, and Dina Hermina. 2025. *Pendekatan Kualitatif dalam Penelitian: Strategi, Tahapan, dan Analisis Data*. 02 (03).
- OECD. 2024. *Digital Education Outlook 2024: Towards Smart and Inclusive Education Systems*. Paris: OECD Publishing.
- Prihatini, Prihatini, Ratna Tiara Sari, Fina Puspa Effendi, and Visna Leviana Revika Adhani. 2022. "Pengaruh Sarana Prasarana Terhadap Pengembangan Mutu Pendidikan di Sekolah Dasar." *Aulad: Journal on Early Childhood* 4 (3): 256–63. <https://doi.org/10.31004/aulad.v4i3.224>.
- Prinsloo, Paul, and Sharon Slade. 2022. "Ethical Considerations in Learning Analytics: A Review of the Literature." *British Journal of Educational Technology* 53 (1): 1–17.
- Rismawati, Riris, Tatang Ibrahim, Ika Kartika, and Opan Arifudin. n.d. *PERAN SISTEM INFORMASI DALAM MENINGKATKAN MUTU LAYANAN PENDIDIKAN*.
- Rosmini, Heriyanita, Ningsih Ningsih, Murni Murni, and Adiyono Adiyono. 2024. "Transformasi Kepemimpinan Kepala Sekolah pada Era Digital: Strategi Administrasi Pendidikan Berbasis Teknologi di Sekolah Menengah Pertama." *Konstruktivisme: Jurnal Pendidikan dan Pembelajaran* 16 (1): 165–80. <https://doi.org/10.35457/konstruk.v16i1.3451>.
- Rumra, Muhammad Jusman Rivay, and Syahrudin Usman. 2025. "MADRASAH DALAM PUSARAN TANTANGAN ZAMAN: UPAYA STRATEGIS MEMPERKUAT INSTITUSI PENDIDIKAN ISLAM." *Journal of Education Science* 4 (2).
- Selwyn, Neil. 2022. *Education and Technology: Key Issues and Debates*. 3rd ed. London: Bloomsbury Academic.
- Suharti, Tri. n.d. *Penerapan Sistem Informasi Manajemen sebagai Upaya Modernisasi Administrasi Pendidikan di Madrasah*.
- Susanto, Dedi, Risnita, and M. Syahrani Jailani. 2023. "Teknik Pemeriksaan Keabsahan Data Dalam Penelitian Ilmiah." *Jurnal QOSIM Jurnal Pendidikan Sosial & Humaniora* 1 (1): 53–61. <https://doi.org/10.61104/jq.v1i1.60>.
- UNESCO. 2023. *Global Education Monitoring Report 2023: Technology in Education—A Tool on Whose Terms?* Paris: UNESCO Publishing.
- World Bank. 2023. *Digital Transformation in Education: Systems, Policies, and Global Challenges*. Washington, DC: World Bank Publications.

Yahya, Sofyan. 2025. *Transformasi Digital dalam Manajemen Pendidikan Islam: Studi Kasus pada Madrasah Berbasis Teknologi di Era Society 5.0*. 01 (03).