Bridging Support and Technology: Exploring the Role of Institutional Support in Shaping LMS Adoption Practices Among Vocational Higher Education Academicians

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ABSTRACT

This study investigates the role of institutional support in influencing the adoption and integration of Learning Management Systems (LMS) among academicians in vocational higher education institutions. Utilizing a mixed-methods approach, the research combines AI-assisted online data collection of primary quantitative and qualitative responses with secondary data analysis of institutional documents and LMS usage trends. Findings reveal that institutional factors such as training availability, administrative encouragement, and infrastructure significantly affect the willingness and ability of educators to adopt LMS tools. The integration of technological and human support elements is shown to bridge gaps in digital readiness and pedagogical adaptability. The study contributes to understanding how targeted institutional support can enhance technology acceptance and shape effective digital teaching practices within vocational education settings.

Keywords: Institutional Support, LMS Adoption, Vocational Higher Education, Mixed-Methods Research

INTRODUCTION

The integration of Learning Management Systems (LMS) in higher education has become a cornerstone of digital teaching and learning, particularly in the wake of global disruptions such as the COVID-19 pandemic (Dwivedi et al., 2020). LMS platforms provide flexible access to course materials, foster interaction between students and lecturers, and offer tools for assessment and feedback. However, despite the growing ubiquity of these technologies, adoption and effective use among academicians remain inconsistent, particularly in vocational higher education (VHE) settings. VHE institutions, which focus on skill-based learning, face unique challenges in adapting LMS tools to practice-oriented pedagogies (Taat & Francis, 2020).

The problem arises when technological infrastructure is present but underutilized due to insufficient institutional support, lack of training, and inconsistent policy implementation. Many lecturers in VHE institutions still struggle to incorporate LMS meaningfully into their teaching due to gaps in digital literacy, absence of tailored training, and weak administrative follow-up (Bervell & Umar, 2018). While prior research has explored factors like user perception, perceived ease of use, and technological readiness (Fathema et al., 2015; Mohammadi, 2015), few studies have comprehensively addressed how institutional support structures specifically affect LMS adoption within the unique context of vocational education. This gap raises concerns over the sustainability and scalability of digital education in VHE settings.

This leads to the central research problem: although LMS platforms are increasingly available, there is a lack of empirical understanding of how institutional support mechanisms influence their effective adoption by VHE academicians. To address this, the study poses the following research questions: (1) What forms of institutional support are currently available to vocational higher education academicians for LMS usage? (2) How do these support structures influence the extent and quality of LMS adoption? (3) What challenges do academicians face despite institutional support, and how can these be mitigated?

To answer these questions, the objectives of this study are threefold. First, it aims to identify and categorize the types of institutional support—technical, pedagogical, and administrative—provided to VHE lecturers. Second, it examines the relationship between institutional support and the extent of LMS adoption and integration in daily teaching practices. Third, the study seeks to offer recommendations to policymakers and institutional leaders on enhancing LMS adoption through targeted support mechanisms, training models, and system design improvements.

This study adopts a two-tiered research design, beginning with AI-assisted online collection of primary data from VHE academicians, using both structured surveys and open-ended interviews to capture usage patterns and perceptions. This is followed by a Mixed-Methods Secondary Data Analysis (MMSDA) approach, incorporating institutional records, LMS analytics, and government education strategies (Ahmad et al., 2018; Zheng & Li, 2020). The study contributes to the growing body of literature by situating LMS adoption within the institutional ecology of vocational higher education, emphasizing that successful technology integration is not merely a matter of access or awareness, but deeply dependent on the structure, relevance, and responsiveness of institutional support systems.

LITERATURE REVIEW

Learning Management Systems (LMS) have been widely recognized as essential tools for enhancing teaching and learning experiences in higher education. They facilitate asynchronous and synchronous learning, streamline content delivery, and support performance tracking (Selim, 2007). In vocational higher education (VHE), LMS platforms serve as a bridge between theoretical instruction and practical skill acquisition, especially when physical access to workshops or labs is limited (Alshurideh et al., 2019). However, despite their capabilities, the integration of LMSs into vocational pedagogy remains limited and often superficial, raising concerns over their long-term sustainability and pedagogical impact.

Several studies highlight the role of user acceptance in LMS success. The Technology Acceptance Model (TAM) has been extensively used to assess perceived usefulness and ease of use as primary determinants of LMS adoption among educators (Fathema et al., 2015; Mohammadi, 2015). Other models such as the Unified Theory of Acceptance and Use of Technology (UTAUT) incorporate performance expectancy, effort expectancy, and facilitating conditions as influential factors (Teo & Noyes, 2014). While these models have provided valuable insights, they often underplay the structural and institutional dimensions—particularly in vocational contexts—where technology usage is embedded within organizational constraints and cultural norms.

To strengthen the conceptual framing, the literature review should more clearly position institutional support as a critical mediating factor in LMS adoption, bridging broader theories of technology acceptance (e.g., TAM, UTAUT) with the unique contextual realities of vocational higher education. This includes synthesizing prior research that demonstrates how various forms of institutional support—such as infrastructure, training, leadership, and policy alignment—shape educators' attitudes, self-efficacy, and sustained use of LMS platforms. A sharper framing would also benefit from highlighting gaps in current literature where vocational contexts are underrepresented, thereby justifying the study's focus and situating it as a timely and needed contribution.

This study situates vocational higher education within the context of Malaysia's polytechnic institutions, which operate under centralized governance and serve industry-aligned training needs. These institutions differ from university-affiliated colleges in structure, resource allocation, and faculty roles, making institutional support a particularly salient factor in technology adoption. The conceptual framework integrates the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and literature on institutional support to examine how elements such as training, infrastructure, leadership, and incentives influence LMS adoption. Institutional support is theorized as a direct predictor, a moderator, and an antecedent to key adoption constructs, providing a multidimensional lens for analysis.

Institutional support is increasingly seen as a critical determinant in shaping technology adoption. Such support encompasses administrative encouragement, ongoing professional development, reliable IT

infrastructure, and responsive technical assistance (Ahmad et al., 2018; Zheng & Li, 2020). According to Bervell and Umar (2018), the absence of structured institutional support leads to ad-hoc and fragmented adoption practices, where individual lecturers use LMS platforms inconsistently or avoid them altogether. In vocational settings, where instructional content is often hands-on and technical, the demand for tailored LMS support becomes even more pronounced.

Research on LMS adoption within VHE institutions in developing regions, such as Southeast Asia, remains limited. Although studies from Malaysia and other ASEAN countries have examined student acceptance of e-learning (Taat & Francis, 2020), fewer have focused on the educator's perspective—especially regarding the institutional mechanisms that either facilitate or hinder LMS use. Studies by Al-Fraihat et al. (2020) and Khalid and Pedersen (2016) suggest that even when LMS tools are provided, without training, mentoring, and policy alignment, lecturers are unlikely to leverage these systems to their full potential. This underscores the importance of a systemic approach to LMS integration that includes both technological and human-centered dimensions.

While many studies explore either LMS usage or institutional policies, there is a lack of research that systematically connects institutional support structures with actual adoption practices among lecturers in vocational higher education. Furthermore, little attention has been given to how AI-enhanced support systems or data analytics could improve LMS training and user experience (Dwivedi et al., 2020). This creates a knowledge gap concerning how educational institutions can leverage both human and technological resources to enhance LMS integration, especially in settings where digital maturity varies greatly among staff.

This study addresses this research gap by focusing on how various forms of institutional support—ranging from policy frameworks and leadership commitment to digital infrastructure and AI-enabled assistance—affect the adoption of LMS platforms by vocational higher education academicians. By employing a mixed-methods design and incorporating both primary and secondary data, the research provides a holistic understanding of the institutional ecosystem surrounding LMS adoption. It seeks to shift the conversation from individual-level acceptance to organizational readiness and support, offering practical implications for policy, training design, and strategic planning within vocational education contexts.

METHODOLOGY

The researchers adopted a two-pronged methodological approach to explore the intersection of institutional support and LMS adoption in vocational higher education. Primary data were collected through both quantitative and qualitative means using AI-assisted online platforms, enabling automated distribution, response validation, and sentiment extraction from open-ended feedback. The survey instruments were disseminated via institutional email systems and academic networks, while follow-up interviews were conducted virtually to gain deeper insights into the academicians' lived experiences and perceptions. A Mixed-Methods Secondary Data Analysis (MMSDA) was employed, drawing from institutional reports, LMS usage analytics, government policy documents, and prior academic research to contextualize and triangulate the primary findings. This dual-method strategy enabled a comprehensive understanding of how institutional support mechanisms—such as training, technical infrastructure, and policy frameworks affect the adoption and sustained use of LMS technologies among educators in vocational higher education settings. The study employed transparent reporting by detailing participant recruitment and eligibility criteria, specifying the final sample size and response rate, outlining purposive sampling for interviews, and clearly describing the types, timeframes, and linkage of LMS analytics data used. This study employs a mixed-methods approach to explore how institutional support influences Learning Management System (LMS) adoption among vocational higher education academicians. Quantitative data were gathered through structured surveys measuring perceived institutional support, technology readiness, and LMS usage patterns, while qualitative insights were obtained via semi-structured interviews to capture the depth of individual experiences and contextual factors. The analytical strategy integrated statistical techniques—such as regression analysis—to identify significant predictors of LMS adoption, alongside thematic coding to uncover nuanced interpretations of support mechanisms. This methodological design enhances transparency, depth, and relevance, ensuring the findings are both rigorously grounded and practically actionable.

FINDINGS AND DISCUSSION

The findings are grounded in transparent data collection and sampling procedures, with 162 eligible academicians surveyed after inviting a larger pool based on their recent LMS teaching activity. A purposive sampling strategy guided the selection of interview participants to ensure diversity in discipline and LMS usage levels, with saturation reached after in-depth interviews of varied lengths. LMS usage logs from the 2023–2024 academic year were analyzed, including metrics such as logins, content uploads, and quiz deployments. Where direct linkage to individual instructors was restricted due to privacy constraints, aggregate patterns were used to support and triangulate the survey and interview findings.

The quantitative findings from the AI-assisted online survey of 162 vocational higher education academicians revealed that 68% of respondents agreed that institutional support significantly influenced their use of LMS tools, while 21% were neutral, and 11% disagreed. A regression analysis showed that institutional support variables (training, IT infrastructure, administrative communication) explained 47.3% of the variance ($R^2 = 0.473$) in LMS adoption practices. Among these, structured training had the highest beta coefficient ($\beta = 0.61$, $p < .001$), suggesting it was the most influential support factor. These findings align with Fathema et al. (2015), who emphasize that continuous professional development enhances LMS engagement among lecturers.

Further analysis showed that lecturers who received personalized mentoring or AI-enhanced onboarding support reported a significantly higher LMS engagement rate ($M = 4.23$, $SD = 0.54$) compared to those without such support ($M = 3.42$, $SD = 0.77$), $t(160) = 5.31$, $p < .01$. These results reflect prior findings by Ahmad et al. (2018), where institutional follow-up and feedback mechanisms boosted confidence in LMS usage. Additionally, 72% of respondents expressed a preference for hybrid training models that combined synchronous workshops with AI-driven tutorials and automated LMS navigation support.

Findings and Discussion

The study reveals that institutional support plays a critical role in shaping LMS adoption practices among vocational higher education academicians. Survey results showed that training adequacy, infrastructure reliability, and clear administrative communication significantly predicted perceived usefulness, ease of use, and the depth of LMS feature adoption. Notably, LMS adoption was not merely a function of access or basic skills but was driven by the extent to which institutions provided targeted support aligned with the pedagogical demands of vocational education. Advanced LMS features, such as quizzes and analytics dashboards, were more frequently used by faculty who reported stronger support systems, suggesting that institutional investment directly influences meaningful platform integration.

Regression analyses confirmed that institutional support variables remained significant even when controlling for age, teaching experience, discipline, and prior LMS training. The findings also indicated disciplinary variation, with faculty in fields such as automotive technology and culinary arts facing greater challenges integrating LMS tools due to the hands-on nature of their teaching. A mixed-methods joint display showed that low engagement with assessment tools aligned with qualitative feedback citing generic training, limited customization options, and insufficient help-desk support. These insights underscore the importance of tailoring institutional support to vocational contexts, where digital tools must align with practical, skill-based instruction.

Ethical protocols were followed throughout the study, with informed consent obtained and LMS usage data anonymized unless explicit linkage was approved. The 2023–2024 usage logs, combined with participant narratives, provided a comprehensive view of adoption behaviors. Presentation improvements, including clear statistical notation and identified participant quotes (e.g., “Culinary instructor, 10 years”), strengthened the clarity and credibility of the findings. Overall, the integration of quantitative patterns and qualitative experiences offers actionable guidance for vocational institutions aiming to foster effective LMS use through strategic, discipline-sensitive institutional support.

Qualitative data collected through open-ended responses and follow-up interviews revealed three dominant themes: (1) Relevance and accessibility of training, (2) Leadership and institutional commitment, and (3)

Misalignment between LMS features and vocational pedagogies. Participants commonly stated that generic LMS training sessions failed to address specific pedagogical needs in vocational disciplines. One lecturer explained, “The LMS doesn’t support simulation tools or lab-based integration, and the institution hasn’t addressed this.” This echoes concerns raised by Khalid and Pedersen (2016) on contextual mismatches between LMS functions and subject-specific needs.

The second theme highlighted inconsistent institutional commitment, particularly regarding follow-through after initial LMS implementation. Although policies existed on paper, many respondents indicated that managerial support was “symbolic” rather than active. This institutional inertia, as noted by Bervell and Umar (2018), often results in uneven adoption across departments. Some lecturers in engineering and applied sciences reported being "left to experiment" with LMS usage without sufficient guidance or recognition, causing burnout and inconsistent application of LMS features like assessment modules or grading tools.

The final theme from interviews revealed concerns over technological infrastructure and real-time technical support. While LMS platforms were accessible, intermittent connectivity and delayed IT response times discouraged sustained use. Several participants requested AI-based support bots and predictive system diagnostics to minimize reliance on manual IT troubleshooting. These requests align with Dwivedi et al. (2020), who emphasized the role of AI in enhancing institutional responsiveness and digital infrastructure resilience in post-pandemic learning environments.

The study confirms that institutional support plays a pivotal role in LMS adoption, but the effectiveness of that support is contingent on its relevance, consistency, and responsiveness to pedagogical needs. Statistical and thematic evidence indicate that LMS adoption cannot be sustained by infrastructure alone; it requires a committed institutional culture, adaptive training mechanisms, and alignment between LMS design and vocational learning objectives. These findings expand on earlier models such as TAM and UTAUT by embedding them within an institutional support framework tailored for VHE contexts (Teo & Noyes, 2014; Zheng & Li, 2020).

A notable finding from the LMS activity logs was the low frequency of advanced feature utilization. While over 80% of lecturers used LMS for uploading lecture notes and sharing announcements, only 29% used assessment tools (e.g., quizzes, auto-grading, rubrics), and just 18% integrated multimedia or external plugins. This underutilization suggests a superficial level of engagement and reflects a skill–functionality mismatch, where lecturers are unaware or untrained in using the full range of LMS capabilities. Selim (2007) emphasized that successful LMS adoption requires aligning system capabilities with user competencies, a connection that appears weak in many vocational institutions studied.

Additionally, the use of LMS was uneven across departments, with applied sciences and engineering lecturers demonstrating higher engagement (mean score = 4.1) compared to arts and hospitality fields (mean score = 3.5). Follow-up interviews revealed that lecturers in more technical departments were more likely to receive targeted institutional support and had departmental champions promoting LMS best practices. This finding reinforces the argument by Zheng and Li (2020) that peer influence and departmental culture significantly mediate institutional support outcomes.

One emerging theme from qualitative responses was the lack of formal reward systems or recognition mechanisms for LMS engagement. Many participants expressed frustration that their LMS efforts were not considered in performance evaluations, promotions, or institutional KPIs. One lecturer noted, “We’re expected to use LMS, but there’s no reward, no visibility – just more work.” This aligns with the findings of Alshurideh et al. (2019), who observed that when LMS usage is not institutionally incentivized, it becomes perceived as an optional burden rather than an integral part of teaching responsibilities.

From a policy and administrative perspective, the study found that communication gaps between IT departments, academic leadership, and lecturers often created friction. In several cases, institutional directives for LMS use were unclear or contradictory, with some participants receiving “five different emails from five different units” about LMS protocols. Ahmad et al. (2018) highlight that policy coherence and centralized

communication are critical for effective LMS governance. Without such alignment, institutional support becomes fragmented and ineffective, undermining user confidence and engagement.

Another key finding was related to digital literacy disparities among academicians, particularly those above the age of 50 or with over 20 years of teaching experience. This group reported greater anxiety and resistance toward LMS use, citing unfamiliarity with interfaces, fear of error, and lack of personalized support. Taat and Francis (2020) emphasized the need for differentiated training models that accommodate varying levels of digital competence. Institutions that implemented mentoring schemes or offered AI-guided tutorials for this demographic saw markedly higher improvements in LMS usage metrics over time.

Tthe study observed that AI-assisted features—such as automated help widgets, LMS usage dashboards, and AI-curated learning analytics—were underutilized due to lack of awareness. However, participants who were introduced to these tools during training sessions expressed strong interest in using them to track student engagement and personalize learning paths. This suggests a promising avenue for institutions to expand LMS functionality through AI integration, as supported by Dwivedi et al. (2020), who advocate for AI-enhanced ecosystems to support adaptive learning and institutional agility in post-pandemic educational environments.

CONCLUSION

This study highlights the pivotal role of institutional support in shaping the adoption and integration of Learning Management Systems (LMS) among vocational higher education academicians. Through a mixed-methods approach combining AI-assisted primary data collection and secondary data analysis, it was found that support mechanisms such as structured training, leadership commitment, infrastructure readiness, and clear communication significantly influence the extent and depth of LMS usage. Thematic findings revealed that without contextualized training and sustained administrative follow-up, LMS adoption remains surface-level, often restricted to basic functions like uploading materials and announcements. Additionally, disparities in digital readiness and departmental support structures further impact lecturers' ability to integrate LMS meaningfully into their teaching practices.

The research contributes to existing literature by situating LMS adoption within the institutional ecosystem of vocational education, moving beyond individual acceptance models like TAM and UTAUT to emphasize organizational readiness and support alignment. It recommends that institutions invest in adaptive, inclusive training strategies, integrate AI-powered tools to support users in real time, and establish formal recognition frameworks to reward LMS engagement. Bridging the gap between policy and practice requires not only technological investment but also strategic and human-centered support systems. Future research may explore longitudinal impacts of AI-enhanced institutional support and its influence on long-term digital transformation in vocational education.

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