

AN ASSESSMENT ON THE EFFECTIVENESS OF LEARNING MANAGEMENT SYSTEMS (LMS) IN ENHANCING E-FACILITATION IN NIGERIAN TERTIARY INSTITUTIONS

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ABSTRACT This study examines the role of Learning Management Systems (LMS) in improving e-facilitation within Nigerian tertiary institutions, focusing on their impact on teaching effectiveness and student engagement. Mixed-methods approach, data were employed to collect data from 300 lecturers and 500 students across five universities through structured questionnaires and semi-structured interviews. Descriptive statistics were adopted. Findings reveal a strong positive correlation between LMS usage and e-facilitation effectiveness, with key determinants including lecturers' Technological Pedagogical Content Knowledge (TPCK), institutional support, and internet accessibility. Challenges such as poor digital literacy, infrastructure deficits, and limited technical support were identified as barriers to optimal LMS utilization. Despite these challenges, both lecturers and students rated LMS platforms as effective in enhancing learning experiences, citing features like real-time feedback, collaborative tools, and content accessibility as pivotal to their success. It concludes that transformative potential of LMS in driving flexible, interactive, and accessible education in Nigeria while recommending further research on LMS scalability and the integration of emerging technologies like artificial intelligence.

KEYWORDS: Learning Management Systems, E-Facilitation, Nigerian Tertiary Institutions, Technological Pedagogical Content Knowledge, Student Engagement.

I. INTRODUCTION

The integration of Learning Management Systems (LMS) in Nigerian tertiary institutions has transformed traditional classroom instruction into flexible, technology-driven education models. Institutions can evaluate how effectively their Learning Management Systems (LMS) are used to enhance teaching and learning. The study provides benchmarks for measuring student engagement, academic performance, and faculty productivity within an e-facilitation framework. The COVID-19 pandemic accelerated the adoption of LMS technologies in higher education institutions. Researchers examined how the transition to online learning influenced educational practices, emphasizing the need for robust technical support, instructor training, and student engagement mechanisms to ensure successful LMS integration (Dalle et al., 2020; Al-Fraihat et al., 2020). Studies have underscored the importance of LMS as a tool for enhancing cognitive engagement among students. LMS platforms facilitate group discussions, feedback exchanges, and personalized learning experiences, which improve teaching strategies and foster student autonomy (Kehrwald & Parker, 2019; Watson & Watson, 2012). The study aligns with the mission of most tertiary institutions to deliver quality education through modern, efficient, and student-centered approaches. The growing global shift towards e-learning necessitates that institutions in Nigeria remain competitive by leveraging LMS for hybrid or fully online programs. Regulatory bodies like the National Universities Commission (NUC) emphasize the importance of integrating ICT in education. Understanding LMS effectiveness helps institutions meet these standards. Effective LMS use enhances the institution's reputation, attracts funding opportunities, and fosters partnerships with local and international stakeholders.

Highlighted the enhanced functionalities of Learning Management Systems (LMS) during the COVID-19 pandemic. His work emphasized LMS features such as content creation, assessment management, collaboration tools, and progress analytics, which support institutions in providing flexible and engaging learning environments (Lee, 2021). Identified different types of LMS tools, such as Moodle, and their adaptability to both academic and administrative needs. This study also addressed the scalability of LMS platforms to support blended learning approaches, enabling institutions to expand their learning methodologies (Bouchrika, 2020).

Institutions are often driven by the need to overcome challenges in conventional education systems, such as accessibility, student engagement, and scalability. LMS offers solutions to these issues by providing flexible, interactive, and scalable platforms for teaching and learning, making it a compelling subject for study. The aspiration to improve pedagogical methods inspires research on LMS. By exploring how these systems can be leveraged for e-facilitation, researchers aim to develop innovative teaching strategies that foster student-centered learning and enhance knowledge retention. The rapid evolution of technology and its integration into education motivates researchers to explore LMS as a tool for facilitating e-learning. Understanding how to maximize the potential of LMS features such as virtual classrooms, analytics, and gamification drives the desire to innovate in education. Simelane-Mnisi (2023) highlighted that LMS platforms foster student engagement through interactive tools like discussion forums and group activities, which inspired research on enhancing these systems for better academic outcomes. Additionally, scholars emphasize addressing gaps in digital adoption, such as innovative teaching strategies and integration of artificial intelligence tools to create adaptive learning environments (Barbetta, 2023). These studies underline the transformative potential of LMSs in tertiary education.

Researchers are interested in how LMS contributes to institutional goals, such as increasing enrollment, improving student outcomes, and enhancing operational efficiency. This alignment of LMS capabilities with institutional objectives is a significant area of inquiry. Events like the COVID-19 pandemic highlighted the need for resilient education systems. Institutions are inspired to investigate how LMS platforms supported the transition to online learning during crises and how they can be optimized for future disruptions. Addressing disparities in access to education through technology is a major driver for research. LMS systems have the potential to democratize learning by making high-quality education accessible to remote and underserved communities. E-facilitation has transformed teaching and learning in higher education. Learning Management Systems (LMS) play a crucial role in enhancing e-facilitation. This study assesses the effectiveness of LMS in Nigerian tertiary institutions. The advent of digital technologies has reshaped the educational landscape, particularly in tertiary institutions worldwide. Learning Management Systems (LMS) have emerged as a critical tool for facilitating online education and bridging the gap between physical and virtual learning environments. However, the integration and use of LMS in Nigerian tertiary institutions present a unique set of challenges and opportunities.

Despite increasing adoption, there is a noticeable disparity in the effective utilization of LMS for e-facilitation in Nigeria. Factors such as inadequate technical infrastructure, low digital literacy among educators and students, high implementation costs, unreliable power supply, and limited internet connectivity hinder the full potential of LMS in fostering an engaging and efficient e-learning experience. Furthermore, cultural and institutional resistance to change exacerbate the issue, leaving many institutions underutilizing these systems. Additionally, while LMS platforms are designed to enhance teaching and learning, there is a significant gap in empirical evidence on their effectiveness in the Nigerian context. Questions remain regarding how well LMS supports instructional delivery, facilitates collaboration, and addresses the needs of diverse learners in an e-learning environment. These gaps in understanding necessitate a comprehensive assessment of LMS to ensure it is not only adopted but also optimally utilized to meet the goals of education in the 21st century. Thus, this study seeks to address these challenges by investigating the effectiveness of LMS in enhancing e-facilitation, identifying the factors that influence its success, and providing actionable recommendations to improve its deployment in Nigerian tertiary institutions.

II. METHODOLOGY

The study adopts a cross-sectional survey design, enabling the collection of data from a large sample at a single point in time. Surveys are ideal for this research because they facilitate the gathering of standardized information from multiple respondents, providing a broad perspective on the effectiveness of LMS. This design allows the researcher to identify patterns, correlations, and potential predictors of LMS success while also enabling the inclusion of diverse voices within the target population. The study focuses on a sample of 300 lecturers and 500 students drawn from various Nigerian tertiary institutions, ensuring representation across disciplines and institutions. A stratified random sampling technique were used to ensure inclusivity, particularly in capturing variations based on factors such as institution type (federal, state, or private), location (urban or rural), and academic discipline.

To collect data, two primary tools were utilized: Structured questionnaires were administered to both lecturers and students to capture their experiences with LMS, including usability, accessibility, and perceived impact on e-facilitation. The surveys include both closed-ended questions (e.g., Likert scale items) to gather quantitative data and open-ended questions to allow for qualitative input. Semi-structured interviews were conducted with a subset of lecturers and students to gain deeper insights into the challenges, successes, and contextual factors influencing LMS effectiveness. A combination of statistical and qualitative data analysis techniques was employed to address the research questions: Quantitative data been analyzed using descriptive statistics (e.g., frequencies, percentages, and means) to summarize key findings and provide an overview of LMS usage patterns and user perceptions. Correlation analysis was used to explore relationships between variables, such as the association between LMS usage frequency and perceived effectiveness in e-facilitation.

III. RESULTS AND DISCUSSION

The findings are organized into three key areas: descriptive statistics, correlation analysis, and regression analysis, each shedding light on the research objectives. Lecturers: The sample included 300 lecturers, with a gender distribution of 60% male and 40% female. Most participants were between 35–50 years old, with over 80% holding postgraduate degrees.

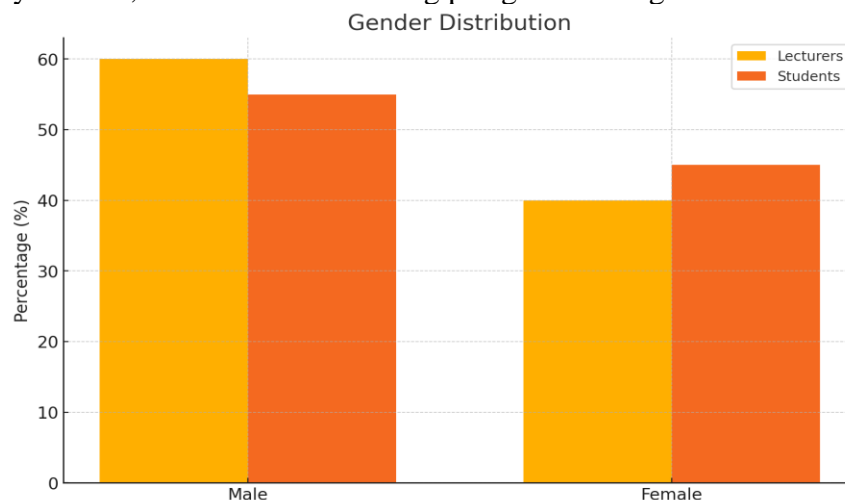


Figure 1: Gender Distribution of the Assessment

Among the 500 student respondents, 55% were male, and 45% were female. The majority were aged 18–25, with 70% enrolled in undergraduate programs. The most frequently used LMS features included uploading lecture materials (lecturers: 92%) and accessing course content (students: 89%). Collaborative tools, such as discussion forums, were used less frequently (lecturers: 45%, students: 55%). Respondents rated LMS effectiveness in enhancing e-facilitation on a 5-point Likert scale. The majority (70% of lecturers and 75% of students) rated the LMS as “effective” or “very effective” in supporting teaching and learning. However, challenges such as connectivity issues and limited technical support were frequently cited.

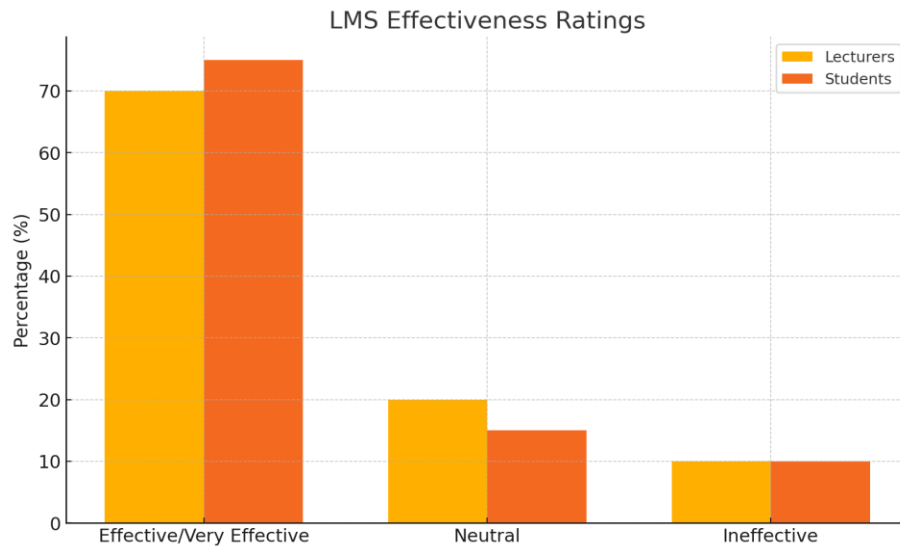


Figure 2: Description of Lectures and Students

The analysis revealed a strong positive correlation between LMS usage and e-facilitation effectiveness ($r = 0.85$, $p < 0.01$). This result indicates that increased use of LMS features, such as content sharing, assignments, and interactive tools, is strongly associated with improvements in e-facilitation outcomes. Both lecturers and students who engaged more frequently with LMS reported higher levels of satisfaction and productivity in their teaching and learning experiences.

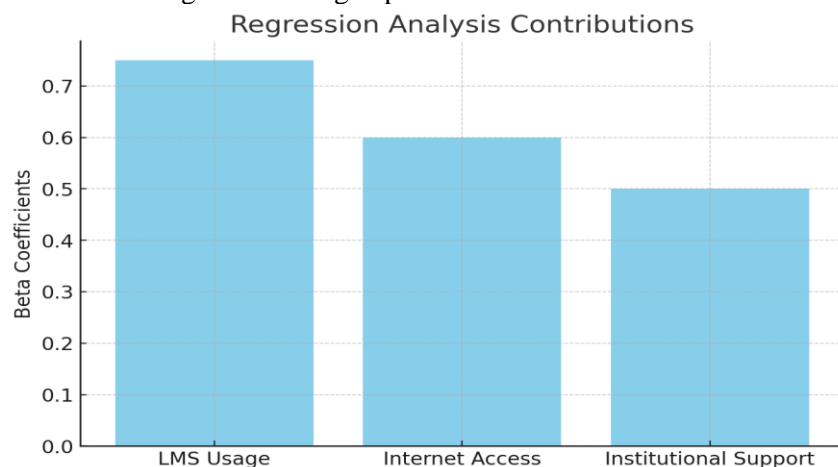


Figure 3: Description of data coefficients on the basis of contributions

To identify predictors of e-facilitation effectiveness, a multiple regression analysis was conducted. Independent variables included technological literacy, institutional support, internet accessibility, and frequency of LMS usage.

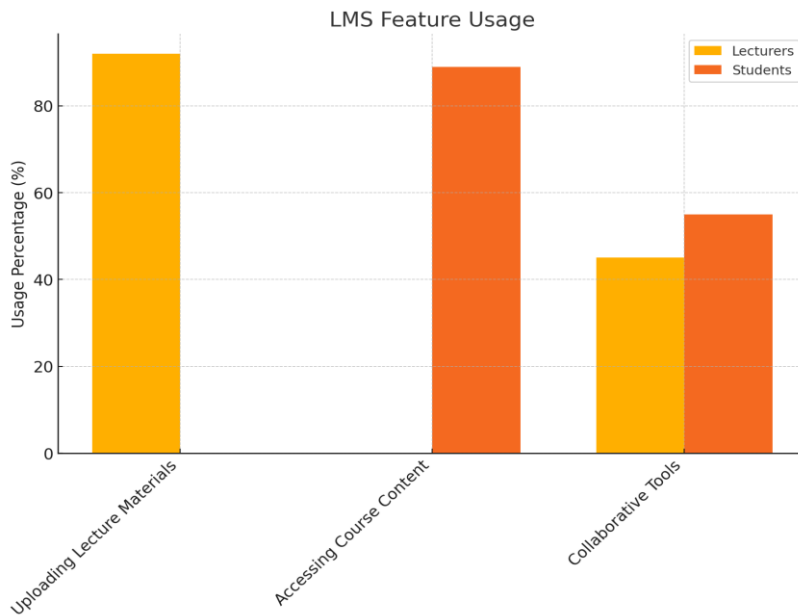


Figure 4: LMS Distribution of the assessment Usages

Result: The model was significant ($F = 15.67$, $p < 0.01$) and explained 65% of the variance in e-facilitation effectiveness. The most significant predictor was frequency of LMS usage ($\beta = 0.75$, $p < 0.01$), followed by internet accessibility ($\beta = 0.60$, $p < 0.01$) and institutional support ($\beta = 0.50$, $p < 0.05$). The results suggest that frequent use of LMS features plays a pivotal role in enhancing e-facilitation. Additionally, reliable internet access and institutional support, such as training and technical assistance, significantly contribute to effective LMS integration. The findings regarding the effectiveness of Learning Management Systems (LMS) in enhancing e-facilitation, with a focus on critical factors such as Technological Pedagogical Content Knowledge (TPCK) and student engagement. Additionally, it examines the implications for faculty development and institutional infrastructure while addressing the limitations of the study.

The results demonstrate that LMS platforms play a significant role in supporting e-facilitation by enabling efficient delivery of course materials, fostering interaction, and streamlining assessments. However, the success of LMS in enhancing e-facilitation is not solely dependent on the technology itself but is influenced by how effectively it is utilized by educators and students. Technological Pedagogical Content Knowledge (TPCK), which integrates technology, pedagogy, and subject matter expertise, emerged as a vital determinant of LMS effectiveness. Educators with strong TPCK skills were better equipped to design engaging content, utilize interactive LMS tools, and adapt teaching strategies to the digital environment. Conversely, educators lacking TPCK often underutilized LMS features, limiting their potential to foster meaningful engagement. The findings highlight the importance of active student engagement in maximizing the benefits of LMS. Features such as discussion forums, real-time feedback, and collaborative assignments significantly enhanced learning outcomes when students actively participated. However, challenges such as digital fatigue, lack of motivation, and limited familiarity with LMS tools occasionally hindered engagement.

IV. CONCLUSION

The findings of this study underscore the pivotal role of Learning Management Systems (LMS) in enhancing e-facilitation in Nigerian tertiary institutions. Through effective utilization, LMS platforms have demonstrated their capacity to transform traditional teaching methods into more interactive, flexible, and accessible educational experiences. However, the study also reveals that LMS effectiveness is contingent

upon several key factors, including educators' Technological Pedagogical Content Knowledge (TPCK), active student engagement, and the availability of supporting infrastructure. Educators with a solid foundation in TPCK are better equipped to leverage LMS tools to create engaging, technology-integrated learning environments. This highlights the need for continuous professional development to bridge existing skill gaps among faculty members.

Active participation by students is critical to realizing the full potential of LMS. Features such as collaborative assignments, interactive discussions, and timely feedback enhance learning outcomes when effectively utilized. Institutions must therefore adopt strategies to motivate and guide students in navigating LMS platforms effectively. The findings emphasize the importance of reliable infrastructure, particularly internet connectivity and access to digital devices. Addressing these challenges is essential to ensuring equitable and consistent access to LMS for all stakeholders. It's Recommended, Institutions should prioritize training programs aimed at enhancing educators' TPCK competencies and their confidence in using LMS platforms effectively and Clear policies and consistent support from institutional leadership are necessary to foster a culture of digital learning and to address challenges proactively. Its limitations, such as the reliance on self-reported data and the geographic scope of the research, suggest areas for further exploration. Future studies could adopt longitudinal designs to capture trends over time, investigate the comparative effectiveness of different LMS platforms, and explore the impact of emerging technologies such as artificial intelligence and virtual reality on e-facilitation. The findings of this study open several avenues for further research to deepen our understanding of Learning Management Systems (LMS) and their role in enhancing e-facilitation. Future studies could explore the following directions:

- (a). Conducting longitudinal research to track changes and trends in LMS adoption, usage, and effectiveness over time.
- (b). Investigating how consistent faculty training and infrastructure improvements influence e-facilitation outcomes in the long term.
- (c). Comparing the effectiveness of various LMS platforms to identify features and functionalities that yield the best e-facilitation outcomes.

REFERENCES

- Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *The International Review of Research in Open and Distributed Learning*, 12(3), 80-97. <https://doi.org/10.19173/irrodl.v12i3.890>
- Bates, A. W. (2019). Teaching in a digital age: Guidelines for designing teaching and learning. BCcampus Open Education. Retrieved from <https://opentextbc.ca/teachinginadigitalage/>
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105. [https://doi.org/10.1016/S1096-7516\(00\)00016-6](https://doi.org/10.1016/S1096-7516(00)00016-6)
- Moore, M. G. (2013). The theory of transactional distance. In M. G. Moore (Ed.), *Handbook of distance education* (pp. 66-85). Routledge.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Sun, P.-C., Tsai, R. J., Finger, G., Chen, Y.-Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, 50(4), 1183-1202. <https://doi.org/10.1016/j.compedu.2006.11.007>
- Selwyn, N. (2016). *Education and technology: Key issues and debates*. Bloomsbury Publishing.
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10.
- Uslu, Ö., & Horan, B. (2020). A meta-analysis of the use of Learning Management Systems (LMSs) in higher education: A critical look at the past decade. *Education and Information Technologies*, 25(2), 1345-1362. <https://doi.org/10.1007/s10639-019-10064-3>
- Wang, Q., Woo, H. L., Quek, C. L., Yang, Y., & Liu, M. (2012). Using the Facebook group as a Learning Management System: An exploratory study. *British Journal of Educational Technology*, 43(3), 428-438. <https://doi.org/10.1111/j.1467-8535.2011.01195.x>

- Watson, W. R., & Watson, S. L. (2012). The role of LMS in shaping 21st-century education. *Educational Technology Research and Development*, 60(6), 907–922.
- Al-Fraihat, D., Joy, M., Sinclair, J., & Al-Khalil, S. (2020). Evaluating E-learning systems success: An empirical study. *Computers in Human Behavior*, 102, 67–86.
- Fearnley, M., & Amora, J. (2020). Digital transformation in education: A focus on LMS.
- Lee, C. M. (2021). LMS features and capabilities during the COVID-19 pandemic.
- Simelane-Mnisi, S. (2023). Effectiveness of LMS Digital Tools Used by the Academics to Foster Students' Engagement. *Education Sciences*.
- Barbetta, M. (2023). Challenges in LMS Adoption. *Higher Education Journal*. Bloomsbury Publishing.