



Beyond Digital Adoption: A Capacity-Building Model for Strengthening Education Personnel in Digital Learning Management and Evaluation

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Abstract : Digital transformation in education requires more than the adoption of technological tools; it requires strengthening the capacity of education personnel to integrate technology into meaningful learning management and evaluation practices. This study aims to strengthen education personnel capacity in developing innovative and sustainable digital-based educational practices. The program was implemented through a participatory capacity-building approach involving needs assessment, digital training, practical simulations, mentoring, and evaluation. Data were collected through observations, interviews, pre-test and post-test assessments, questionnaires, and reflective discussions. The findings revealed that participants initially used digital technology mainly for basic operational purposes and had limited integration of digital platforms into learning management and evaluation processes. After the program, participants showed improved digital understanding, technical skills, and confidence in applying digital tools for learning management and evaluation. The activity also encouraged more structured and collaborative educational practices. Despite challenges related to digital competency gaps and infrastructure limitations, continuous mentoring and institutional support contributed to sustainable implementation. The findings highlight that successful digital transformation depends not only on technology availability but also on empowered education personnel capable of integrating technology into pedagogical and managerial practices.

Keywords : Digital Transformation; Education Personnel; Learning Management; Learning Evaluation; Digital Competence; Educational Innovation.

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INTRODUCTION

The rapid development of digital technology has significantly transformed the educational landscape, requiring educational institutions to adapt beyond the mere adoption of digital tools (Bitar & Davidovitch, 2024). Digital transformation in education is no longer limited to the use of technology as a medium for delivering learning materials, but has expanded into the development of integrated systems that support learning management, academic administration, collaboration, and evaluation processes (Akour & Alenezi, 2022; Mhalanga, 2024). Educational institutions are increasingly encouraged to develop digital capabilities that enable teachers and education personnel to manage learning activities more effectively, efficiently, and innovatively (ElSayary, 2023). Therefore, strengthening human resource capacity has become a crucial factor in ensuring that technological integration can generate meaningful improvements in educational practices.

In the context of learning management, digital technology provides opportunities to create more flexible, collaborative, and data-driven learning environments. Various digital platforms can support teachers in designing learning resources, managing classroom activities, conducting assessments, and analyzing student learning outcomes (Hu, 2024; Kandia et al., 2023). However, the successful implementation of digital transformation does not solely depend on the availability of technological infrastructure but also on the readiness and competence of educational personnel (Escobar et al., 2023; Hendrawan et al., 2024). Without adequate digital competence, technology adoption tends to remain at the level of basic usage and does not significantly contribute to improving the quality of learning management and evaluation.

Despite the increasing availability of digital learning platforms, many educational institutions still experience challenges in implementing technology-based learning systems. These challenges are commonly related to limited digital literacy among teachers, insufficient experience in managing digital learning environments, and the absence of structured training programs that connect technology utilization with pedagogical needs (Aluko, 2022; Jung et al., 2024; Sağ & Semerci, 2024). In many cases, teachers may already use digital applications for communication or material sharing, but the utilization has not yet developed into a systematic approach for managing curriculum implementation, learning activities, and evaluation processes. This condition indicates that digital transformation requires a shift from technology adoption toward meaningful digital empowerment.

Based on the initial identification of partner conditions, educational personnel still require strengthening in managing technology-supported learning processes. The existing practices show that digital platforms have not been optimally utilized to support collaborative document management, learning resource organization, classroom interaction, and assessment administration (Ahsan, 2025; Soelton, 2023). Teachers and education personnel face challenges in integrating digital tools into daily educational management because of differences in digital competency levels and limited opportunities for continuous mentoring (Sudrajat et al., 2024). As a result, digital technology has not yet become an integral part of innovative learning management practices.

These conditions demonstrate a gap between the potential benefits of digital technology and its actual implementation in educational institutions. Previous digitalization efforts have often

focused on introducing technological applications, while less attention has been given to developing the capacity of users to integrate technology into educational management strategies (Alahi et al., 2022; Williams et al., 2022). Therefore, digital transformation programs need to move beyond application-based training toward capacity-building initiatives that strengthen teachers' and education personnel's ability to design, manage, and evaluate learning processes through technology-supported approaches.

To address these challenges, the program was designed as a capacity-building initiative aimed at strengthening education personnel competencies in developing innovative learning management and evaluation practices supported by digital technology (Kotturi et al., 2024; Peca et al., 2025; Rivai et al., 2025). The program emphasized structured training, hands-on practice, and contextual mentoring to enable participants to utilize digital platforms based on their institutional needs and professional responsibilities (Kiosia, 2024). Through a participatory approach, participants were encouraged not only to acquire technical skills in operating digital tools but also to develop the ability to integrate technology strategically into curriculum management, instructional processes, and learning evaluation (Maxwell, 2024). This approach positioned education personnel as active agents of digital transformation rather than merely users of technological applications.

Therefore, this activity aims to strengthen the capacity of education personnel in developing technology-based learning management and evaluation practices. The expected outcome is not merely increased familiarity with digital platforms but the emergence of sustainable digital practices that support more effective, collaborative, and innovative educational services. This initiative is expected to contribute to the broader agenda of digital transformation in education by demonstrating that successful technology integration depends on empowered human resources who are capable of transforming digital opportunities into meaningful learning innovations.

METHOD

This capacity-building program was designed using a participatory and empowerment-based approach to strengthen the ability of education personnel in implementing innovative technology-supported learning management and evaluation practices. The method was developed based on the understanding that digital transformation in education requires more than the introduction of technological platforms; it requires continuous development of human capacity through structured training, hands-on practice, mentoring, and evaluation. Education personnel were positioned as active participants throughout the program, engaging in needs identification, digital implementation activities, and reflective discussions to evaluate the effectiveness and sustainability of technology integration within their educational context.

The implementation process consisted of four interconnected stages: needs identification and planning, training implementation, mentoring and technology integration, and monitoring and evaluation. These stages were designed systematically to ensure that the program addressed the actual challenges faced by partners and produced

measurable improvements in participants' digital competencies for learning management and evaluation.

The initial stage focused on identifying partner conditions and analyzing the digital readiness of education personnel. The PkM team conducted preliminary observations, interviews, and discussions with school management and teachers to identify existing learning management practices, technology utilization patterns, and challenges in implementing digital-based educational services. This stage aimed to map participants' competency levels, available technological infrastructure, and institutional needs related to digital learning management. The results of this analysis became the basis for designing training materials and determining appropriate assistance strategies.

Based on the needs analysis, the PkM team developed a training design that emphasized practical implementation rather than theoretical understanding alone. The training materials were prepared to strengthen participants' competencies in managing digital learning environments, organizing learning resources, developing collaborative documents, utilizing digital assessment tools, and managing learning data. The training activities were delivered through interactive presentations, demonstrations, hands-on practices, group discussions, and problem-solving simulations. This approach was selected to ensure that participants could directly apply digital tools within their daily educational practices.

The implementation stage was conducted through intensive training activities involving teachers and education personnel. Participants were introduced to the concept of digital transformation in education and the importance of integrating technology into learning management and evaluation systems. The practical sessions focused on developing participants' ability to utilize digital platforms for supporting learning administration, collaboration, material management, and assessment activities. Through direct practice, participants were guided to create digital learning resources, manage online learning activities, and develop technology-supported evaluation processes based on their institutional needs.

Following the training activities, the mentoring stage was conducted to support participants in implementing the acquired competencies in real educational contexts. The mentoring process focused on assisting teachers and education personnel in adapting digital practices into their existing learning management systems. The PkM team provided technical guidance, problem-solving assistance, and consultation regarding challenges encountered during implementation. This stage was important to ensure that the program did not stop at the training level but continued toward sustainable technology integration.

The final stage involved monitoring and evaluation to measure the effectiveness of the program and identify changes in participants' competencies. Evaluation was conducted using several instruments, including pre-test and post-test assessments, participant observations, feedback questionnaires, and reflective discussions. The pre-test and post-test were used to identify improvements in participants' understanding of digital learning management and evaluation practices, while observations and discussions were conducted to examine participants' ability to apply digital tools during practical sessions. The evaluation results were analyzed descriptively to determine the achievement of program objectives and formulate recommendations for further development.

Through this systematic implementation method, the PkM activity was expected to produce not only short-term improvements in digital skills but also long-term changes in educational management practices. The combination of training, mentoring, and evaluation provided a comprehensive approach to strengthening education personnel capacity and encouraging the transition from simple technology adoption toward meaningful digital transformation in learning management and evaluation.

RESULT AND DISCUSSION

1. Initial Digital Readiness and Institutional Challenges

The initial assessment conducted prior to the implementation of the capacity-building program revealed that the partner institution had developed basic awareness of digital technology utilization; however, the integration of digital tools into learning management and evaluation practices remained limited and fragmented. Data were collected through direct observation, semi-structured interviews with teachers and education personnel, and institutional document analysis. The assessment examined three critical dimensions related to digital transformation readiness: the digital competence of education personnel, the utilization of digital platforms to support teaching and administrative processes, and the institutional capacity to implement sustainable technology-supported educational practices. The findings indicated that the main challenge was not merely the availability of digital infrastructure, but rather the ability of educational personnel to transform technology into meaningful pedagogical and managerial practices. Therefore, the assessment became an essential foundation for designing a contextual capacity-building program aimed at strengthening digital empowerment among education personnel.

The findings indicated that most education personnel had basic familiarity with digital devices and online applications, particularly for communication and administrative purposes. However, technology utilization had not yet developed into an integrated learning management system. Teachers still relied heavily on conventional approaches in preparing learning materials, documenting learning activities, managing assessment results, and storing academic documents. Digital platforms were generally

used as complementary tools rather than strategic instruments to improve learning effectiveness and institutional efficiency.

Several challenges were identified during the needs assessment. First, teachers experienced difficulties in organizing digital learning resources systematically. Learning materials, assessment documents, and student learning records were stored separately without an integrated management mechanism. Second, collaborative practices among teachers and educational staff remained limited because digital tools were not fully utilized to support teamwork and document sharing. Third, the evaluation process was still dominated by manual procedures, resulting in inefficiency in data management and difficulties in analyzing student learning outcomes.

These findings demonstrate that the primary challenge faced by the institution was not merely the lack of access to digital technology, but rather the gap between technology availability and the capacity to utilize it pedagogically and managerially. This condition confirms that digital transformation in education requires a shift from technology adoption toward digital empowerment, where educational personnel are positioned as active actors who are capable of designing and implementing technology-based learning practices.

2. Implementation of Digital Capacity Building Program

Based on the identified needs, the capacity-building program was implemented through a structured approach involving training, practical simulation, and continuous mentoring. The program was designed not only to introduce digital tools but also to strengthen participants' ability to integrate technology into their professional practices. The training adopted a contextual learning approach, in which digital platforms were introduced according to participants' actual responsibilities in managing learning activities, educational documentation, and evaluation processes. Rather than emphasizing technical operation alone, the program encouraged participants to recognize the strategic role of digital technology in improving learning quality, institutional efficiency, collaboration, and accountability.

The initial training session focused on developing participants' conceptual understanding of digital transformation in education. Participants were introduced to the transition of technology from a supporting instrument for classroom activities into an integrated component of learning management and evaluation systems. Through interactive discussions, institutional reflections, and case-based analysis, participants identified existing limitations in their digital practices and explored potential solutions for improving learning management through technology integration. This process

helped shift participants' perspectives from viewing technology as an additional tool toward understanding it as a strategic element of educational innovation.

The following session emphasized practical implementation through hands-on activities. Participants were guided to utilize digital platforms for organizing learning resources, developing collaborative documents, managing digital learning environments, and designing technology-supported assessment instruments. The practice-based approach enabled participants to directly experience how digital integration could simplify administrative tasks, improve information management, and strengthen coordination among education personnel. The results showed that direct experimentation was essential in reducing participants' technological barriers and increasing their confidence in applying digital solutions within their institutional context.

The mentoring phase further strengthened the sustainability of the program by assisting participants in adapting digital practices to their existing educational workflows. During this stage, participants were encouraged to redesign several processes, including learning documentation, resource management, collaborative work systems, and evaluation procedures. The mentoring process revealed that continuous guidance played a significant role in supporting digital transformation, particularly for participants with limited prior experience. This finding highlights that sustainable digital adoption requires not only access to technology but also ongoing capacity development, institutional support, and the active involvement of education personnel as agents of digital innovation.

3. Improvement of Education Personnel Digital Competence

The evaluation results indicated a significant improvement in participants' digital competence after participating in the training program. The measurement was conducted through pre-test and post-test assessments focusing on three competency domains: conceptual understanding of digital learning management, technical ability to operate digital platforms, and ability to apply technology for educational purposes.

Before the training, participants generally demonstrated limited understanding of how digital platforms could support comprehensive learning management. Most participants associated digital technology primarily with communication and material distribution. However, after the training, participants showed improved understanding of digital technology as an integrated system supporting learning preparation, implementation, documentation, and evaluation.

The practical evaluation also demonstrated improvements in participants' technical abilities. Participants who initially experienced difficulties in managing digital

documents and collaborative platforms were able to independently perform basic functions, including creating digital learning resources, organizing shared folders, managing collaborative documents, and developing online assessment activities. This improvement indicates that practical-based training was more effective than conventional technology introduction because participants directly experienced the relevance of digital tools to their professional responsibilities.

The transformation of participant competence can be seen in Table 1.

Table 1. Improvement of Education Personnel Digital Competence

Competency Aspect	Before Training	After Training
Understanding of digital learning management	Limited to basic digital usage	Understanding technology integration for learning management
Digital document management	Individual and non-systematic storage	Collaborative and structured document management
Learning resource management	Conventional distribution methods	Digital-based resource organization
Learning evaluation management	Mostly manual assessment process	Utilization of digital assessment approaches
Collaboration among education personnel	Limited coordination	Increased digital collaboration practices

The improvement shown in Table 1 indicates that the program successfully encouraged participants to move beyond basic digital adoption toward meaningful digital integration. The change was not only reflected in technical skills but also in participants' perception of technology as a strategic component of educational innovation.

4. Development of Digital-Based Learning Management Practices

Beyond individual competency improvement, the program also generated institutional-level changes through the emergence of digital learning management practices. One of the important outcomes was the development of awareness among teachers and education personnel regarding the importance of establishing standardized digital workflows. Participants began identifying learning management activities that could be improved through technology integration, including document organization, collaborative planning, and digital assessment administration.

The mentoring process encouraged participants to develop more systematic approaches to managing learning resources. Previously, learning documents were often stored individually by teachers, creating difficulties in accessing, updating, and monitoring learning materials. After the program, participants began implementing shared digital storage mechanisms that enabled easier access and collaboration among educational personnel.

Similarly, the evaluation management process experienced improvement. Participants recognized that digital assessment systems provide not only efficiency advantages but also opportunities for collecting and analyzing learning data. Through technology-supported evaluation practices, teachers can obtain more organized learning information that can be used as a basis for improving instructional strategies.

These findings suggest that digital transformation should be understood as an organizational change process rather than simply a technological intervention. The success of digital implementation depends on the ability of educational personnel to integrate technology into existing educational practices and institutional culture.

5. Challenges and Sustainability of Digital Transformation Implementation

Although the program produced positive outcomes, several challenges were identified during implementation. The first challenge was the variation in participants' digital competency levels. Participants with limited prior experience required additional guidance during technical sessions, while participants with higher digital competence progressed more quickly. Therefore, differentiated assistance strategies are necessary to ensure equal participation among all participants.

The second challenge was related to technological infrastructure, particularly internet stability and device availability. These limitations occasionally affected the smoothness of practical sessions. However, the implementation team addressed these challenges through technical support, flexible practice sessions, and peer-assisted learning approaches.

The reflection session conducted at the end of the program revealed that participants recognized the importance of continuous mentoring and institutional commitment. Participants suggested several sustainability strategies, including establishing internal digital support teams, conducting periodic digital literacy training, and developing institutional guidelines for technology utilization.

Overall, the findings indicate that the program contributed to strengthening education personnel capacity beyond basic technology adoption. The intervention supported a transition toward digital empowerment by enabling teachers and educational staff to understand, utilize, and integrate digital tools into learning

management and evaluation practices (Anthony, 2022). The experience demonstrates that sustainable digital transformation in educational institutions is not solely dependent on technological availability but also on continuous competency development, contextual mentoring, and strong institutional commitment to support meaningful technology integration.

CONCLUSION

The capacity-building program demonstrated that strengthening education personnel is a critical foundation for achieving sustainable digital transformation in learning management and evaluation. The findings indicate that, prior to the intervention, digital technology utilization was still primarily limited to basic operational activities and had not been systematically integrated into curriculum management, instructional practices, and evaluation processes. Through a structured approach involving needs assessment, capacity-building training, practical implementation, and continuous mentoring, participants showed improvements in digital understanding, technical competence, and confidence in utilizing technology to support educational practices.

Furthermore, the program highlights that successful digital transformation is not solely determined by the availability of technological infrastructure but by the ability of education personnel to meaningfully integrate technology into institutional workflows. The transition from basic digital adoption toward digital empowerment was reflected in improved collaboration, more organized learning resource management, and the development of technology-supported evaluation practices. Although challenges related to differences in digital competency levels, infrastructure readiness, and the need for continuous assistance remain, the program provides an important foundation for establishing a sustainable digital learning culture. Therefore, future initiatives should emphasize long-term mentoring, institutional leadership support, and continuous professional development to ensure that digital transformation contributes effectively to improving educational quality and innovation.

BIBLIOGRAPHY

- Ahsan, M. J. (2025). Cultivating a culture of learning: the role of leadership in fostering lifelong development. *The learning organization*, 32(2), 282-306. <https://doi.org/10.1108/TLO-03-2024-0099>
- Akour, M., & Alenezi, M. (2022). Higher education future in the era of digital transformation. *Education Sciences*, 12(11), 784.
- Alahi, M. E. E., Sukkuea, A., Tina, F. W., Nag, A., Kurdthongmee, W., Suwannarat, K., & Mukhopadhyay, S. C. (2023). Integration of IoT-enabled technologies and artificial intelligence (AI) for smart city scenario: recent advancements and future trends. *Sensors*, 23(11), 5206. <https://doi.org/10.3390/s23115206>

- Aluko, R. (2022). Enhancing the digital literacy experience of teachers to bolster learning in the 21st century. *Journal of Learning for Development*.
- Anthony Jnr, B. (2022). An exploratory study on academic staff perception towards blended learning in higher education. *Education and Information Technologies*, 27(3), 3107-3133. <https://doi.org/10.1007/s10639-021-10705-x>
- Bitar, N., & Davidovitch, N. (2024). Cultural adaptation of digital learning tools in Israeli higher education: A case study of lecturer perceptions and practices. *TechTrends*, 68(6), 1152-1165.
- ElSayary, A. (2023). The impact of a professional upskilling training programme on developing teachers' digital competence. *Journal of Computer Assisted Learning*, 39(4), 1154-1166. <https://doi.org/10.1111/jcal.12788>
- Escobar, F., Almeida, W. H., & Varajão, J. (2023). Digital transformation success in the public sector: A systematic literature review of cases, processes, and success factors. *Information Polity*, 28(1), 61-81. <https://doi.org/10.3233/IP-211518>
- Hendrawan, S. A., Chatra, A., Iman, N., Hidayatullah, S., & Suprayitno, D. (2024). Digital transformation in MSMEs: Challenges and opportunities in technology management. *Jurnal Informasi dan Teknologi*, 6(2), 141-149.
- Hu, S. (2024). The Effect of Artificial Intelligence-Assisted Personalized Learning on Student Learning Outcomes: A Meta-Analysis Based on 31 Empirical Research Papers. *Science Insights Education Frontiers*, 24(1), 3873.
- Jung, J., Choi, S., & Fanguy, M. (2024). Exploring teachers' digital literacy experiences. *International Review of Research in Open and Distributed Learning*, 25(2), 41-59.
- Kandia, I. W., Suarningsih, N. M., Wahdah, W., Arifin, A., Jenuri, J., & Suwarma, D. M. (2023). The strategic role of learning media in optimizing student learning outcomes. *Journal of Education Research*, 4(2), 508-514.
- Kiosia, A., Boylan, S., Retford, M., Marques, L. P., Bueno, F. T. C., Kirima, C., ... & Wozencraft, A. (2024). Current data science capacity building initiatives for health researchers in LMICs: global & regional efforts. *Frontiers in public health*, 12, 1418382.
- Kotturi, Y., Hui, J., Johnson, T. J., Sanifu, L., & Dillahun, T. R. (2024). Sustaining Community-Based Research in Computing: Lessons from Two Tech Capacity Building Initiatives for Local Businesses. *Proceedings of the ACM on human-computer interaction*, 8(CSCW1), 1-31. <https://doi.org/10.1145/3641017>
- Maxwell, D. (2024). Capacity building as a strategic tool for attainment of quality education in public schools in Nigeria. *International Journal of Scientific Research in Education*, 17(1), 111-126.
- Mhlanga, D. (2024). Digital transformation of education, the limitations and prospects of introducing the fourth industrial revolution asynchronous online learning in emerging markets. *Discover education*, 3(1), 32. <https://doi.org/10.1007/s44217-024-00115-9>
- Peca, L., Cojocaru, S., Dumitraşcu, M., & Tsurcanu, D. (2025). Evaluation of cybersecurity training perceptions, adopted practices and strategic directions for capacity building. *Journal of Engineering Science*, (3), 75-90. [https://doi.org/10.52326/jes.utm.2025.32\(3\).07](https://doi.org/10.52326/jes.utm.2025.32(3).07)
- Rivai, F. A., & Rahmawati, N. (2025). Workshop, Assistance, and Capacity Building in the Development of Teaching Materials Based on 21st-Century Learning. *AL GHAZALI: Jurnal Pendidikan Dan Pemikiran Islam*, 5(2), 247-262.

- Sağ, M., & Semerci, Ç. (2024). Teachers' Views on Digital Literacy and Barriers. *Bartın University Journal of Faculty of Education*, 13(4), 893-909. <https://doi.org/10.14686/buefad.1330922>
- Soelton, M. (2023). Conceptualizing organizational citizenship behavior and learning organization in the labor sector. *Jurnal Organisasi Dan Manajemen*, 19(1), 239-255.
- Sudrajat, J., Mayasari, A., & Arifudin, O. (2024). Enhancing the quality of learning through an e-learning-based academic management information system at Madrasah Aliyah Negeri. *EDUKASIA Jurnal Pendidikan dan Pembelajaran*, 5(2), 621-632. <https://doi.org/10.62775/edukasia.v5i2.1724>
- Williams, P., Dutta, I. K., Daoud, H., & Bayoumi, M. (2022). A survey on security in internet of things with a focus on the impact of emerging technologies. *Internet of Things*, 19, 100564.