



Enhancing Faculty Digital Competence through Learning Management System Training: A Case Study at STMIK Profesional Makassar

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ABSTRAK

Transformasi digital dalam pendidikan tinggi menuntut peningkatan kapasitas dosen dalam memanfaatkan teknologi pembelajaran daring, salah satunya melalui platform Learning Management System (LMS) Moodle. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk meningkatkan kompetensi dosen STMIK Profesional Makassar dalam menggunakan LMS Moodle secara efektif dan mandiri. Pelatihan dilaksanakan dalam dua sesi dengan pendekatan praktik langsung (*hands-on*), mencakup pengelolaan materi ajar, forum diskusi, kuis, tugas, serta evaluasi pembelajaran. Hasil kegiatan menunjukkan peningkatan signifikan dalam penguasaan struktur dan fitur inti Moodle, kesiapan dosen mengelola ekosistem pembelajaran digital yang inklusif, fleksibel, dan adaptif, serta kemampuan membuat materi pembelajaran digital, mengelola forum diskusi, dan merancang evaluasi berbasis sistem. Peningkatan ini berdampak langsung pada kualitas interaksi dan capaian belajar mahasiswa. Selain itu, kegiatan ini mendukung transformasi digital berkelanjutan di tingkat institusi, memperkuat citra STMIK Profesional Makassar sebagai perguruan tinggi progresif yang responsif terhadap tantangan Revolusi Industri 4.0.

Kata kunci: LMS Moodle; Pelatihan Dosen; Pembelajaran Daring; Transformasi Digital; Pengabdian Masyarakat

ABSTRACT

The digital transformation in higher education necessitates the enhancement of faculty capacity in leveraging online learning technologies, one of which is the Moodle Learning Management System (LMS). This community service initiative aimed to strengthen the competencies of lecturers at STMIK Profesional Makassar in effectively and independently utilizing Moodle LMS. The training was conducted in two sessions using a hands-on approach, covering the management of instructional materials, discussion forums, quizzes, assignments, and learning evaluations. The results indicated significant improvements in mastering Moodle's structure and core features, lecturers' readiness to manage an inclusive, flexible, and adaptive digital learning ecosystem, as well as their ability to develop digital learning materials, manage discussion forums, and design system-based evaluations. These enhancements had a direct impact on the quality of interaction and student learning outcomes. Moreover, this initiative supported sustainable digital transformation at the institutional level, reinforcing STMIK Profesional Makassar's image as a progressive higher education institution responsive to the challenges of the Fourth Industrial Revolution.

Keywords: Moodle LMS; Faculty Training; Online Learning; Digital Transformation; Community Service



INTRODUCTION

The advancement of information technology has had a significant impact on the field of education, particularly in the implementation of online learning systems. One of the technologies that plays a crucial role in supporting distance learning is the Learning Management System (LMS). An LMS is a digital platform that facilitates lecturers and students in managing instructional materials, assignments, discussions, and learning evaluations in an efficient and flexible manner. In the context of higher education, the LMS plays a strategic role, functioning not only as a medium for delivering learning content but also as a system that integrates all components of the learning process.

An LMS allows instructors to facilitate and model discussions, plan online activities, set learning expectations, provide learners with options, and assist in problem-solving with processes for decision making. An Instructor's presence within an LMS creates an engaging learning environment. Students can retain their autonomy, enthusiasm, and motivation with LMS use. (Bradley, 2020)

One of the most widely adopted and proven effective LMS platforms globally is Moodle, which has been translated into over 100 languages and is used by leading universities worldwide (Nurmaxmatov, 2022). Moodle is an open-source platform used by various formal and non-formal educational institutions. The effectiveness of Moodle is demonstrated not only by its widespread adoption but also by numerous research findings. For instance, (Nurpalah & Nasrulloh, 2022) found that Moodle-based e-learning development can increase student learning motivation by 17.68%. According to (Munna et al., 2024), the use of LMS enables flexibility without limitations of time and place, enhances student engagement through multimedia content, and facilitates evaluation through instant feedback mechanisms. LMS is also considered efficient in resource utilization and supports the sustainability of education.

Several key factors influencing the effectiveness of LMS have also been identified, including ease of use and perceived usefulness of the system. (Prakarsa et al., 2023) state that perceived ease of use affects perceived usefulness, and both determine users' intention to use the LMS. Therefore, an intuitive LMS design becomes a crucial factor in promoting user engagement. In line with this, various studies have demonstrated that Moodle, as one of the most widely used LMS platforms, is capable of effectively accommodating these needs. Research conducted by (Satriani et al., 2021) and (Oktaviani et al., 2018) reinforces Moodle's effectiveness in supporting the learning process. Through the ADDIE design approach and the utilization of interactive features such as forums, videos, and quizzes, Moodle is considered capable of enhancing motivation, learning independence, and providing an engaging learning experience aligned with students' characteristics. This is further supported by (Cavus et al., 2022), who emphasize that perceived usefulness and perceived ease of use are the main determinants of user satisfaction and continued intention to use LMS, especially in higher education settings. In addition, using educational technologies to

address curricula limitations is a bridge to enhancing learner willingness to accept e-learning (Al-Azawei et al., 2017).

In line with these findings, a study conducted at three universities in Jordan revealed that although faculty members perceived Moodle as a valuable instructional tool, they continued to face several challenges, including internet connectivity issues, limited interaction, the need for training in electronic platforms, difficulties with online examinations, and self-regulation. The successful implementation of Moodle was found to be highly dependent on the active involvement of institutional management and the willingness of faculty members to adopt e-learning (Alomari, 2024).

Amid the demands of the 21st century, digital transformation in education has become a necessity. Various technological approaches have been employed to improve access to and the quality of education (Faisal et al., 2018; Faisal & Abdul Rahman, 2023). A tangible manifestation of digital transformation in higher education is reflected in the use of the Moodle LMS at STMIK Profesional Makassar. As an integral part of this optimization effort, the development of an intuitive LMS aligned with user needs is a crucial aspect in creating a more meaningful learning experience. At STMIK Profesional Makassar, technical training for lecturers on mastering Moodle features has been implemented as a concrete intervention to bridge the usage gap. This initiative has not only focused on enhancing technical skills but has also been driven by data-based approaches (Faisal et al., 2025) which serve as inspiration in building an adaptive, inclusive, and user-experience-oriented learning system.

The community service activity carried out contributed to the improvement of educational quality, implemented through a community engagement initiative in the form of LMS Moodle training for lecturers at STMIK Profesional Makassar. The training was conducted in two sessions. The first session focused on the fundamental understanding of developing instructional materials, introducing user roles such as administrator, lecturer, and student, as well as exploring essential features available in Moodle as a digital learning platform. The second session was directed toward more advanced technical mastery, particularly in utilizing Moodle for managing assignments, creating quizzes, and collecting student projects online. Through this training, lecturers were expected to be able to design and manage learning activities in such a way that students could complete quizzes, submit assignments, and upload projects directly through the Moodle LMS. In addition, the training also included various tips and tricks for using Moodle to enhance the efficiency of digital classroom management and to deepen understanding of user needs and experiences.

Specifically, this Moodle LMS training for lecturers at STMIK Profesional Makassar aimed to enhance their technical skills in managing digital classrooms through Moodle, including uploading and organizing instructional materials, creating discussion forums, quizzes, and assignments. In addition, it sought to develop the ability to design LMS-based learning that is adaptive, user-centered, and aligned with andragogical principles. The training also aimed to strengthen lecturers' capacity in

conducting online learning assessments, including creating evaluation instruments, applying completion tracking, and utilizing student learning outcome reports. Another objective was to foster lecturers' autonomy in utilizing Moodle's advanced features to optimize interaction and student engagement in online learning, as well as to support the institution's ongoing digital transformation, enabling STMIK Profesional Makassar to remain competitive and innovative in the application of educational technology.

METHODOLOGY

The training on the use of the Learning Management System (LMS) Moodle for lecturers at STMIK Profesional Makassar was conducted as part of a community service activity aimed at enhancing the digital competencies of lecturers in managing online learning. The training activity was carried out in two stages, each with a different but complementary focus.

Training Design

The training method employed adopted a hands-on approach emphasizing participatory learning. Each session was systematically designed to introduce the key features of the Moodle platform, both from theoretical and practical perspectives. This approach also integrated the principles of andragogy to align with the characteristics of lecturers as adult learners.

Training Stages

The first stage of the training focused on the fundamental understanding of Moodle usage, which included managing digital learning materials, introducing the structure and user roles within the system such as administrator, lecturer, and student, and exploring basic features such as discussion forums, material uploads, and online class management. Meanwhile, the second stage was directed toward mastering advanced features, including the creation and management of online quizzes, the collection of student assignments and projects via the platform, and the optimization of evaluation tools and learning outcome reporting features.

Data Collection Techniques

Data were collected through participatory observation during the training activities, documentation of participant activities, as well as self-reflection and independent evaluations conducted by the training participants. In addition, a user-centered approach was applied to identify the needs, challenges, and level of technology adoption among the lecturers.

LMS Development Approach

In the implementation of this training, a user persona approach was also employed to gain a deeper understanding of Moodle users' characteristics, as recommended by (Holygina Benita & Andhyka Kusuma, 2022) This approach enabled

the training to be tailored to the profiles and needs of the participants, making the training materials and methods more contextual and relevant.

Evaluation and Follow-Up

The success of the training was evaluated based on the participants' ability to independently manage digital classrooms and their responses regarding the effectiveness of the training. The follow-up actions included providing assistance in the practical use of Moodle during real teaching activities, as well as collecting feedback to support the development of a more adaptive and sustainable LMS system.

RESULTS AND DISCUSSION

The implementation of the Learning Management System (LMS) Moodle training for lecturers at STMIK Profesional Makassar demonstrated positive outcomes across various aspects, including improvements in individual competencies and the strengthening of the institutional digital learning system.

Enhancement of Lecturer Competence

The training successfully improved lecturers' understanding of the structure and core functions of the Moodle LMS. Training participants demonstrated the ability to design and upload digital instructional materials, manage discussion forums and online learning activities, create and implement structured quizzes and assignments, and independently utilize system-based evaluation features. This improvement strengthened the lecturers' readiness to manage digital classrooms in a more autonomous, efficient, and structured manner.

Effectiveness of Digital Learning

Following the training, the use of the Moodle LMS within the campus environment showed improvement in both intensity and quality. Students were able to access learning materials flexibly, complete quizzes online, and submit assignments and projects without constraints of time and location. This condition supported the achievement of learning outcomes, particularly within the context of blended learning. This finding is consistent with the study by (Khrisat & Fakhouri, 2024), which demonstrated that the strategic use of Moodle can enhance student engagement, strengthen self-directed learning habits, and positively impact academic achievement in higher education.

Participant Response and Training Evaluation

The majority of training participants provided positive responses regarding the content, methods, and facilitators of the training. Self-reflections indicated an increase in lecturers' confidence in implementing LMS-based learning. The training was considered relevant, practical, and aligned with real-world needs in the field.

Activity Documentation

The implementation of the Learning Management System (LMS) Moodle training for lecturers at STMIK Profesional Makassar was documented in two sessions. The first session was held on Tuesday, September 17, 2024, focusing on the basic introduction to using the Moodle LMS. The activity took place in the Multipurpose Room and was attended by lecturers from various study programs. The training material in this session was delivered by Nasir Usman, S.Kom., M.Kom., as the main instructor, who also serves as a permanent lecturer at STMIK Profesional Makassar.

Figure 1. depicts the atmosphere during the implementation of the Learning Management System (LMS) Moodle training at STMIK Profesional Makassar. The facilitator is seen delivering the material at the front of the room using a laptop connected to a projector, while the participants, consisting of lecturers from various study programs, follow the instructions directly through their respective laptops.

Figure 2. provides another perspective of the training atmosphere, showing participants focusing on their laptops while following the facilitator's presentation at the front of the room.



Figure 1. LMS Moodle training at STMIK Profesional Makassar



Figure 2. LMS Moodle training at STMIK Profesional Makassar (2)

The second session was held on Friday, July 11, 2025, featuring advanced material focused on online learning evaluation features. The training took place in the Multipurpose Room and was attended by participants who had previously taken part in the first session. The material in this session was once again delivered by Nasir Usman, S.Kom., M.Kom., who provided direct and interactive technical assistance to the participants.

Figure 3. illustrates the process of individualized guidance as participants created digital assignments and determined automatic grading schemes. The facilitator moved around the room, offering personalized technical support based on each participant's needs. This activity provided hands-on practice and strengthened participants' understanding of evaluative features such as quizzes, assignments, deadlines, and learning outcome reporting.



Figure 3. Independent practice by LMS Moodle training participants

In this second session, in addition to practicing the creation of quizzes and digital assignments, several participants were observed using two laptop devices simultaneously. One laptop was used to log in as a lecturer, while the other was used to log in as a student. This strategy was intended to allow participants to experience firsthand the student perspective when accessing course materials, completing quizzes, and submitting assignments. This approach proved effective in helping participants understand the flow of student interactions within the system, while also enhancing empathy and the accuracy of the online learning activity designs they developed.

Based on the results described above, the training on the use of the Learning Management System (LMS) Moodle for lecturers at STMIK Profesional Makassar was part of a broader institutional effort to enhance the quality of digital-based learning. This initiative was specifically designed to address challenges in the effective implementation of learning technologies while simultaneously strengthening lecturers' competencies in conducting online classes optimally. The findings obtained during the training indicated significant improvements in the mastery of LMS features, reinforcement of digital learning strategies, and lecturers' readiness to adopt the system independently. These results form the foundation for the subsequent discussion, which elaborates on various aspects of the training outcomes, the approaches employed, and their broader impact on both the institution and the students.

Enhancing Lecturer Competence through LMS Training

The training on the use of the Learning Management System (LMS) Moodle for lecturers at STMIK Profesional Makassar demonstrated significant improvements in digital literacy, technological autonomy, and the utilization of online learning features. These findings are consistent with previous studies (Satriani et al., 2021; Oktaviani et al., 2018), which emphasize the importance of structured training and interactive approaches in enhancing lecturers' motivation and pedagogical capacity. Hands-on experience in navigating the Moodle system, developing instructional materials, and integrating quizzes and assignments proved effective in improving lecturers' readiness to independently use the LMS.

Utilization of the Training Course as a Self-Directed Learning Medium

As part of a training strategy oriented toward authentic user experience, the instructor not only delivered the material in person but also actively leveraged the advantages of the Moodle LMS by designing a dedicated course entitled "*Learning Management System for Lecturers*." This course served not only as a simulation tool but also as a medium for self-directed learning accessible to all training participants. Within the course, lecturers were assigned the role of students so that they could directly experience the system-based learning process from a student's perspective, including accessing, navigating, and completing various learning activities.

The course content was structured in a modular and systematic manner using the section outline feature available in Moodle. The provided materials included an introduction to general LMS concepts, roles and access levels within the system (such as administrator, lecturer, and student), course management, participant management, the use of various learning features and modules, as well as assessment and evaluation techniques. Within the course, training participants could directly explore essential features such as Add an Activity or Resource, Discussion Forum, Quiz, Assignment, Group settings, and Completion Tracking. The materials were also supplemented with articles, step-by-step guides, and tips and tricks specifically tailored to the context and implementation needs of the LMS at STMIK Profesional Makassar.

This approach aimed not only to enhance lecturers' technical skills in using the LMS but also to strengthen their pedagogical empathy toward students as the end users of the system. By understanding how students interact with the system, lecturers are able to design learning activities that are more effective, efficient, and aligned with students' needs. This finding aligns with (Anaraki, 2018), who reported that students participating in a blended learning environment using Moodle demonstrated improved understanding and exam performance, with 78% of them stating that the online supplement had a strong positive impact on their learning. In addition, the use of this course also reflects the implementation of a blended learning model within the training, which harmoniously combines face-to-face instruction with digital learning.

The training strategy implemented clearly demonstrated that the delivery of material was no longer one-directional but instead provided space for contextual and practical hands-on activities. Lecturers not only gained an understanding of the technical functions within Moodle but also acquired insights into how to design digital learning that is user-experience oriented (user-centered). This approach proved effective in encouraging active participant engagement, increasing confidence, and strengthening their readiness to independently manage LMS-based learning in their respective classrooms.

Driving and Inhibiting Factors in Training Implementation

During the implementation of the Moodle LMS training for lecturers at STMIK Profesional Makassar, several driving and inhibiting factors were identified that influenced the smooth running and effectiveness of the activity. The driving factors included strong institutional support, particularly in the provision of adequate facilities such as training rooms, stable internet access, and technological infrastructure; high participant motivation driven by the need to adapt to digital transformation in learning; relevant and practical training materials delivered through a hands-on approach with context-specific examples; the presence of experienced facilitators competent in both technical and pedagogical aspects; and the application of a user-centered approach through the use of user persona, ensuring that the training content was aligned with participant needs.

On the other hand, several inhibiting factors were also encountered, including variations in participants' digital literacy levels that required facilitators to allocate

additional time for certain individuals, occasional internet connectivity disruptions that interrupted practice sessions, the limited duration of the two-day training which restricted the depth of discussion on some advanced Moodle features, device limitations faced by a few participants that slowed access to certain LMS functions, and overlapping teaching or administrative duties that affected participants' focus and continuity in following all sessions. Understanding these driving and inhibiting factors is essential for improving future training activities, allowing planners to maximize supporting elements while mitigating potential challenges.

User-Oriented Training Approach

The application of the user persona approach in the development of training materials helps ensure that the training is relevant and applicable to the actual needs of users (Holygina Benita & Andhyka Kusuma, 2022). This approach takes into account the characteristics of LMS users, making the training not only theoretical but also contextual. In addition, the application of andragogical principles (Bakar Juddah, 2015) further enhances the effectiveness of the training, as it aligns with the characteristics of lecturers as adult learners who require experience-based, flexible, and context-sensitive instructional approaches.

Institutional Impact and Academic Quality Enhancement

At the institutional level, the training supports a more comprehensive and sustainable digital transformation process. This reinforces the role of the LMS as an integral system in the management of academic processes and as a key enabler in optimizing learning administration and delivery. Lecturers' readiness to utilize the LMS also enhances the institution's image as a technology-oriented higher education institution that is responsive to the challenges of the Fourth Industrial Revolution. Furthermore, students have also experienced the positive impact of this training through improved quality of online interaction and increased accessibility of learning materials, in alignment with the findings of (Munna et al., 2024) and (De Bruijn-Smolters & Prinsen, 2024), who found that well-designed blended learning environments significantly enhance student engagement across academic, behavioral, cognitive, and affective dimensions, thereby improving learning outcomes.

Strategic Implications and Development Direction

This training demonstrates that enhancing lecturers' digital competencies is a key element in bridging the digital transformation gap in higher education. The impact of the training is not only perceived at the individual level but also contributes to strengthening an inclusive and sustainable learning ecosystem. In the future, the training may be expanded and enhanced through the integration of emerging technologies such as artificial intelligence (AI), as suggested by (Alotaibi, 2024), in order to create learning experiences that are more personalized, responsive, and data-driven. These findings are in line with (Platonova et al., 2022), who emphasize that future research in blended learning should focus not only on content and delivery

models but also on methodological replication, diverse samples, and long-term effectiveness to support sustainable digital transformation in higher education.

CONCLUSION AND RECOMMENDATIONS

The training on the use of the Learning Management System (LMS) Moodle for lecturers at STMIK Profesional Makassar has made a tangible contribution to enhancing the digital competencies of educators, particularly in managing online learning independently and effectively. Through a hands-on approach and the application of andragogical principles, this training successfully strengthened lecturers' understanding of the structure and core features of Moodle, while also improving their readiness to create an inclusive, flexible, and adaptive learning ecosystem. The training outcomes revealed improved lecturer capabilities in developing digital instructional materials, managing discussion forums, and designing system-based evaluations, which had a direct impact on the quality of interaction and student learning achievement. At the institutional level, this activity also supported sustainable digital transformation, reinforcing STMIK Profesional Makassar's image as a progressive higher education institution responsive to the challenges of the Fourth Industrial Revolution.

As a follow-up, it is recommended that similar training be conducted on a continuous basis with a broader scope, including the development of advanced LMS features and the integration of emerging technologies such as artificial intelligence (AI). In addition, it is necessary to establish a mentoring system and communities of practice for lecturers to share experiences and strengthen both their technical and pedagogical capabilities. Periodic evaluations of the training's effectiveness and the utilization of the LMS should also be carried out to ensure that the implemented system is truly aligned with user needs. In this way, the optimization of Moodle LMS utilization at STMIK Profesional Makassar can be sustained and make a significant contribution to enhancing the quality of technology-based education.

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