

Management of the Academic Digitalization Program at MA Negeri 2 Pati

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Abstract: This study aims to describe the management of the academic digitalization program at MA Negeri 2 Pati. The focus of the study includes planning, organizing, actuating, and controlling of academic digitalization as a strategic effort to improve the effectiveness, efficiency, and quality of academic services in the context of digital-based school management. This study employed a qualitative approach with a phenomenological design. Data were collected through in-depth interviews, observations, and document analysis. The informants consisted of the principal, vice principal for curriculum, and members of the school digitalization team. Data were analyzed using interactive analysis techniques, including data reduction, data display, and conclusion drawing, supported by triangulation. The findings indicate that the academic digitalization program at MA Negeri 2 Pati has been implemented in a planned and integrated manner. Program planning aligns with the school's vision, organizing is conducted through a dedicated digitalization team, implementation utilizes integrated digital academic systems, and supervision is carried out through regular evaluation to ensure program sustainability. This study can be applied in the fields of educational management, school leadership, and digital transformation in education. The findings are useful for schools and madrasahs as practical references in managing academic digitalization programs to improve academic services, learning processes, and institutional governance in the digital era. The novelty of this study lies in its comprehensive focus on the management of academic digitalization programs from a school management perspective within a madrasah context. This study extends existing research by emphasizing managerial functions as key determinants of successful academic digitalization at the institutional level.

Keywords: *Academic digitalization, School management, Madrasah*

A. Introduction

School digitalization is one of the strategic agendas in educational development in the era of the Industrial Revolution 4.0 and Society 5.0 (UNESCO, 2020). Digital transformation in education is viewed as an effort to improve the quality of educational services through the integrated use of digital technologies, both in learning processes, academic administration, and school management (Sutarsih et al., 2024). This transformation requires schools to adapt to technological developments in a systematic and sustainable manner. The rapid advancement of digital technology has shifted the paradigm of

educational implementation. Technologies that previously functioned merely as supporting tools have now become an integral part of learning processes and academic management. The use of Learning Management Systems (LMS), electronic assessment systems, and application-based academic services enables educational processes to be more flexible, efficient, and well-documented (Firmansyah et al., 2023).

In the context of learning, school digitalization encourages a shift in pedagogical approaches from teacher-centered to student-centered learning (Novita Sari & Miyono, 2023). Digital-based learning allows students to access more diverse learning resources, collaborate online, and develop critical thinking skills and digital literacy (Inayah et al., 2021). In this context, teachers are no longer positioned as the sole source of knowledge, but rather as facilitators in the learning process.

Several studies indicate that the implementation of school digitalization contributes positively to improving the quality of learning and academic services. Digital-based academic systems enhance the effectiveness of grade management and student learning outcome reporting (Adila & Rodiyah, 2024). Other studies also reveal that digital learning can increase students' learning motivation and teachers' involvement in instructional innovation (Nugroho & Suryadi, 2020). In addition to its impact on learning, school digitalization plays a significant role in managing academic services. Digital-based academic information systems enable real-time and integrated management of student data, attendance, and academic communication. This digitalization supports transparency and accountability in academic services at schools (Komariah & Rosdiana, 2023).

Nevertheless, the implementation of school digitalization still faces various challenges at the institutional level. Differences in teachers' digital competencies, limitations in system management, and the lack of optimal integration among digital platforms often become major obstacles in digitalization efforts (Pradana & Pratama, 2022). As a result, digitalization is frequently implemented partially and has not yet produced maximum impact on the quality of academic services.

These conditions indicate that the success of school digitalization is not solely determined by the availability of technology, but largely depends on the quality of school management (Muvid, 2024). School management plays a strategic role in formulating digitalization policies, designing program plans, organizing human resources, and conducting supervision and evaluation of program implementation (Alam, 2023).

In practice, school digitalization is still often understood merely as the use of technology as a supporting tool for learning and administration. In fact, sustainable digitalization requires well-planned and integrated program management within the school management system. Without clear management, the utilization of technology risks being misaligned with the school's vision and objectives (Astuti et al., 2026).

Despite the growing body of research on school digitalization, significant gaps remain in the way academic digitalization is conceptually framed. Previous studies largely examine digitalization from pedagogical and technological perspectives, emphasizing improvements in learning effectiveness, student engagement, and digital literacy readiness (Adila & Rodiyah, 2024; Nugroho & Suryadi, 2020; Pradana & Pratama, 2022).

Other studies highlight infrastructure support and system usability as key determinants of successful implementation (Sutarsih et al., 2024). While these contributions are valuable, they primarily position digitalization as a classroom-level instructional innovation or a technical intervention. Consequently, digitalization is often discussed in terms of tools and outcomes rather than as an institutional transformation process embedded within school governance structures.

At the institutional level, (Ilyas et al., 2025) examine digital transformation from the perspective of educational management innovation, emphasizing leadership roles, strategic direction, and institutional readiness in adapting to digital change. Their study underlines the importance of visionary leadership and adaptive policy frameworks but does not systematically analyze how digital initiatives are operationalized through concrete management functions. Similarly, (Jarkawi & Fajar Budi Hartanto, 2025) explore the relationship between digital transformation and school quality, highlighting innovation capacity and organizational responsiveness as key factors. However, their analysis remains focused on outcomes and institutional performance indicators rather than on the structured managerial processes that sustain digital programs. In contrast, (Muvid, 2024) discusses digitalization within the broader discourse of Islamic educational reform, stressing policy orientation and modernization efforts. Although this perspective enriches the contextual understanding of digital reform, it does not explicitly integrate classical management functions as an analytical framework for examining program governance.

Although these perspectives broaden the discussion beyond classroom practices, they tend to emphasize technological implementation and policy adoption without systematically analyzing the managerial mechanisms that ensure sustainability. The management functions of planning, organizing, actuating, and controlling are rarely used as analytical lenses in examining academic digitalization programs. This omission creates a conceptual limitation in the literature: technological adoption is extensively examined, yet governance processes, strategic coordination, and management integration remain underexplored.

This limitation becomes more pronounced in the context of Indonesian madrasahs. As Islamic secondary educational institutions operating within distinctive regulatory and cultural frameworks, madrasahs face unique organizational dynamics in implementing digital transformation. Although studies have begun to examine digitalization within Islamic educational settings (Mania et al., 2025), comprehensive analyses that explicitly integrate classical management theory with academic digitalization practices remain limited. Consequently, there is insufficient empirical understanding of how digitalization is institutionalized as part of structured managerial processes rather than as isolated technological initiatives.

Responding to these gaps, the present study repositions academic digitalization as a managerial governance process grounded in classical management functions, planning, organizing, actuating, and controlling. Instead of examining digitalization merely as a technological tool or pedagogical strategy, this research analyzes how digital initiatives are systematically designed, structurally embedded, operationally executed, and continuously supervised within the organizational framework of MA Negeri 2 Pati. By

doing so, this study shifts the analytical focus from technological outcomes to governance processes, thereby strengthening the conceptual foundation of academic digitalization research within the field of educational management.

Addressing these limitations, this study repositions academic digitalization as a structured managerial governance process rather than merely a technological or pedagogical initiative. By analyzing the academic digitalization program at MA Negeri 2 Pati through the framework of management functions, this research shifts the analytical focus from technological outcomes to organizational processes. The novelty of this study lies in its theoretical integration of classical management functions with contemporary digital transformation practices in a madrasah context. Through this analytical approach, the study contributes to strengthening the conceptual foundation of academic digitalization research by demonstrating that managerial integration is a decisive factor in ensuring sustainability, institutional alignment, and educational quality improvement.

Based on the above description, this study aims to describe the management of the academic digitalization program at MA Negeri 2 Pati, covering aspects of planning, organizing, implementation, as well as supervision and evaluation. Therefore, this study is expected to contribute both theoretically and practically to the development of digital-based educational management.

B. Methods

This study employed a qualitative approach with a phenomenological design. The phenomenological approach was used to gain an in-depth understanding of the experiences and meanings attributed by informants to the implementation of the academic digitalization program in the school. Through this approach, the researcher sought to explore the experiences of the research subjects as they were directly lived, without imposing prior assumptions (Hadi et al., 2021). The study was conducted at MA Negeri 2 Pati over a four month period, from October 2025 to Januari 2026. MA Negeri 2 Pati is a public madrasah that has implemented an integrated academic digitalization program in the management of learning and academic services.

The population of the study consisted of 74 teachers at MA Negeri 2 Pati. However, these teachers were not all treated as primary informants. Instead, they represent the broader organizational context within which the digitalization program operates. The primary data sources were selected through purposive sampling based on direct involvement and strategic roles in managing the academic digitalization program. Five key informants were identified: the principal, the vice principal for curriculum affairs, and three members of the school digitalization management team. These individuals were selected because they are directly responsible for planning, organizing, implementing, and supervising the digitalization program at the institutional level.

Data were collected through in-depth semi-structured interviews, non-participant observations, and document analysis. Interviews were conducted to explore managerial strategies, coordination mechanisms, decision-making processes, and supervisory practices related to academic digitalization. Observations focused on digital system utilization, coordination meetings, and academic service processes. Document analysis

included official decrees establishing the digitalization team (SK Tim), the School Work and Budget Plan (RKAM), policy documents, digital implementation guidelines, and evaluation reports. The inclusion of these official documents strengthened the credibility of institutional data.

Data analysis followed an interactive qualitative analysis model involving data reduction, data display, and conclusion drawing. Emerging themes were continuously compared across data sources to ensure analytical consistency. To ensure trustworthiness, several validation procedures were applied. Source triangulation was conducted by comparing data from different informants. Technique triangulation was implemented through the integration of interviews, observations, and documentation. Member checking was carried out by returning summarized interview interpretations to the informants to confirm accuracy and prevent misinterpretation. In addition, an audit trail was maintained through systematic documentation of research procedures, analytical steps, and decision-making processes throughout the study period.

C. Results and Discussion

School Management in the Implementation of Academic Digitalization

School digitalization is a strategic policy promoted by the Ministry of Education and Culture of Indonesia as part of national educational transformation initiatives. Digitalization is not merely understood as the use of technological devices, but as a systemic transformation of learning processes and school management that emphasizes student-centered learning, multimedia utilization, collaborative work, and the development of critical thinking skills (Inayah et al., 2021). The findings of this study indicate that the implementation of academic digitalization at MA Negeri 2 Pati is managed in a planned and integrated manner through the core functions of school management.

School management plays a central role in mobilizing all resources to ensure the effective implementation of academic digitalization. Management consisting of four fundamental functions: planning, organizing, actuating, and controlling (Terry, 2019). These four functions serve as the conceptual framework guiding the management of academic digitalization at MA Negeri 2 Pati.

In the planning stage, the findings indicate that academic digitalization at MA Negeri 2 Pati was not initiated as a spontaneous technological adoption but as a strategically planned institutional program. Digitalization was formally integrated into the School Work and Budget Plan (RKAM) and supported by official decrees establishing a digitalization management team. The principal emphasized that digitalization was positioned as a long-term governance strategy rather than a short-term innovation: "Digitalization is not merely about using technology in class. It is about how we systematically manage academic services so they are more structured, transparent, and accountable." (Principal)

This statement reflects a shift from technological determinism toward governance-oriented digital transformation. Planning in this context extends beyond preparing digital tools; it involves aligning institutional vision, budgeting priorities, infrastructure

readiness, and human resource development. From a classical management perspective, this reflects the planning function as strategic direction-setting. However, analytically, the findings show that planning also embodies elements of adaptive leadership, where digitalization is framed as part of institutional reform rather than technical modernization. Well-structured planning is essential to ensure that digitalization initiatives do not operate in a fragmented manner but are aligned with long-term institutional goals and sustainability (Hassan & Noor, 2020).

The organizing function is realized in the formation of a dedicated digitalization team with clearly defined roles and responsibilities. The vice principal for curriculum affairs explained: "We formed a specific team so digitalization would not depend on one person. Each member has responsibilities, from system management to teacher assistance." (Vice Principal for Curriculum). This indicates structural institutionalization of digital initiatives. Rather than informal coordination, the school embedded digitalization within its organizational structure.

The presence of formal documentation (SK Tim, job descriptions, and coordination schedules) demonstrates that digital transformation has moved beyond experimental adoption toward bureaucratic integration. The establishment of a madrasah digitalization team involving the principal, vice principal for curriculum affairs, system operators, and teachers. Clear task distribution and role definition enable effective coordination among stakeholders and support the integration of digital systems across academic services. Effective organization enhances cross-functional collaboration and strengthens institutional capacity to manage digital transformation (Hasibuan, 2019).

At the actuating stage, teachers and educational staff utilize various digital platforms to support academic activities, including online learning management, digital attendance systems, electronic assessment, and academic reporting. One digitalization team member stated: "At the beginning, some teachers were hesitant. But after training and continuous assistance, digital systems became part of daily academic routines." (Digitalization Team Member)

This reflects that implementation was not merely technical execution but also cultural adaptation. Actuating here involves facilitating teacher readiness, providing technical support, and ensuring gradual behavioral change. The findings suggest that digitalization success depends not only on system availability but also on organizational learning processes. Digitalization is not limited to technological usage but is aligned with pedagogical approaches that ensure technology meaningfully enhances instructional quality (Fitria et al., 2021).

The controlling function is carried out through regular monitoring and evaluation of digital system effectiveness. The principal and management team assess system functionality, user adoption among teachers, and technical challenges encountered during implementation. Evaluation results are used as a basis for system improvement and continuous enhancement of teachers' digital competencies.

The Role of Madrasah Leadership in Managing Academic Digitalization

The leadership of the madrasah principal is a critical determinant of successful academic digitalization. Digital transformation in education extends beyond technological change to encompass shifts in work culture, communication patterns, and instructional practices. Consequently, effective leadership must be visionary, adaptive, and capable of strategically managing organizational change to ensure digitalization is embraced by the entire school community (Setiyono et al., 2025).

At MA Negeri 2 Pati, the principal plays a strategic role in formulating academic digitalization policies aligned with the madrasah's vision and development programs. These policies are implemented through the establishment of digital madrasah programs, development of academic information systems, and integration of digital platforms into learning and academic services. The principal's active involvement in both planning and execution ensures infrastructure readiness and program coherence. This finding aligns with (Iqbal, 2021), who emphasizes the principal's role in fostering innovation and encouraging technology adoption in schools.

Furthermore, the principal plays a central role in human resource development, particularly in enhancing teachers' digital competencies. Teachers are encouraged to participate in training programs, internal mentoring, and professional development initiatives such as the *Platform Merdeka Mengajar* and other technology-based learning platforms. This strategy is crucial, as the success of digital learning is strongly influenced by teachers' digital literacy and pedagogical readiness (Nikmawati, 2023).

In terms of supervision and control, the principal functions as the primary evaluator of academic digitalization programs. Periodic evaluations assess platform utilization, technical challenges, and the impact of digitalization on teaching and academic services. Evaluation outcomes inform decision-making related to system refinement, policy strengthening, and program sustainability. Consistent and continuous leadership ensures that academic digitalization evolves from a technical innovation into a technology-based organizational culture embedded within madrasah management.

Academic Digitalization as a Flagship Program of the Madrasah

MA Negeri 2 Pati is a public madrasah guided by the vision of becoming a religious, excellent, research-based, and environmentally oriented institution. The madrasah serves 1,103 students across 34 classes, supported by 74 teachers and three educational staff members (EMIS Ministry of Religious Affairs, 2024). Its flagship programs including madrasah research initiatives, boarding school programs, adiwiyata environmental programs, integrity zone development, and digital madrasah programs have positioned MA Negeri 2 Pati as a leading educational institution in Pati Regency.

The Digital Madrasah program has been systematically developed since 2020, initially as a response to learning challenges during the COVID-19 pandemic and subsequently as an effort to address the demands of contemporary educational technology. The program aims to create a modern, adaptive learning environment aligned with 21st-century educational needs. Teacher digital competence has been continuously strengthened through training and internal mentoring to ensure effective facilitation of digital learning activities.

Academic digitalization at MA Negeri 2 Pati is reflected in the integrated use of digital systems consistent with the characteristics of digital schools, including student-centered learning, multimedia utilization, collaborative practices, and integrated academic information services (Gumelar & Dinnur, 2020). The madrasah has developed an official website integrated with an Academic Information System (SIA) and an internal Education Management Information System (SIMDIK), supporting teacher and student attendance, e-report cards, scheduling, and online learning services.

Teachers also utilize platforms such as Google Classroom and the *Platform Merdeka Mengajar* to distribute learning materials, manage assignments, and facilitate instructional communication. The integration of these platforms demonstrates that academic digitalization functions not merely as an information medium but as a comprehensive educational management system enhancing efficiency, transparency, and instructional effectiveness.

The Impact of Academic Digitalization Management on Educational Quality

The implementation of academic digitalization management at MA Negeri 2 Pati has demonstrably improved the effectiveness of academic services and the quality of learning management. Digital academic systems facilitate efficient grade processing, systematic documentation of instructional activities, and accurate academic reporting. These findings align with (Komariah & Rosdiana, 2023), who argue that digital academic systems enhance teacher efficiency and service transparency.

Digitalization has also accelerated academic information flow among teachers, students, and school management, enabling data-driven and timely decision-making. Improvements in educational quality are further reflected in students' academic and non-academic achievements at regional, national, and international levels. Digital learning environments foster student autonomy, engagement, and productive technology use. Moreover, digital platforms enable teachers to provide continuous feedback and adapt instructional strategies to students' diverse needs. This supports the development of 21st-century skills and aligns with (Hamid, 2022), who emphasize the positive impact of digital learning on student engagement and competency development.

Overall, academic digitalization management at MA Negeri 2 Pati demonstrates that systematic, well-planned, and sustainable technology integration can serve as a strategic instrument for improving educational quality and institutional performance. Supported by effective management functions and strong leadership, digitalization strengthens transparent, accountable, and responsive academic governance. These findings reinforce (Terry, 2019), highlighting adaptive educational management as a key driver of sustainable educational quality in the digital era.

D. Conclusions

The management of the academic digitalization program at MA Negeri 2 Pati has been implemented in a planned and integrated manner through the functions of planning, organizing, implementation, as well as supervision and evaluation. The digitalization program is systematically designed and aligned with the madrasah's vision, particularly in strengthening technology-based academic services. Organizational management is

carried out through the establishment of a digitalization team with clearly defined roles and responsibilities, enabling the program to be implemented in a coordinated and structured manner.

The implementation of academic digitalization at MA Negeri 2 Pati is realized through the utilization of various digital systems and platforms that support learning processes, assessment, and academic services in an efficient and transparent way. Supervision and control are conducted periodically by madrasah leadership to ensure program sustainability and effectiveness, while also serving as a basis for continuous improvement and further development of the academic digital system.

The findings of this study indicate that the success of academic digitalization is not solely determined by the availability of technology, but is strongly influenced by the quality of school management in managing the program sustainably. Therefore, well-directed and integrated management is a key factor in ensuring that academic digitalization effectively enhances the quality of educational services. The results of this study are expected to serve as a practical reference for other schools and madrasahs in managing academic digitalization programs in accordance with their institutional contexts and needs.

References

- Adila, S., & Rodiyah, I. (2024). Memajukan Pendidikan Melalui Program Digitalisasi yang Efektif di Indonesia. *Indonesian Journal of Public Administration Review*, 1(3), 16. <https://doi.org/10.47134/par.v1i3.2524>
- Alam, M. (2023). *Digitalisasi Pelayanan Pendidikan dalam Meningkatkan Mutu Layanan Administrasi Sekolah MTs Negeri 9 Bantul Perspektif Total Quality Management*. UIN Sunan Kalijaga Yogyakarta.
- Astuti, L. P., Sumarti, E., Nurhayati, N., Huggannah, H., Lestari, N. D., & Zulinto, A. (2026). The Quality of Performance Management of Education Personnel and Educational Affairs. *Journal of Education and Applied Teaching (JEAT)*, 2(1), 37–44.
- Firmansyah, R., Yunika Komalasari, Srie Wijaya Kesuma Dewi, Phitsa Mauliana, R. Dewi Sulastriningsih, & Nanang Hunafif. (2023). Digitalisasi Sekolah Sebagai Metode Pembelajaran Di Era Pendidikan 4.0. *Jurnal Sosial Humaniora Dan Pendidikan*, 2(3), 49–55. <https://doi.org/10.56127/jushpen.v2i3.1052>
- Fitria, C. N., Hermawan, H. D., Sayekti, I. C., Selfia, K. D., Azra, A., & Prasajo, I. (2021). Pengembangan Digitalisasi Sekolah Berbasis Website pada Era Komputasi Global di SMP Muhammadiyah. *Buletin KKN Pendidikan*, 3(1), 1–10. <https://doi.org/10.23917/bkkndik.v3i1.14665>
- Gumelar, D. R., & Dinnur, S. S. (2020). Digitalisasi Pendidikan Hukum Dan Prospeknya Pasca Pandemi Covid-19. *Al-Ahwal Al-Syakhsyiyah: Jurnal Hukum Keluarga Dan Peradilan Islam*, 1(2), 111–122. <https://doi.org/10.15575/as.v1i2.9909>
- Hadi, A., Asrori, Rusman, & R. (2021). *Penelitian Kualitatif: Studi Fenomenologi, Case Study, Grounded Theory, Etnografi, Biografi*. CV. Pena Persada.
- Hamid, A. (2022). Digitalisasi Pembelajaran dan Tantangannya di Madrasah. *Jurnal Pendidikan Dan Kebudayaan Islam*, 12(1), 87–99.
- Hasibuan, M. S. (2014). *Manajemen Sumber Daya Manusia* (Cetakan ke). Bumi Aksara Publisher.
- Hassan, M. K., & Noor, S. (2020). Shariah Compliant Digital Education: A Conceptual Framework. *International Journal of Islamic and Middle Eastern Finance and*

- Management*, 13(4), 677–695. <https://doi.org/https://doi.org/10.1108/IMEFM-03-2020-0118>
- Ilyas, I., Wahab, W., Imran, I., Muhluddin, M., & Asmawati, A. (2025). Digital Transformation in Educational Management for School Quality in the Digital Era. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 7(3), 78–90. <https://doi.org/10.37680/scaffolding.v7i3.7735>
- Inayah, K., Yuli Nor Farika, E., Nurronia, A., & Umi Hanik, E. (2021). Pengembangan Digital School System Dalam Menghadapi Era Society 5.0 Di Sekolah Indonesia Kuala Lumpur (SIKL). *Journal of Educational Integration and Development*, 1(3), 2021.
- Iqbal, M. (2021). Kepemimpinan Transformasional Dalam Upaya Pengembangan Sekolah/Madrasah. *Pionir: Jurnal Pendidikan*, 10(3), 119–129. <https://doi.org/10.22373/pjp.v10i3.12187>
- Jarkawi, & Fajar Budi Hartanto, C. (2025). The Role of Digital Transformation in Educational Management: Innovation, Challenges, and Its Impact on School Quality. *Journal of Hunan University Natural Sciences*, 52(10). <https://doi.org/10.55463/issn.1674-2974.52.10.6>
- Komariah, & Rosdiana. (2023). Optimalisasi Implementasi Kurikulum Merdeka. *JEP: Jurnal Evaluasi Pendidikan*, 12(2), 8–15.
- Mania, M. A., Giu, I. Y., & Nurpriatna, A. (2025). Transformasi Digital Madrasah Aliyah: Evaluasi Efektivitas SIM dalam Meningkatkan Kinerja Akademik dan Manajemen. *Epistemic: Jurnal Ilmiah Pendidikan*, 4(1), 34–55. <https://doi.org/10.70287/epistemic.v4i.358>
- Muvid, M. B. (2024). *Digitalisasi Pendidikan: Upaya Mengembangkan Inovasi Pembelajaran di Tengah Fenomena Artificial Intelligence*. Global Aksara Pers.
- Nikmawati, N. (2023). Implementasi Digitalisasi Pendidikan terhadap Pembelajaran di SMP Permata Insani Pasar Kemis Tangerang. *Jurnal Tahsinia*, 4(2), 350–361.
- Novita Sari, P., & Miyono, N. (2023). Peran Digitalisasi Sekolah dalam Meningkatkan Manajemen Mutu Pendidikan pada Taman Kanak-Kanak Negeri Pembina Kabupaten Semarang. *Jurnal Inovasi Pembelajaran Di Sekolah*, 4(2), 728–735. <https://doi.org/10.51874/jips.v4i2.177>
- Nugroho, H., & Suryadi, D. (2020). *Manajemen Teknologi Pendidikan di Era Digital*. Graha Ilmu.
- Pradana, B. G. V., & Pratama, Y. M. (2022). Peran Digitalisasi Media Pembelajaran Terhadap Kualitas Pembelajaran. *Jurnal Sosial Humaniora*, 13(2), 145–153.
- Setiyono, P., Haryati, T., & Wuryandini, E. (2025). Strategi Digitalisasi Sekolah dan Kualitas Pembelajaran di Era 4.0. *Indonesian Research Journal on Education: Jurnal Ilmu Pendidikan*, 5(1), 458–464.
- Sutarsih, W., Haryati, T., & Wiyono, N. (2024). Peran Digitalisasi Sekolah Terhadap Mutu Pendidikan. *LEARNING: Jurnal Inovasi Penelitian Pendidikan Dan Pembelajaran*, 4(1), 136–143. <https://doi.org/10.51878/learning.v4i1.2810>
- Terry, G. R. (2019). *Dasar-Dasar Manajemen*. Bumi Aksara Publisher.
- UNESCO. (2020). *Digital Learning and Transformation of Education*.