

Strengthening Academic Supervision through Learning Management Systems (LMS): A Qualitative Study of Secondary Schools

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Abstrak

Studi ini menelaah peran *Learning Management System* (LMS) dalam memperkuat supervisi akademik. Supervisi akademik sangat penting untuk meningkatkan kompetensi guru dan capaian belajar siswa, namun pendekatan tradisional seringkali terkendala oleh keterbatasan waktu, beban kerja, serta praktik yang tidak konsisten. Integrasi platform digital menawarkan peluang baru untuk meningkatkan efektivitas supervisi. Penelitian ini menggunakan pendekatan kualitatif dengan pengumpulan data melalui wawancara mendalam terhadap tiga kepala sekolah jenjang menengah dan tiga pengawas sekolah dari sekolah menengah pertama dan sekolah menengah atas yang telah menerapkan supervisi akademik berbasis *Learning Management System* (LMS). Pemilihan partisipan dilakukan menggunakan teknik *purposive sampling* berdasarkan keterlibatan aktif dalam supervisi akademik serta pengalaman dalam pemanfaatan platform LMS. Hasil penelitian mengungkap lima tema utama: (1) tujuan pengembangan LMS, (2) perencanaan supervisi menggunakan LMS, (3) pembangunan hubungan dalam supervisi virtual, (4) penilaian dan umpan-balik, serta (5) tantangan implementasi. LMS terbukti memfasilitasi perencanaan supervisi yang fleksibel, memperkuat komunikasi, dan mendukung penilaian berbasis data, sekaligus menyediakan ruang virtual untuk kolaborasi. Selain itu, LMS meningkatkan pengembangan profesional guru melalui penguatan literasi digital dan praktik reflektif. Meskipun demikian, terdapat beberapa hambatan yang masih dihadapi, termasuk keterbatasan infrastruktur, konektivitas yang tidak stabil, serta perbedaan kompetensi digital di kalangan pendidik. Studi ini menekankan pentingnya pengembangan sistem yang berkelanjutan, pelatihan yang terarah, dan investasi kelembagaan untuk mengoptimalkan pemanfaatan LMS dalam supervisi. Temuan ini berkontribusi pada wacana inovasi pendidikan dan memberikan wawasan praktis bagi para pembuat kebijakan serta pimpinan sekolah dalam memajukan praktik supervisi yang berkelanjutan.

Kata kunci: *Supervisi Akademik; Learning Management System (LMS); Pengembangan Profesional Guru*

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Abstract

This study examines the role of Learning Management Systems (LMS) in strengthening academic supervision. Academic supervision is essential for improving teacher competencies and student achievement, yet traditional approaches are often constrained by time, workload, and inconsistent practices. The integration of digital platforms offers new opportunities to enhance supervision effectiveness. Using a

qualitative interpretive approach, this study collected data through in-depth interviews with three secondary school principals and three school supervisors from junior and senior secondary schools that have implemented LMS-based academic supervision. Participants were selected using purposive sampling, based on their active involvement in academic supervision and experience in utilizing LMS platforms. Findings reveal five major themes: (1) the purposes of LMS development, (2) supervision planning using LMS, (3) relationship-building in virtual supervision, (4) assessment and feedback, and (5) challenges of implementation. LMS was found to facilitate flexible supervision planning, strengthen communication, and support data-driven assessment, while also providing virtual spaces for collaboration. Moreover, it enhanced teacher professional development by fostering digital literacy and promoting reflective practices. Despite these benefits, several barriers remain, including limited infrastructure, unstable connectivity, and differences in digital competencies among educators. The study emphasizes the importance of continuous system development, targeted training, and institutional investment to optimize LMS for supervision. These findings contribute to educational innovation discourse and provide practical insights for policymakers and school leaders in advancing sustainable supervision practices.

Keywords: Academic Supervision; Learning Management System; Teacher Professional Development

INTRODUCTION

Academic supervision plays a pivotal role in developing teacher competencies and enhancing student outcomes by providing systematic guidance for managing the learning process and achieving educational objectives (Fahmi et al., 2019a; Noor & Sofyaningrum, 2020; Tasrif & Hidayat, 2024). Empirical studies indicate that effective supervision is strongly associated with improved academic achievement and higher student retention rates (Gratrix & Barrett, 2017a). Over time, diverse models of academic supervision have been designed to accommodate the specific needs of various educational contexts, ranging from early childhood education (Junanto & Utami, 2020) to vocational high schools (Tasrif & Hidayat, 2024). Furthermore, community-based and collaborative supervision approaches have shown considerable promise in enhancing teacher performance and strengthening pedagogical competencies (Junanto & Utami, 2020), thereby contributing significantly to

the overall improvement of education quality.

Technological advancements have substantially reshaped academic supervision by introducing new modalities, including remote supervision, e-supervision systems, and technology-assisted supervision. Remote supervision, enabled by mobile devices and web-based platforms, has been particularly beneficial in practice-based learning environments, such as higher degree research supervision (Maor, 2018; Ramukumba, 2015). Likewise, e-supervision systems foster virtual communication between supervisors and supervisees, thereby strengthening interaction effectiveness and enhancing the outcomes of students' research projects (Bakar et al., 2016). In professional fields such as psychology, technology-assisted supervision offers greater accessibility, convenience, and cost efficiency; nevertheless, its adoption is often contingent on practitioners' awareness of digital security and their perceptions of potential risks (Blackman et al., 2017).

Learning Management Systems (LMSs) play a vital role in academic supervision by facilitating communication between teachers and students, supporting the distribution of learning materials, grading assignments, and fostering student collaboration (Awad et al., 2019; Kwapisz et al., 2024; Teasley & Lonn, 2007). The integration of social media tools such as WhatsApp and Facebook Groups further strengthens interaction and enables more personalized supervision (Hatziapostolou et al., 2016; Romero-Saritama et al., 2025). Moreover, LMSs collect data on student activities to monitor academic performance, identify at-risk students, and provide targeted support (Hatziapostolou et al., 2016; Wang, 2019a). In addition, they streamline administrative tasks, store essential documents, and generate comprehensive learning reports, thereby enhancing the educational experience and improving the overall effectiveness of academic supervision (Madyatmadja, 2023a).

Traditional and manual approaches to academic supervision remain limited by time constraints and heavy workloads, particularly when a single supervisor is responsible for many teachers or students, thereby reducing the quality of guidance (Al Ghamdi, 2024; Fahmi et al., 2019b; Marnewick & Nel, 2017; Vehviläinen & Löfström, 2016). Preliminary observations and informal consultations with principals and school supervisors conducted prior to LMS implementation revealed recurring challenges related to limited supervisory time, extensive administrative responsibilities, and inconsistent feedback mechanisms across schools. These contextual conditions provided empirical grounding for identifying the urgency of alternative supervisory approaches.

The absence of standardized models and formal training further exacerbates inconsistencies, as supervision practices often rely on the subjective approaches of individual supervisors (Gratrix & Barrett, 2017b;

Suherman et al., 2020a). In addition, the limited adoption of Learning Management Systems (LMS) and digital tools prevents institutions from enhancing the efficiency and effectiveness of supervision (Al Ghamdi, 2024; Wright, 2020). Consequently, the quality of supervision remains highly variable, with teachers and students frequently expressing dissatisfaction due to inconsistent feedback, while the traditional supervisor-centered model fails to foster independent and active learners essential for higher education and research (Gratrix & Barrett, 2017c; Suherman et al., 2020b). The urgency of adopting LMS-based academic supervision has become more pronounced in the post pandemic educational context. The COVID-19 pandemic accelerated the normalization of digital platforms, remote communication, and flexible work practices, fundamentally reshaping the professional behaviors of teachers and supervisors. In the post pandemic era, expectations for timely feedback, digital documentation, and continuous professional interaction have increased, positioning LMS as a strategic infrastructure for sustaining adaptive and resilient supervisory practices.

The strengthening the role of Learning Management Systems (LMS) as an innovative strategy for academic supervision is well supported by evidence demonstrating its potential to enhance student engagement and performance through interactive activities and predictive analytics, while also fostering collaboration through discussion forums and teamwork features (Althaqafi et al., 2025; Dewi et al., 2023; Herlina & Iskandar, 2024; Wang, 2019b). Rather than focusing on a specific LMS brand, this study emphasizes key LMS features such as asynchronous communication, centralized documentation, automated feedback, progress tracking, and data analytics dashboards that are particularly relevant for addressing rigid super-

visory bureaucracy. These features enable flexible supervision scheduling, transparent monitoring, and continuous feedback without excessive administrative procedures.

Beyond improving learning outcomes, LMS enhances administrative efficiency by streamlining reporting and progress tracking and, with the integration of artificial intelligence, provides personalized support and early interventions that reduce educators' workloads (Dewi et al., 2023; Madyatmadja, 2023b; Sajja et al., 2025). Despite the growing body of research on technology assisted supervision, most studies focus on LMS as a learning delivery tool or as a general administrative aid. Limited attention has been given to LMS as an integrated supervisory platform that reshapes supervisory relationships, reduces bureaucratic rigidity, and supports data-informed decision making from the perspectives of principals and school supervisors. Addressing this gap, the present study aims to explore how LMS is utilized to strengthen academic supervision in secondary schools, particularly in responding to time constraints, workload intensity, and inconsistent supervisory practices.

LITERATURE REVIEW

Education providers at various levels face challenges in ensuring quality education with the available resources (Kusnurani & Roesminingsih, 2022). One key example is the role of teachers as the frontline sector in educating students. Principals play an essential role in guiding and improving teachers' work ethics in carrying out instructional activities (Simaremare & Simatupang, 2019). Teacher development programs, such as academic supervision, aim to enhance the overall teaching-learning process and improve student achievement in particular (Miller, 2020).

Educational supervision is a professional service designed to help teachers develop into competent educators. This service aligns with the development of science in general and education in particular, and it contributes to the effectiveness of the teaching and learning process in schools (Ratnawati et al., 2025). The goal of supervision is to improve classroom situations by supporting teachers in their instructional practices and enabling students to become more effective learners (Murtiningsih et al., 2019). Adequate supervision enhances teacher performance, builds skills and confidence in classroom practice, and ensures both professional growth and teacher quality (Ismiarti, 2023).

Despite its importance, many supervisors still interpret supervision conventionally, regarding it merely as fault-finding, which negatively affects teacher evaluation (Kusnurani & Roesminingsih, 2022). In contrast, supervision should avoid authoritarian approaches, where supervisors act as bosses and teachers as subordinates (Bahri, 2014). Instead, supervisors should serve as consultants, mentors, and facilitators in addressing managerial and pedagogical issues in schools (Habibie, 2023). Thus, the essence of supervision is not to evaluate performance but to support teachers in developing their professional competencies (Simaremare & Simatupang, 2019).

Several principles underlie effective supervision: (1) supervisors must avoid authoritarianism; (2) supervision should foster open, collaborative, and harmonious relationships; (3) supervision must be continuous rather than an occasional side task; (4) supervision should be democratic and cooperative rather than dominated by supervisors; (5) supervision programs should be integral to the broader educational goals; (6) supervision must be comprehensive, covering all inter-

related aspects; (7) supervision should be constructive, not punitive; and (8) supervision must remain objective, grounded in actual problems and the needs of schools (Habibie, 2023; Ismiarti, 2023; Wright, 2020).

In the context of COVID-19, new tools for online supervision have emerged, accompanied by security and accessibility considerations (Pront L, 2016). The pandemic accelerated adaptation to computer-mediated communication, promoting convenience, cost-effectiveness, and opportunities for remote work (Miller, 2020). Building rapport and negotiating boundaries are crucial, as supervision is an interactive and dynamic process. Participants must understand their roles, responsibilities, and accountability, as well as the purpose of the supervisory relationship. Effective communication, curiosity, self-reflexivity, and sensitivity to power dynamics are essential components (Miller, 2020). (Miller, 2020)

One of the key advantages of digital platforms is the elimination of travel, which particularly benefits educators and students in rural or remote areas (Martin Brunet, 2017). However, online supervision also presents challenges, such as defining professional boundaries, clarifying responsibilities, and negotiating learning contracts that specify settings, privacy, objectives, and accountability (Rousmaniere, 2014). Virtual communication differs significantly from face-to-face interaction; interpreting cues, facial expressions, and emotions remains difficult. Technical issues such as buffering, screen freezing, or unstable connections can disrupt communication flow (Miller, 2020). Therefore, all participants must be competent in using the technology. Teachers should assess learners' confidence in using the chosen platform and provide training when needed. Establishing ground rules on privacy, confidentiality, and cyber boundaries is also

essential (Dogan et al., 2021). Furthermore, since online platforms depend on external factors like connectivity, contingency plans must be established early (Miller, 2020). Finally, supervisors should regularly evaluate whether the chosen platform remains suitable. If it fails to meet learners' needs, alternative solutions must be sought, as unaddressed needs can significantly hinder the effectiveness of supervision (Alila et al., 2016).

METHODS

This study employed a qualitative approach using an interpretive methodology (Yin, 1996). [An interpretive phenomenological design was adopted to explore participants' lived experiences related to LMS based academic supervision, allowing an in depth understanding of how principals and supervisors construct meaning from their professional practices within a specific institutional context (Creswell, 2009).]

This approach was selected to capture the complexity, relational dynamics, and contextual nuances of academic supervision mediated through digital platforms. Data were collected through semi structured interviews and analysed inductively to allow themes to emerge from participants' narratives.

Participants

This research was conducted in three schools that had developed a Learning Management System (LMS) as a tool to support academic supervision. Participants were selected using purposive sampling, consistent with phenomenological research principles that prioritize information-rich cases over numerical representation. The participant selection criteria included: (1) active involvement in academic supervision processes, (2) direct experience in utilizing LMS

for supervisory purposes, and (3) a minimum of two years of professional experience in their respective roles. Accordingly, the participants consisted of school principals ($n = 3$) and school supervisors ($n = 6$). Although the sample size was relatively small, it was considered sufficient to represent the complexity of LMS-based academic supervision, as participants occupied key strategic and operational roles in supervision practices. Data collection continued until thematic saturation was reached, indicated by the absence of new substantive insights from subsequent interviews.

Data Collection Instruments

Data were collected using semi-structured, open-ended interview protocols designed to encourage participants to reflect critically on their experiences. The interview guide was developed to ensure both consistency and flexibility, allowing participants to elaborate on issues they considered most relevant. The interview protocols covered five thematic areas: (1) LMS development and adoption, (2) planning of academic supervision using LMS, (3) relationship-building and communication during supervision, (4) assessment, feedback, and documentation processes, and (5) challenges and constraints in implementing LMS based supervision.

While the main questions were applied consistently across participants, probing questions were used to deepen understanding and clarify emerging meanings.

Data Collection Procedures

Interviews were conducted individually with principals and supervisors using an interpretive orientation that emphasized participants' perceptions, meanings, and contextual experiences.

All interviews were audio recorded with participants' consent

and transcribed verbatim. Minor iterative adjustments were made to some interview prompts during data collection to explore emerging themes, without altering the overall structure of the interview guide.

Data Analysis

The transcribed data were analyzed using inductive qualitative analysis techniques drawing on Bogdan and Biklen (2007) and Yin (1996). The data analysis process followed several systematic steps. First, the researchers conducted repeated readings of the transcripts to achieve immersion and familiarization. Second, open coding was applied to identify meaningful units of text. Third, similar codes were grouped into broader categories through axial coding. Finally, these categories were synthesized into main themes that represented recurring patterns and shared meanings across participants' experiences.

To enhance the trustworthiness and validity of the findings, triangulation and member checking were employed. Triangulation was achieved by comparing data across different participant roles (principals and supervisors). Member checking was conducted by sharing summaries of the interpreted findings with selected participants to confirm the accuracy and credibility of the interpretations and to minimize researcher subjectivity within the interpretive process.

FINDINGS

LMS Development Purposes

The purpose of developing the LMS was to enhance the quality of education not only in terms of student outcomes, but also through strengthening teacher professional development and improving the efficiency of school management processes. At this stage, principals

were expected to encourage teachers to recognize the objectives of LMS implementation, particularly as a strategic supervision tool that indirectly motivated them to adapt technology to support their professional responsibilities.

Principals articulated a visionary orientation toward LMS development by framing it as part of long-term school transformation aimed at equipping students with future-oriented competencies and digital literacy. Consequently, teachers were required to strengthen their competencies in managing virtual learning environments (Wang, 2019a). Principal support was crucial not only in technical facilitation but also in fostering lifelong learning, teacher autonomy, and psychological safety within collaborative professional networks (Aldighrir, 2025).

“Initially, as in many other schools, learning activities relied heavily on direct instruction, and IT use was restricted to basic browsing. However, data from the 2014 World Innovation Summit for Education (WISE) in Doha, Qatar, indicated that 93% of stakeholders worldwide agreed that learning must change, with strong predictions that online learning would dominate by 2030. Such findings significantly influenced curriculum reform and instructional strategies” (Participant 3, Principal).

“For instance, SMA BB developed an Academic Information System (AIS) that enabled the uploading of required documents, test scores, and student assignments” (Participant 2, Principal).

“The LMS was also used to assist principals and supervisors in monitoring teaching practices and supporting teacher professional development” (Participant 1, Principal).

LMS development further improved school effectiveness by integrating communication, supervision, documentation, and stakeholder engagement into a single digital ecosystem (Colins & Berge, 2017). The LMS was increasingly used as a platform for telesupervision and asynchronous professional monitoring, allowing supervisors to review teaching practices beyond temporal and spatial constraints (Olson et al., 2002; Matson et al., 2023).

Supervision Planning Using LMS

During the COVID-19 pandemic, supervision planning shifted from conventional face-to-face models toward systematic virtual-based supervision strategies supported by LMS infrastructure. These strategies proved influential in integrating supervision across instructional design, online classroom management, assessment mechanisms, and learning communication.

“Supervision began with instructional design, including an analysis of content difficulty and program mapping, developed in both offline and online formats. Three main components content, interaction, and assessment were emphasized before moving into the deployment phase. Implementation involved using the LMS application, conducting evaluations, and integrating communication platforms” (Participant 6, Supervisor).

“Supervision also included monitoring modules and blended online or offline learning. All teaching materials were uploaded into modules, reducing reliance on printed books. Reports of module development and supervision were uploaded directly into the LMS, where teachers could immediately access feedback.

The system required teachers to complete modules before advancing the learning process. For example, if students failed to achieve the minimum score, the system automatically flagged the issue, requiring them to repeat incomplete sections before progressing” (Participant 3, Principal).

“Technically, supervisors were able to observe teaching more flexibly through the LMS, accessing planning documents, media, and resources anytime and anywhere. In addition, principals could monitor live online classes, review planning documents uploaded by teachers, and evaluate both teacher and student performance (Participant 2, Principal). A management account enabled school leaders to monitor teacher uploads, ensure compliance, and track student attendance. Academic advisors and parents were notified if students showed low participation levels” (Participant 4, Supervisor).

All supervision documentation, including teaching modules and feedback reports, was centralized within the LMS, enabling real-time access, automatic monitoring, and compliance tracking. The use of management-level LMS accounts allowed principals and supervisors to monitor teacher performance, student participation, and learning progress in a more transparent and data driven manner. Virtual based supervision thus represented a fundamental transformation of instructional and administrative practices, rather than a temporary response to emergency remote learning (Alhogail & Mirza, 2011).

Building Relationships During Supervision

One of the primary challenges in LMS-based supervision was establishing trust, comfort, and openness in digitally mediated interactions, where physical presence and nonverbal cues were limited.

“Initially, we were unsure whether teachers fully understood what was being communicated. However, we realized that these working patterns represented the future, so mutual trust was necessary” (Participant 3, Principal).

“Feedback, however, was not yet fully optimized due to unfamiliarity with technology and the absence of nonverbal cues such as body language” (Participant 5, Supervisor).

“Nevertheless, the development of a strong virtual culture within schools had a positive impact on building relationships. For example, principals and supervisors scheduled supervisions via Google Calendar or Zoom, with invitations automatically sent to teachers through email or WhatsApp. Both parties adhered to agreed rules of virtual etiquette, including dress codes, speaking norms, and technical arrangements such as camera use and mute/unmute functions” (Participant 4, Supervisor).

Feedback processes were constrained by technological unfamiliarity and the absence of nonverbal communication, requiring supervisors to adopt more explicit, structured, and reflective communication strategies. The development of shared virtual norms including scheduling protocols, digital etiquette, and technical agreements played a critical role in strengthening supervisory relationships. Remote supervision relied hea-

vily on mutually agreed learning contracts that clarified objectives, responsibilities, privacy boundaries, and accountability mechanisms (Martin Brunet, 2017; Hauer et al., 2014).

Ability to Perform Assessment and Provide Feedback

Assessment in LMS-based supervision began with the development of digitally adapted instruments covering planning, instructional processes, and learning outcomes. All supervisory assessments were conducted through the LMS, enabling standardized documentation, performance tracking, and immediate access to feedback

“For instance, School used assessment standards outlined in AIS, including criteria such as PETALS (Pedagogy, Experiences of Learning, Tone of Environment, Assessment for Learning, Learning Content), appraisal, and audit” (Participant 2, Principal).

“Assessment was conducted in two stages: (1) module assessment through the LMS and (2) direct online learning assessment. Teachers could access results directly in the LMS (Participant 3, Principal). Supervisors provided feedback through online or offline conferences and LMS discussion forums, where both parties could revisit video recordings of classroom practices for reflection and improvement” (Participant 6, Supervisor).

“Regular biweekly meetings were also conducted to collectively review progress with teachers” (Participant 1, Principal).

The availability of recorded teaching sessions and LMS discussion forums supported reflective practice,

peer discussion, and continuous professional improvement. Overall, the LMS facilitated e-monitoring by centralizing data, accelerating documentation, and supporting evidence-based supervisory decision-making (De et al., 2023).

Challenges in Supervision

Despite its benefits, LMS-based supervision faced challenges related to infrastructure readiness, internet reliability, system maintenance, and digital competence.

“Technical constraints were often addressed through training, although time and scheduling posed limitations” (Participant 4, Supervisor).

“Investment in IT infrastructure was substantial, requiring backup generators and multiple internet providers” (Participant 1, Principal).

“Issues with AIS primarily arose when servers went down” (Participant 2, Principal).

“Students frequently relied on personal devices such as laptops, tablets, and smartphones to overcome access issues” (Participant 5, Supervisor).

“Continuous LMS development was also necessary to align with teacher and student needs. For example, schools held monthly meetings to improve AIS functionality and adapt it to instructional requirements” (Participant 3, Principal).

Continuous system development was necessary to ensure alignment between LMS functionality and evolving instructional and supervisory needs. The findings indicate that LMS-based supervision requires long-term financial commitment and sustained collaboration between school leaders, teachers, and IT teams to remain effective and scalable.

CONCLUSION

This study demonstrates that the integration of Learning Management Systems (LMS) in academic supervision is not merely a technological adoption, but a transformative leadership and supervisory practice that reshapes instructional planning, implementation, assessment, and professional relationships within schools.

The findings indicate that LMS-based supervision encompasses five interrelated aspects: (1) enhancing educational quality through improved student outcomes, teacher professional development, and organizational efficiency; (2) systematic supervision planning that integrates instructional design, online classroom management, assessment, and learning communication within virtual learning environments; (3) building supervisory relationships grounded in trust, openness, and shared virtual norms; (4) enabling structured, data-driven assessment and continuous feedback through LMS features; and (5) addressing infrastructural, technical, and capacity-related challenges associated with digital supervision.

Importantly, LMS implementation allowed principals and supervisors to conduct flexible, asynchronous, and evidence-based supervision, including telesupervision, e-monitoring, and reflective feedback practices that were previously constrained by time and distance. These practices strengthened teacher autonomy, supported lifelong learning, and facilitated collaborative professional cultures within schools. While LMS-based supervision proved effective, its success was highly dependent on robust IT infrastructure, reliable internet access, continuous system development, and sustained capacity building for teachers and supervisors. The COVID-19 pandemic served as a catalyst that accelerated

LMS adoption and normalized virtual supervision practices, highlighting both opportunities and systemic limitations.

Despite its growing relevance, empirical research on LMS-based academic supervision remains limited. Future studies should focus on developing standardized supervision frameworks, examining leadership and organizational factors influencing LMS effectiveness, and expanding LMS-based supervision models across different educational levels and contexts to support sustainable, technology-driven supervisory practices.

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