iMProvement
Jurnal Ilmiah Untuk Peningkatan Mutu Penddikan
P-ISSN: 2355-5114|E-ISSN: 2597-8543
Vol. 13, No. 01 Juni 2026
https://journal.unj.ac.id/unj/index.php/improvement/index

Integrating Digital Leadership In Micro Leading Course To Enhance MPI Students' Graduate Competencies at Uin Sultanah Nahrasiyah Lhokseumawe

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ABSTRACT
The rapidly evolving digital era requires graduates to develop not only strong academic performance but also competencies relevant to the contemporary workforce. This study investigates how the integration of digital leadership competencies into the Micro Leading course can enhance the graduate readiness of students in the Islamic Educational Management (MPI) programme at Sultanah Nahrasiyah State Islamic University (UIN) Lhokseumawe. Grounded in a qualitative case study approach, data was collected through semi-structured interviews, participatory observation, and document analysis involving a total of twelve key informants. 4 selected MPI students who completed a two-week field practicum at partner schools, 3 school principals, 3 administrative staff, and 2 supervising lecturers. Three analytical themes emerged from the findings: (1) digital administrative literacy as a foundation for leadership, (2) data-driven decision making, and (3) digital stakeholder engagement. These themes correspond directly to the three defining characteristics of digital leadership identified by Muslim (2020): deeply understanding people, diving and integrating technology trends, and digital organisation. The findings demonstrate that structured experiential learning in Micro Leading functions as an effective pedagogical mechanism for embedding digital leadership competencies in pre-service educational management education. However, the limited sample size and brief observation period suggest the need for longitudinal studies with broader participant groups to further validate these findings.

OPEN ACCESS

ARTICLE HISTORY
Received: 05-03-2026
Revised: 13-05-2026
Accepted: 10-06-2026

KEYWORDS
Digital Leadership, Graduate's Competency, Micro Leading

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Introduction

The rapidly evolving digital era requires graduates to develop not only strong academic performance but also competencies relevant to the contemporary workforce. The widespread adoption of Industry 5.0 has accelerated the integration of intelligent machines, automation, and human-centred technologies into educational institutional management, fundamentally reshaping how schools and madrasah operate (Antonopoulou, Halkiopoulos, Barlou, & Beligiannis, 2021). The COVID-19 pandemic further reinforced this trajectory by compelling educational systems to embrace asynchronous and technology-mediated modes of learning and administration at unprecedented speed. These developments have direct implications for the Islamic Educational Management Department (MPI) at Sultanah Nahrasiyah State Islamic University (UIN) Lhokseumawe, where graduates are expected not merely to excel academically but to function as competent, digitally adept educational professionals capable of managing schools and madrasah in a digitally transformed environment.

Despite the growing body of research on digital leadership in education, a critical gap persists, limited empirical attention has been paid to how digital leadership competencies can be embedded within pre-service educational management curricula to systematically develop graduate employability and leadership readiness(Zulaikha et al., 2025). Previous studies predominantly focus on the practices of in-service school principals and organisational leaders (Torres et al., 2024, McCarthy, Maor, McConney, & Cavanaugh, 2023), leaving largely unexplored the pedagogical question of how institutions can structurally cultivate digital leadership dispositions in future managers before they enter the workforce. This study addresses that gap.

Digital leadership, as conceptualised by Sawy et al. (2020), involves the capacity to leverage technology and information strategically in institutional planning and model development. Agam and Suwadi (2024) further specify that digital leadership encompasses a leader's ability to incorporate technological and digital innovations to facilitate the achievement of institutional goals (Madhakomala et al., 2024). In the educational context, digital leadership extends well beyond the routine use of communication tools such as email or messaging applications, it encompasses data-informed decision making, the development of digital organisations, and the strategic management of stakeholder relationships through digital platforms (Torres et al., 2024). Leaders who exemplify digital leadership employ unconventional, evidence-based approaches to institutional challenges, drawing on data to guide decisions rather than relying exclusively on expert opinion or intuition (Agam & Suwadi, 2024, ProFuturo, 2025). Moreover, effective digital leaders are expected to possess a forward-looking vision, to engage in continuous learning, and to assume multifaceted roles as managers, instructors, and transformational agents rather than merely as authoritative administrators (Nurviani & Abdullah, 2022, Ruloff & Petko, 2021).

Muslim (2020) delineated three core characteristics of digital leadership that serve as the analytical framework for this study: (1) deeply understanding people, (2) diving and integrating technology trends, and (3) digital organisation. The first characteristic deeply understanding people refers to a leader's capacity to interpret and anticipate the consequences of human behaviour within the institution. Empathetic leadership research consistently demonstrates that such deep interpersonal insight enhances follower affect, attitudinal alignment, and organisational performance (Muss, Tüxen, & Fürstenau, 2025). Personality-based studies further affirm that traits such as extraversion, openness, and agreeableness strengthen leaders' ability to predict and respond to employee behaviour in nuanced ways (Judge & Bono, 2000). The second characteristic diving and integrating technology trends requires comprehensive experience with and understanding of technological tools in institutional management, including artificial intelligence, digital analytics, and process automation (Agwoje & Okeleke, 2023, Fitzgerald et al., 2013). The third characteristic digital organisation pertains to the capacity to build digital administrative infrastructure, including data management systems, paperless reporting, and digitally mediated stakeholder communication (Blau & Presser, 2013, Fitzgerald et al., 2013).

This study posits that the Micro Leading course an experiential, field-based subject in which educational management students practise the fundamentals of institutional administration and leadership in real school settings constitutes a uniquely positioned pedagogical mechanism for embedding these digital leadership competencies before graduation (Asmara, 2015, Jain, Gupta, Shankar, & Bagaria, 2022). This study contributes to the literature by proposing Micro Leading as a structured site for pre-service digital leadership development. Unlike prior studies that focus on in-service leaders, this research examines how future educational managers develop digital leadership readiness through guided field-based learning. Accordingly, this study is guided by three research questions: (1) How is digital leadership integrated into the Micro Leading course at MPI? (2) What digital leadership competencies are developed through participation in the course? (3) How does this integration contribute to the graduate competency development of MPI students?

Methods

This study adopted a qualitative case study approach, which is particularly suited to investigating the contextual, experiential dimensions of educational phenomena in naturally occurring settings (Miles, Huberman, & Saldana, 2014). The case under investigation was the integration of digital leadership within the Micro Leading course at the MPI programme of UIN Sultanah Nahrasiyah Lhokseumawe.

Participants and Sampling

Purposive sampling was employed to select participants who possessed direct, relevant experience with the integration of digital leadership through the Micro Leading

practicum. The primary participants comprised four MPI students who had recently completed the two-week field internship at digitally advanced partner schools. To strengthen triangulation and analytical depth, three additional participant groups were incorporated. Three school principals from the partner institutions, three school operators and administrative staff, and two supervising lecturers from the MPI programme. The full composition of the research participants is presented in Table 1.

Table 1. Research Participant Composition

Participants	Number
MPI Students (Micro Leading Practicum)	4
School Principals (Partner Schools)	3
School Operators / Administrative Staff	3
Supervising Lecturers	2
Total	**12**

Data Collection

Data were collected through three complementary methods. First, semi-structured in-depth interviews were conducted with all participant groups. Each interview session lasted approximately 45 to 60 minutes and was audio-recorded with the participants' informed consent. An interview protocol of eight to twelve open-ended questions was developed prior to data collection, addressing participants' observations, experiences, and evaluations of digital leadership integration in the practicum. Second, participatory observation was conducted during the students' two-week internship period, during which the researchers documented students' engagement with digital administrative systems and their interactions with school principals and staff. Third, relevant institutional documents including the Micro Leading course syllabus, school digital reports, and screenshots of application interfaces encountered by students were collected and analysed to corroborate interview and observation data.

The decision to involve four student informants was based on a purposive and representative sampling approach. The entire cohort participating in the school observation practicum was divided into four distinct groups. Therefore, these 4 students were explicitly selected as key respondents to represent each of the four groups, ensuring that the interviews accurately captured and articulated the collective experiences, challenges, and insights gathered by their respective teams during the field observation.

Data Analysis

Data were analysed using the three-stage framework proposed by Miles, Huberman, and Saldana (2014), comprising data condensation, data display, and conclusion drawing and verification. In the condensation stage, interview transcripts were systematically coded and categorised according to recurring patterns and analytical themes. Data display involved organising the condensed data into structured thematic matrices to facilitate comparative analysis. Conclusions were drawn inductively and continuously verified against the raw data throughout the analytical process.

Trustworthiness

To ensure the credibility and rigour of the findings, several trustworthiness strategies were employed following Lincoln and Guba's (1985) criteria. Member checking was conducted by returning interview summaries to participants for verification of accuracy. Peer debriefing was undertaken through regular consultations with colleagues not involved in the study who reviewed the analytical process and emerging interpretations. Triangulation was achieved through the convergence of data from multiple sources students, principals, operators, lecturers, and documents thereby reducing the potential for individual informant bias. Together, these strategies strengthen the transferability and dependability of the research findings.

Result

Analysis of the interview transcripts, observation notes, and documentary evidence yielded three overarching themes describing how digital leadership competencies were developed through the Micro Leading practicum. These themes are presented below alongside representative participant quotations and documentary evidence.

Theme 1: Digital Administrative Literacy as a Foundation for Leadership

The most prominent theme emerging from the data was the recognition that mastery of digital administrative systems constitutes the foundational prerequisite for digital leadership. Students consistently reported that engagement with government-mandated applications specifically the SAKTI (Sistem Akuntansi dan Keuangan Terpadu Indonesia) platform, facilitated by the Ministry of Finance, and the e-RKAM (Rencana Kegiatan dan Anggaran Madrasah) application, provided by the Ministry of Religious Affairs transformed their understanding of institutional management from a clerical function to a strategic leadership capacity.

One student elaborated on her experience with the SAKTI application:

> *"School inventory is a critical dimension of institutional management overseen by the principal. By implementing digital organisation through an application such as SAKTI, the school is able to maintain a comprehensive digital database of all institutional assets including tables, chairs, laboratory equipment, and*

> *library resources. The principal guided us in inputting annual inventory data, including purchasing dates, purchase prices, asset conditions, and physical locations within the school."*

Another student reflected on the e-RKAM application:

> *"The principal requested that the school administrator instruct us in the operation of the e-RKAM application. The principal explained that through learning this system, we would come to understand how the school plans and manages its annual budget expenditure in a transparent and structured manner."*

Students additionally reported exposure to the SIMPATIKA (Sistem Informasi Pendidik dan Tenaga Kependidikan) platform used for managing employment-related data and the Rapor Digital Madrasah (RDM) system for digital student reporting. These experiences collectively enabled students to recognise that digital administrative fluency is not a peripheral technical skill but the operational infrastructure from which digital leadership is enacted.

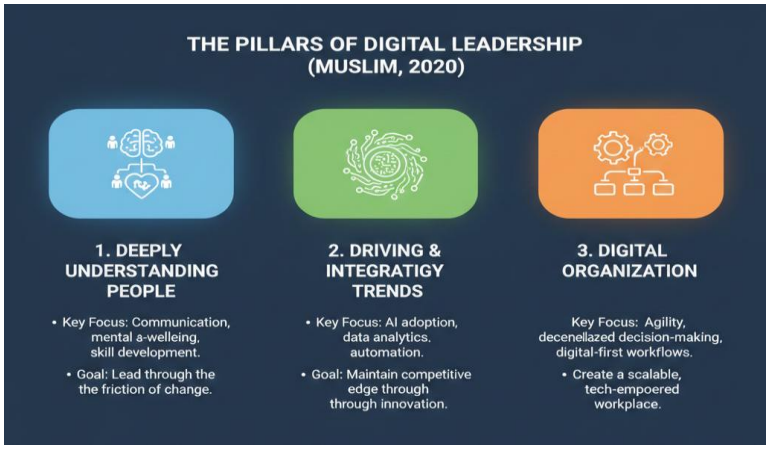

Figure 1. SAKTI Application Facilitated by the Indonesian Ministry of Finance
Source: Fieldwork Documentation (2025)

Figure 2. e-RKAM Interface Observed by MPI Students During Practicum
Source: Fieldwork Documentation (2025)

Theme 2: Data-Driven Decision Making

A second theme concerned the observation and internalisation of data-driven decision-making practices by school principals. Students reported that the principals they observed did not treat digital tools as passive recording instruments, but rather as active sources of institutional intelligence that directly informed leadership decisions. For instance, principals used data extracted from e-RKAM to justify budget allocation priorities to school committees, while SAKTI data informed procurement decisions and maintenance scheduling for physical facilities.

Students also observed that the transition from handwritten report books to the Rapor Digital Madrasah (RDM) system represented more than administrative modernisation, it signalled a shift from subjective, paper-based record-keeping to a standardised, retrievable, and auditable student performance database. Principals could access longitudinal performance trends, enabling more nuanced instructional and pastoral interventions. These observations led students to articulate the relationship between digital administration and leadership as one of strategic amplification: digital tools extend the principal's capacity to make evidence-informed, timely, and equitable decisions across multiple administrative domains simultaneously.

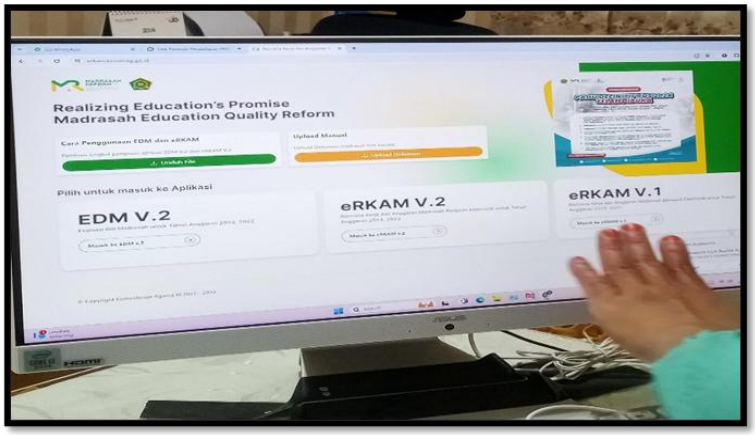

Figure 3. MPI Students Operating the SAKTI Application at a Partner School
Source: Fieldwork Documentation (2025)

Theme 3: Digital Stakeholder Engagement

The third theme concerned the strategic use of digital platforms for stakeholder relationship management. Students observed how school principals entrusted their public relations (PR) teams to leverage social media platforms including Instagram, TikTok, and Canva not merely for informational broadcasting but as instruments for institutional reputation building and community engagement. One student reported:

> "We observed that the principal had assigned the PR team to monitor social media trends attracting substantial public attention. The principal facilitated the team's use of Canva, Instagram, and related platforms to design visually engaging content. This allowed us to see how digital

leadership is enacted through the purposeful use of technology in school promotion and stakeholder communication."

Students concluded from this observation that understanding people deeply one of the three core characteristics of digital leadership extends beyond interpersonal communication to the strategic analysis of audience data and digital engagement metrics. This experience highlighted that effective digital leaders employ digital platforms not reactively but proactively, designing communication strategies that align with institutional goals and stakeholder expectations.

Table 2 presents the conceptual framework derived from the analysis, mapping digital leadership characteristics onto observed Micro Leading activities, emerging themes, and graduate competency outcomes.

Table 2. Conceptual Framework: Digital Leadership Integration in Micro Leading

Digital Leadership Characteristics (Muslim, 2020)	Micro Leading Activities	Emerging Themes	Graduate Competency Outcome
Deeply Understanding People	Social media monitoring, PR team coordination, stakeholder communication	Digital Stakeholder Engagement	Strategic communication & community relations
Diving & Integrating Technology Trends	SAKTI, e-RKAM, SIMPATIKA simulation, RDM data entry	Digital Administrative Literacy as Leadership Foundation	Technology integration & data-informed management
Digital Organisation	Paperless reporting, digital inventories, digital student records	Data-Driven Decision Making	Organisational digitalisation & evidence-based leadership

Discussion

Digital Leadership Integration in Micro Leading: A Pedagogical Mechanism for Pre-Service Competency Development

The findings of this study suggest that digital leadership is not merely a set of technical proficiencies but rather the strategic orchestration of information systems, stakeholder engagement, and organisational learning. This understanding aligns with El Sawy et al. (2020), who argue that genuine digital leadership necessitates the cultivation

of enterprise-wide capabilities rather than the isolated adoption of individual technologies. In the context of Micro Leading, students did not simply encounter digital tools in isolation: they observed the systemic logic through which principals coordinated these tools to address institutional objectives across multiple administrative domains. This systemic, contextualised exposure distinguishes the Micro Leading experience from conventional technology training and positions it as a site of authentic leadership preparation.

The first theme digital administrative literacy as a foundation for leadership reveals that proficiency in government-mandated digital systems such as SAKTI, e-RKAM, and SIMPATIKA functions not merely as operational competence but as the technical credibility required to lead others through digital transformation. This finding resonates with Karakose, Polat, and Papadakis (2021), who identify principal-level involvement in digital tool integration as a critical factor in institutional technology adoption. The present study extends this insight by demonstrating that pre-service students who actively engage with these systems during field practicums develop a form of operational legitimacy an embodied understanding that authorises and motivates future technology-driven leadership.

The second theme data-driven decision making reflects a broader epistemological shift in contemporary educational leadership, from intuition-based management to evidence-based institutional governance. Students observed that principals used data extracted from digital systems not simply to record administrative facts but to justify strategic decisions regarding budget allocation, facility maintenance, and student performance management. This observation is consistent with McCarthy et al. (2023), who identify data literacy and evidence-informed decision making as core components of digital transformation leadership. Critically, students articulated this distinction themselves, recognising that mastering data entry is qualitatively different from understanding how data become the basis of institutional strategy a recognition that signals the internalisation of a leadership mindset, not merely an administrative skill set.

The third theme digital stakeholder engagement demonstrates that deeply understanding people, in the digital leadership sense, extends beyond interpersonal empathy to encompass the strategic analysis of audience behaviour through digital data. Students observed principals and PR teams designing targeted content for specific stakeholder audiences, analysing social media engagement metrics, and coordinating communication strategies that aligned institutional branding with community expectations. This finding complements Subiyanto, Wahidah, Septyarini, and Arjuna (2024), who emphasise that digital leadership must actively leverage technology to empower and engage team members, rather than employing it primarily for operational efficiency. When digital platforms are used strategically for stakeholder communication, they become instruments of institutional culture-building and community trust.

Opportunities and Challenges

The integration of digital leadership within Micro Leading creates several notable opportunities for MPI graduates. First, exposure to real-time administrative platforms develops the data fluency necessary for graduates to function effectively in information-rich institutional environments. As Blau and Presser (2013) demonstrate, digital data management systems significantly enhance the effectiveness of educational leadership. Second, familiarity with collaborative digital platforms equips graduates to work across geographical and organisational boundaries, thereby expanding their professional reach and adaptability. This capacity is increasingly significant in an era characterised by distributed educational governance and multi-site institutional networks (Subiyanto et al., 2024). Third, by demonstrating the positive impact of technology-mediated communication on stakeholder engagement, the practicum cultivates graduates who are disposed toward ongoing digital innovation, consistent with the lifelong learning ethos identified as essential for Industry 5.0 professionals (Salamah et al., 2025).

Nevertheless, the implementation of digital leadership through Micro Leading is not without challenges. Students reported encountering resistance among senior school staff who expressed discomfort or apprehension toward new digital systems a phenomenon consistent with Niesel's (2021) observation that older workers may experience pronounced difficulty in adapting to rapidly evolving workplace technologies. This generational technology gap risks creating interpersonal friction and undermining the collaborative climate necessary for effective digital transformation. Additionally, students identified the potential for digital miscommunication when technology is deployed without clear communicative protocols, echoing Subiyanto et al.'s (2024) warning that poorly governed digital communication can erode team cohesion rather than enhance it. To address these challenges, the Micro Leading curriculum should incorporate modules on digital change management, inclusive communication strategies, and the facilitation of technology adaptation across heterogeneous staff groups.

Implication

The integration of digital leadership competencies into the Micro Leading curriculum carries substantive implications for the design and delivery of pre-service educational management programmes. The findings demonstrate that structured, field-based engagement with digital administrative systems when situated within an explicitly leadership-oriented pedagogical framework can meaningfully accelerate the development of graduate competencies that are directly relevant to the contemporary educational workforce. Rather than treating digital tools as supplementary aids to conventional management training, this study affirms that they should be positioned as constitutive elements of leadership formation.

The evidence further suggests that digital administrative fluency functions as the infrastructural foundation for higher-order digital leadership. When students progress from observing data entry tasks to understanding the strategic logic through which

institutional data inform decision making, they traverse a critical threshold from operational competence to leadership readiness. This transition from clerical familiarity to strategic stewardship represents the core pedagogical contribution of a well-designed Micro Leading programme. Institutions that consciously bridge this gap by embedding government-mandated platforms, stakeholder engagement technologies, and data governance principles into their practicum curriculum are likely to produce graduates who are not only technically proficient but strategically agile.

Moreover, the conceptual framework proposed in this study linking Muslim's (2020) three digital leadership characteristics to specific Micro Leading activities and graduate competency outcomes offers a transferable model that other Islamic educational management programmes across Indonesia and comparable contexts may adapt and contextualise to their own institutional environments.

Conclusion

This study demonstrates that digital leadership can be meaningfully cultivated before graduation through structured, field-based experiential learning within the Micro Leading practicum. The findings identify three interconnected themes digital administrative literacy as a foundation for leadership, data-driven decision making, and digital stakeholder engagement which collectively correspond to the three defining characteristics of digital leadership as conceptualised by Muslim (2020), deeply understanding people, diving and integrating technology trends, and digital organisation. These themes reflect not merely the acquisition of technical skills but the gradual development of a leadership mindset oriented toward evidence-based governance, inclusive stakeholder communication, and institutional digitalisation.

The study further demonstrates that students who engaged with government-mandated digital platforms SAKTI, e-RKAM, SIMPATIKA, and RDM during their practicum developed a contextualised understanding of how digital tools function as instruments of institutional strategy rather than administrative convenience. This shift in perspective, from user to strategist, represents the fundamental educational transformation that the Micro Leading programme is uniquely positioned to facilitate. The findings suggest that leadership preparation programmes in educational management should move beyond theoretical instruction and intentionally integrate digital governance systems and stakeholder engagement technologies into field-based learning, thereby equipping graduates for a dynamic, digitally-driven educational workforce.

Limitation of the Study

This study is subject to several limitations that should be acknowledged in interpreting its findings. First, while the participant pool was expanded beyond the original four students to include principals, operators, and supervising lecturers, the overall sample size remains relatively modest, which may limit the transferability of the findings to broader populations of pre-service educational management students.

Second, the two-week observational period of the Micro Leading practicum, while sufficient for capturing initial exposure to digital leadership practices, is comparatively brief and may not adequately reflect the longer-term developmental trajectories of digital leadership competency formation. The depth of leadership internalisation typically emerges through sustained, longitudinal professional engagement rather than short-term field observation. Third, as a qualitative single-institution case study, the findings are inherently context-specific and should be generalised to other institutional contexts with appropriate caution. Future research employing multi-site case comparisons, longitudinal follow-up designs, or mixed-methods approaches would meaningfully extend and validate the present findings.

Recommendations

Based on the findings and limitations of this study, several recommendations are offered for programme designers, institutional leaders, and future researchers. The Islamic Educational Management Department should embed government-mandated digital systems specifically SAKTI, e-RKAM, and SIMPATIKA directly into pre-internship coursework, enabling students to progress from familiarisation to genuine operational competence before they enter partner schools. This pre-practicum technical preparation would allow the field experience to function as a site for leadership observation and strategic learning rather than basic skills acquisition.

To mitigate the technology resistance encountered by students among senior school staff, the Micro Leading curriculum should incorporate dedicated modules on digital change management and persuasive communication. Such modules would equip future graduates not only with digital proficiency but with the interpersonal and organisational skills necessary to guide resistant stakeholders through digital transitions with both empathy and credibility. Furthermore, the university should strategically expand its partner school network to include institutions demonstrating advanced stages of digital maturity, thereby ensuring that the Micro Leading programme consistently provides a rigorous and up-to-date laboratory for practising Industry 5.0 educational leadership. Finally, future research is recommended to employ longitudinal designs tracking graduates' digital leadership development across their early professional careers, as well as multi-site comparative studies that evaluate the effectiveness of digital leadership integration across different institutional contexts and geographic settings.

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