

IMPLEMENTING LEARNING MANAGEMENT SYSTEMS TO SUPPORT DIGITAL TRANSFORMATION IN EDUCATION: A CASE STUDY OF BUSINESS ENGLISH LEARNING

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ABSTRAK

Pesatnya perkembangan teknologi digital mendorong kebutuhan transformasi digital di pendidikan tinggi. Penelitian ini bertujuan untuk mengkaji implementasi *Learning Management System* (LMS) dalam mendukung transformasi digital pendidikan dan mengeksplorasi perannya dalam meningkatkan praktik pembelajaran inovatif pada mata kuliah Bahasa Inggris Bisnis. Penelitian ini menggunakan pendekatan kualitatif deskriptif dengan desain studi kasus. Data dikumpulkan melalui wawancara, observasi kelas, dan analisis dokumen terhadap dosen dan mahasiswa yang telah menggunakan LMS selama minimal satu semester. Temuan menunjukkan bahwa implementasi LMS meningkatkan aksesibilitas pembelajaran, mendorong pembelajaran yang interaktif dan berpusat pada mahasiswa, serta mendukung fleksibilitas pembelajaran berbasis teknologi. Dalam konteks Bahasa Inggris Bisnis, LMS memfasilitasi penggunaan modul digital, forum diskusi, dan penilaian berbasis tugas yang relevan dengan keterampilan komunikasi di dunia kerja. Meskipun demikian, tantangan terkait literasi digital, kesiapan infrastruktur, dan adaptasi pedagogis masih ditemukan. Penelitian ini menyimpulkan bahwa implementasi LMS berkontribusi terhadap transformasi digital pendidikan apabila didukung oleh kebijakan institusional, pelatihan berkelanjutan, dan inovasi pedagogis. Temuan ini memberikan implikasi praktis bagi perguruan tinggi dalam mengoptimalkan pemanfaatan LMS sebagai bagian dari strategi transformasi digital.

Kata Kunci: *Learning Management System*; Transformasi Digital; Pembelajaran Inovatif; *E-learning*; Bahasa Inggris Bisnis; Pendidikan Tinggi.

ABSTRACT

The rapid advancement of digital technology has increased the need for digital transformation in higher education. This study examines the implementation of Learning Management Systems (LMS) in supporting educational digital transformation and explores their role in enhancing innovative learning practices in a Business English course. A descriptive qualitative case study approach was employed. Data were collected through interviews, classroom

observations, and document analysis involving lecturers and students who had used the LMS for at least one semester. The findings reveal that LMS implementation improves learning accessibility, promotes interactive and student-centered learning, and supports flexible technology-based instruction. In the context of Business English, the LMS facilitates the use of digital modules, discussion forums, and task-based assessments aligned with workplace communication skills. However, challenges related to digital literacy, infrastructure readiness, and pedagogical adaptation remain. This study concludes that effective LMS implementation contributes to digital transformation in education when supported by institutional policies, continuous training, and pedagogical innovation. These findings offer practical implications for higher education institutions seeking to optimize LMS utilization as part of their digital transformation strategies.

Keywords: Learning Management System; Digital Transformation; Innovative Learning; E-learning; Business English; Higher Education.

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1. Introduction

Digital transformation has become a central agenda for educational institutions worldwide, particularly as rapid technological change reshapes how knowledge is accessed, produced, and communicated. In higher education, digital transformation is often discussed not merely as the digitization of administrative processes, but as a strategic reconfiguration of teaching, learning, and institutional support systems to improve learning quality, inclusivity, and resilience. The Organisation for Economic Co-operation and Development (OECD) frames digital transformation in education as an ongoing process of integrating digital technologies to redesign educational practices and ecosystems in ways that enhance learners' experiences and outcomes (OECD, 2020). Similarly, UNESCO emphasizes that transformation should strengthen equity, broaden access, and build educational resilience, but it requires sustained investment in teacher development, leadership, and curriculum innovation—not only technology infrastructure (UNESCO, 2021).

The urgency of digital transformation in higher education has intensified in recent years due to changing workforce demands, the expansion of hybrid learning models, and the growing expectation that graduates possess strong digital competencies. Higher education institutions are increasingly expected not only to integrate digital technologies into instructional delivery but also to redesign learning experiences that foster collaboration, flexibility, self-directed learning, and lifelong learning skills. In this context, LMS implementation has become a strategic priority rather than a supplementary technological tool. Effective LMS integration can support institutions in responding to evolving educational

needs, enhancing learning continuity, and preparing students for digitally mediated professional environments.

Within this broad agenda, Learning Management Systems (LMS) have become one of the most visible and widely adopted institutional strategies. An LMS provides an integrated platform that supports content distribution, communication, assessment, feedback, and monitoring of learning progress (Alavi & Leidner, 2001; Watson, W.R. & Watson, S.L., 2007). Through a single online environment, students can access learning resources, submit assignments, take quizzes, and interact with peers and lecturers, while lecturers can manage learning sequences, track participation, and provide feedback. In many institutions, the LMS is the backbone that enables blended learning models—learning designs that combine face-to-face instruction with online learning activities (Graham, 2013).

However, LMS adoption does not automatically translate into meaningful digital transformation. Critical scholarship on educational technology argues that “technology-enhanced learning” claims should be evaluated by examining what is actually enhanced in learning, for whom, and under what conditions (Kirkwood & Price, 2014). (Selwyn, 2016) further warns that digital technologies can reproduce or amplify inequities when access, support, and readiness differ across learners and institutions. In practice, LMS implementation may remain “administrative” (used for uploading materials and collecting assignments) rather than “pedagogical” (used to cultivate interaction, autonomy, and higher-order learning). As a result, understanding LMS implementation requires attention to both technological infrastructure and instructional design.

In language education, particularly English for Specific Purposes (ESP), technology-mediated learning can expand opportunities for authentic tasks, multimodal input, and communicative practice. Business English, as a branch of ESP, focuses on developing the language competencies required for professional contexts: writing emails and reports, negotiating, conducting meetings, delivering presentations, and managing workplace correspondence (Dudley-Evans & Saint John, 2003). Online learning spaces can support these competencies through asynchronous and synchronous modes, enabling learners to draft texts, receive feedback, revise iteratively, and simulate professional communication scenarios (Hampel & Stickler, 2012). (Bates, 2015) argues that well-designed digital learning environments can strengthen learner autonomy by structuring learning activities that require planning, self-monitoring, and reflective practice. In short, LMS can become a key tool for Business English learning—if the pedagogy is intentionally designed to leverage its affordances.

Business English was selected as the case study context because it represents a learning domain in which communication skills, professional authenticity, and technology-mediated interaction are particularly important. Unlike general English courses, Business English emphasizes workplace-oriented competencies such as professional writing, presentations, negotiations, meetings, and cross-cultural communication. These competencies require continuous practice, feedback, collaboration, and exposure to authentic communication tasks,

all of which can potentially be facilitated through LMS features. Moreover, as graduates are increasingly expected to operate in digitally connected workplaces, investigating LMS implementation in Business English provides valuable insights into how higher education can align language learning with contemporary professional communication practices.

This issue is particularly relevant in vocational and polytechnic contexts, where learning emphasizes applied skills, professional readiness, and task authenticity. Although many studies have examined LMS adoption in higher education, much of the existing literature focuses on general measures of student satisfaction, technology acceptance, or overall learning outcomes. Comparatively fewer studies have explored how LMS implementation shapes pedagogical practices in language learning contexts, particularly in English for Specific Purposes (ESP) courses designed to develop workplace communication skills. Research specifically addressing the role of LMS in supporting Business English learning within vocational higher education settings remains limited, especially in the Indonesian context.

In Indonesia, many institutions have adopted institutional LMS platforms; however, challenges persist, including varying levels of digital literacy, uneven internet connectivity, device limitations, and the need for lecturers to redesign pedagogy for blended learning environments. Furthermore, there is limited qualitative evidence on how LMS features are integrated into authentic Business English tasks and how such integration contributes to digital transformation at the classroom level. These gaps raise important questions: (1) How is the LMS actually used in a Business English classroom? (2) What kinds of learning routines and participation patterns emerge? (3) How does LMS implementation support or constrain digital transformation and innovative learning?

To address these questions, this study examines LMS implementation in a Business English course at Politeknik Negeri Jakarta (PNJ), using the institutional platform (E-learning PNJ). The study aims to explore how the LMS is implemented to support digital transformation and to examine its role in enabling innovative learning practices, learner autonomy, and Business English skill development. The study is guided by four research questions:

- (1) How is the LMS implemented in Business English teaching at PNJ in terms of workflow, materials, assessment, and communication?
- (2) In what ways does LMS implementation support digital transformation at the classroom level?
- (3) How does LMS use influence innovative learning practices, learner autonomy, and Business English skill development?
- (4) What challenges and enabling conditions shape LMS implementation in this context?

By providing a detailed qualitative account of one vocational higher education setting, the study contributes to current discussions about the conditions under which LMS adoption becomes genuine digital transformation. The findings offer practical implications for lecturers and institutions seeking to optimize LMS use beyond content delivery, and they speak to

broader debates about the relationship between technology, pedagogy, and equity in educational change.

2. Method

This research employed a descriptive qualitative case study design. Case study methodology is appropriate for investigating contemporary phenomena in real-life contexts, especially when the phenomenon (LMS implementation) cannot be separated from its institutional and classroom context (Yin, 2018). The “case” in this study is the implementation of E-learning PNJ as the primary LMS in one Business English course delivered through a blended learning model. The study focused on describing practices, perceptions, and observed learning behaviors rather than testing causal relationships.

Politeknik Negeri Jakarta and the E-learning PNJ ecosystem Politeknik Negeri Jakarta (PNJ) is a vocational higher education institution that prepares students for professional and industry contexts through practice-oriented curricula. In response to the broader agenda of digital transformation in Indonesian higher education, PNJ has implemented an institutional LMS known as E-learning PNJ. In this course, E-learning PNJ functioned as the central platform for distributing learning modules and announcements, administering quizzes, collecting assignments, documenting learning traces, and providing feedback.

In the observed Business English course, the LMS was used within a blended learning sequence. Before face-to-face meetings, students were typically required to access a module and complete a short formative quiz. In-class sessions then emphasized practice-oriented tasks such as drafting professional emails, analyzing workplace communication scenarios, or preparing business presentations. After class, students submitted individual or group outputs through the LMS and received feedback through the grading interface or annotated comments. Students reported that they often accessed the LMS through smartphones, especially to check deadlines, download short materials, or submit assignments when campus or home internet access fluctuated. Thus, the “learning environment” was not a single location, but a distributed ecosystem of devices, connectivity conditions, and digital tools integrated through the LMS.

Participants were selected using purposive sampling to ensure that all participants had relevant experience with LMS-supported learning. The study involved 1 Business English lecturers and 20 students enrolled in a Business English course at Politeknik Negeri Jakarta during one semester in 2025/2026 academic period. The inclusion criteria for participant selection were as follows: (1) lecturers had actively integrated E-learning PNJ into their teaching practices for at least one semester; (2) students had regularly used the LMS for accessing learning materials, completing assignments, participating in discussions, and receiving feedback; and (3) participants were willing to take part in interviews and classroom observations.

Participants included one Business English lecturer (coded as L1) and twenty students (coded as S1–S20) who had actively used E-learning PNJ for at least one semester. Purposive

sampling was employed to select information-rich participants who could describe LMS usage patterns, learning experiences, and constraints in detail (Creswell & Poth, 2018). Student participants represented a range of engagement levels; while all were enrolled and active, interview selection prioritized those who regularly interacted with modules, quizzes, and submission tasks.

The study focused on E-learning PNJ, the institutional Learning Management System used at Politeknik Negeri Jakarta. The platform is based on Moodle platform and provides features such as content distribution, discussion forums, assignment submission, quizzes, grade management, and feedback tools. Data collection was conducted over a period of one semester/sixteen weeks, from February 2026 to May 2026. This duration enabled the researcher to observe LMS use across different stages of the course, including content delivery, learning activities, assessment processes, and feedback practices.

Data were collected using three techniques: (1) Semi-structured interviews: Interviews were conducted with the lecturer and with students. Interview questions explored routine LMS practices, perceived benefits, constraints, changes in learning habits, and preferences for specific LMS features. Follow-up prompts were used to elicit concrete examples (e.g., "Describe a time when the LMS helped you improve your email writing," or "What happens when internet access is unstable during submission?"). (2) Classroom observations: Observations were conducted across blended sessions to document how LMS resources were integrated into teaching, how students prepared through pre-class modules and quizzes, and how interaction occurred during task-based activities. Observational attention focused on learning routines, evidence of autonomy, peer feedback practices, and lecturer facilitation.

(3) Document analysis: LMS artifacts were collected and analyzed, including modules, announcements, quiz items, assignment instructions, submission deadlines, rubrics (when available), and feedback examples. Document analysis enabled triangulation between reported practices and actual course design. Triangulation across interviews, observations, and documents strengthened credibility by allowing the researcher to compare evidence from multiple sources (Miles et al., 2014).

Data analysis followed thematic analysis procedures consistent with Miles et al. (2014). First, interview transcripts, observation notes, and LMS artifacts were organized and repeatedly read to build familiarity. Second, initial codes were developed to mark meaningful units related to LMS routines (e.g., "daily checking," "task-driven access," "pre-class quiz"), learning behaviors (e.g., "self-paced review," "peer feedback"), and constraints (e.g., "internet instability," "platform lag"). Third, codes were grouped into broader themes representing the role of LMS in learning workflows and digital transformation. Finally, themes were refined through triangulation, checking whether a theme was supported by multiple data sources.

To enhance trustworthiness, the study applied: (a) triangulation of data sources and methods; (b) member checking by confirming key interpretations with participants when feasible; and (c) peer debriefing with colleagues to reduce bias in coding and interpretation

(Lincoln et al., 1985). Ethical considerations included informed participation, anonymization of quotes, and the use of data solely for research reporting and improvement of teaching practice.

3. Results and Discussion

This section presents findings from interviews, observations, and document analysis. Consistent with a qualitative narrative approach, the results are organized into themes that describe how the LMS was used, how it supported digital transformation, and how learning innovation emerged (or did not emerge) under different pedagogical conditions. Illustrative participant quotes are included (anonymized) to provide thick description of experiences.

Theme 1: Patterns of LMS use—frequent, task-driven, and predominantly mobile

Across student interviews, a dominant pattern was frequent and routine LMS access. Students described checking E-learning PNJ “almost every day” or “several times a week,” especially around deadlines. The most common reasons were pragmatic: reading announcements, downloading modules, submitting assignments, and completing quizzes. For example, one student explained:

S3: “I open the LMS mostly to see announcements and deadlines. If there is a quiz or assignment, I check it immediately because it affects the score.”

Another student highlighted the convenience of mobile access:

S11: “Most of the time I use my phone. It’s faster for checking tasks and submitting files, especially when I’m not on campus.”

Observation data supported these claims. Before class, students were observed accessing the module and completing a short quiz. The quiz function operated as a “gate” that encouraged preparation, because it was time-bound or graded. Lecturer L1 described this routine as intentional:

L1: “I use pre-class quizzes so students read the module first. It helps me see who is ready and which topics are still confusing.”

Document analysis confirmed the structured sequence: modules uploaded in weekly units, short quizzes aligned with module content, and assignment submission links with deadlines. Taken together, the LMS was not only a repository but a scheduling mechanism that organized learning time and participation.

Interpretation and link to literature. The task-driven pattern reflects how LMS platforms often become “compliance infrastructures” when assessment and deadlines structure participation. While such routines can improve organization and access, they can also limit engagement if students primarily interact due to deadlines rather than curiosity or collaboration. This finding resonates with critiques that many LMS implementations prioritize administrative efficiency over interactive learning (Kirkwood & Price, 2014). At the same time, frequent access and mobile use indicate a form of digital learning habit formation—an important component of classroom-level digital transformation when it stabilizes new learning routines.

Theme 2: LMS as an infrastructure for digital transformation—workflow restructuring and digital learning traces

Evidence from interviews and documents indicates that E-learning PNJ shifted key learning processes into a digital ecosystem. Students no longer relied on printed materials; instead, modules were accessed online. Assignments were submitted digitally, and feedback was delivered via the LMS. Students described the benefits of centralized access:

S7: “The materials are all in one place. If I miss something in class, I can check the module again.”

The lecturer emphasized that the LMS supported systematic workflow management:

L1: “The LMS helps me track submissions and give feedback faster. I can see who submitted, who is late, and I can download everything.”

Observation confirmed that teaching and learning activities were intertwined with digital artifacts: modules referenced during instruction, quiz results discussed as diagnostic feedback, and assignments linked to professional communication tasks. This produced “learning traces” (submission logs, quiz scores, feedback records) that made learning progress visible and reviewable.

However, digital transformation was not seamless. Participants frequently mentioned infrastructure limitations. Students described unstable internet connections and occasional platform lag during submissions:

S14: “Sometimes the LMS is slow, especially near deadline time. I have to refresh many times.”

L1 also expressed concerns about system performance and device compatibility, particularly for assessments requiring stable connectivity:

L1: “If the system is slow or the internet drops, students get anxious. For some quizzes, it affects fairness.”

Interpretation and link to literature. These findings align with OECD and UNESCO’s emphasis that digital transformation requires institutional readiness, not only technology adoption (OECD, 2020; UNESCO, 2021). The LMS enabled workflow restructuring—content delivery, assessment, and documentation became digitally mediated. Yet, the reliability of infrastructure influenced whether transformation translated into improved learning experiences. (Selwyn, 2016) critical perspective is relevant here: technology can intensify anxiety and inequality when connectivity and access vary. Thus, transformation should be evaluated not only by digitalization of processes, but by the quality and equity of those processes.

Theme 3: Learner autonomy and self-regulated learning—enabled by access and formative assessment

A recurring theme was increased learner autonomy. Students described using the LMS to manage their learning time, revisit modules, and prepare for tasks. Several students indicated that the ability to access materials outside class helped them learn at their own pace:

S2: “If I don’t understand, I read the module again at night. In class, sometimes it’s too fast.”

Students also valued formative quizzes as a way to self-check comprehension:

S9: “The quizzes help me know my mistakes. If I get low score, I review the material.”

From the lecturer’s view, the LMS supported autonomy through structured deadlines, progress tracking, and feedback loops. Observations showed students arriving with prior

exposure to the module, which enabled class time to focus more on practice rather than explanation. Peer feedback tasks (e.g., reviewing email drafts) also encouraged responsibility and reflection.

Nevertheless, autonomy varied across students. Some students admitted that they read modules only when quizzes were required:

S16: “If there’s a quiz, I read. If not, sometimes I postpone because other courses are also busy.”

Interpretation and link to literature. This pattern suggests that autonomy is supported by LMS affordances (anytime access, quizzes, feedback), but it still depends on motivational and design factors. (Bates, 2015) argues that autonomy grows when learning design requires planning, monitoring, and reflection. In this study, formative quizzes functioned as a scaffolding mechanism—an external structure that encouraged self-regulated behavior. Yet, autonomy was not uniformly internalized; some students remained dependent on assessment triggers. This indicates that developing autonomy requires sustained pedagogical cultivation, not simply platform access.

Theme 4: Innovative learning and interactivity—emerges through design, not platform presence

Both students and lecturer agreed that the LMS alone did not guarantee interactive learning. When LMS use focused on uploading modules and collecting assignments, students described the experience as “routine” and “administrative.” However, when the lecturer integrated interactive tasks—peer feedback, discussion prompts, multimedia analysis—engagement increased.

For instance, students described learning gains when asked to draft a professional email and then review peers’ drafts using a rubric:

S5: “When we comment on other students’ email, I realize my own mistakes. It’s more active than just submitting.”

The lecturer explained that integrating multimedia resources (YouTube clips of business meetings, sample email templates, interactive forms) was a strategy to make learning more concrete:

L1: “Business English needs examples. I use videos and real samples. Students can see how professionals communicate.”

Observation confirmed that interactivity was highest when tasks required communication and collaboration. In contrast, purely content-delivery weeks showed lower levels of discussion and peer interaction.

Interpretation and link to literature. This finding aligns with blended learning research emphasizing that innovation depends on pedagogical design (Graham, 2013). The LMS is an enabling tool, but interaction emerges through purposeful learning activities. (Kirkwood & Price, 2014) suggest that enhancement should be evidenced by changed learning practices, not by technology use per se. In this case, innovative learning manifested when tasks were designed to be authentic, collaborative, and feedback-oriented. This supports the argument that digital transformation is pedagogical as much as technological.

Theme 5: Business English skill development—writing, presentation preparation, and workplace simulation

Participants reported that LMS use supported Business English skill development in multiple areas, especially professional writing. The LMS facilitated iterative writing cycles: students received instructions, submitted drafts, received feedback, and revised. Students emphasized that digital submission made revision easier and documentation clearer:

S12: “Feedback in LMS is clearer because I can check it anytime. I can revise my email based on comments.”

Presentation preparation was also supported through access to materials and multimedia examples. Students used modules and linked videos to learn presentation structure and professional tone. Listening skills were supported through embedded audio/video resources that simulated workplace situations.

However, participants emphasized that learning outcomes depended more on task quality than on the LMS itself:

S8: “The LMS helps us submit and get materials, but the task is what makes us learn. When the task is realistic, we learn more.”

Interpretation and link to literature. Dudley-Evans and (Dudley-Evans & Saint John, 2003) emphasize authenticity and needs-based design in ESP. In this study, the LMS supported authenticity when tasks simulated workplace communication (emails, presentations, scenario-based listening). (Hampel & Stickler, 2012) highlight that technology-mediated language learning can enable multimodal interaction, but it must be orchestrated by pedagogy. Thus, the LMS functioned as an enabler that amplified the effectiveness of authentic task design.

Theme 6: Constraints and tensions—digital literacy, infrastructure readiness, and pedagogical workload

Despite positive perceptions, constraints were significant. Students and lecturer reported that uneven digital literacy influenced how comfortably students navigated modules, submitted files, and responded to feedback. Some students required additional guidance on file formats, submission steps, and time management. Infrastructure readiness remained a persistent issue, particularly unstable internet connectivity and platform performance near deadlines. Students described stress and uncertainty during submission times:

S19: “When the LMS is slow, I worry my file is not uploaded. I keep checking until it is confirmed.”

The lecturer also described increased workload related to digital teaching: preparing modules, designing quizzes, ensuring clarity of instructions, and handling students’ technical questions. This reveals a tension in digital transformation: while systems can increase efficiency, they can also shift new burdens to lecturers, especially when training and support are limited.

Interpretation and link to literature. (Selwyn, 2016) critique that education technology often redistributes labor and responsibility is relevant: digital transformation may place additional demands on lecturers and students. (UNESCO, 2021) similarly emphasizes teacher professional development as a prerequisite for meaningful transformation. In this case, the success of LMS use depended on institutional support for training, troubleshooting, and reliable infrastructure.

Synthesis: LMS as a pedagogical and digital transformation tool in a vocational higher education context

Synthesizing evidence across data sources, the findings indicate that LMS implementation improved learning accessibility, strengthened interaction, promoted student-centered learning, and increased flexibility in Business English instruction. These benefits were achieved through the LMS's function as: (1) a central platform for managing content, assessment, and communication; (2) a facilitator of learner autonomy through access and formative assessment; (3) an enabler of classroom-level digital transformation via workflow restructuring and learning traces; and (4) a tool that enhanced interactivity and innovation when supported by intentional pedagogical design.

At the same time, the case highlights that LMS adoption is a necessary but insufficient condition for digital transformation. Transformation requires reliable infrastructure, digital literacy development, and teaching strategies that leverage LMS affordances for authentic, collaborative, and feedback-rich learning. In vocational contexts such as PNJ, the strongest value of the LMS emerges when it supports workplace simulation tasks that align with professional communication outcomes.

Table 1. Themes, Evidence, and Interpretations

Theme	Evidence (interviews / observation / documents)	Interpretation
Frequent, task-driven, mobile LMS use	Students accessed LMS daily/weekly for announcements, modules, quizzes, and submissions (S3, S11); observations showed pre-class module access and quiz completion; weekly structured modules and deadlines in LMS.	LMS functions as a routine learning hub and scheduling mechanism; engagement is often triggered by tasks and assessment rather than interaction, reflecting administrative-oriented adoption unless redesigned.
Workflow restructuring as digital transformation	Digital modules replaced print; submissions and feedback were LMS-based (S7, L1); learning traces included quiz scores, submission logs, and feedback records; issues: internet instability and platform lag (S14).	Digital transformation occurs through shifting core learning processes into a digital ecosystem; effectiveness depends on reliability and institutional readiness, not platform presence alone.

Learner autonomy supported through access and formative assessment	Students revisited modules and used quizzes to self-check (S2, S9); lecturer used quizzes diagnostically (L1); some students studied mainly when quizzes required (S16).	LMS affordances can scaffold self-regulated learning, but autonomy varies; sustained design is needed to move from compliance to internalized learning responsibility.
Interactivity depends on pedagogical design	Peer feedback on email drafts increased engagement (S5); multimedia integration supported active tasks; content-only weeks had lower interaction (observation).	Innovative learning is design-dependent; LMS enables but does not guarantee collaboration—pedagogy determines whether learning is interactive and student-centered.
Business English skill development via authentic tasks	Writing cycles supported through submission-feedback-revision (S12); multimedia supported listening and presentation prep; students emphasized task realism (S8).	LMS acts as an enabler for workplace-oriented ESP tasks; learning outcomes are shaped by authenticity, rubrics, and feedback processes more than by technology itself.
Constraints: digital literacy, infrastructure, and workload	Uneven digital skills; unstable connectivity; anxiety near deadlines (S19); lecturer workload increased for design and support.	Digital transformation introduces tensions: equity, stress, and redistributed labor; institutional training, support, and system reliability are essential.

Strengthening the Discussion: LMS Affordances for Business English Learning

Across the findings, four interrelated benefits of LMS implementation emerged consistently: improved accessibility, increased interaction, stronger student-centered learning practices, and greater flexibility. Students were able to access course materials, deadlines, feedback, and learning resources anytime and from multiple devices, particularly smartphones. This flexibility enabled learners to revisit content at their own pace, review feedback repeatedly, and engage with learning activities beyond classroom hours.

The LMS also expanded opportunities for interaction through asynchronous and synchronous learning activities. Rather than limiting communication to face-to-face sessions, the platform facilitated continuous exchanges among students and lecturers through discussion forums, feedback features, announcements, and peer-review activities. These interactions shifted the learning process from teacher-centered content delivery toward more student-centered practices, in which learners actively participated in knowledge construction, collaboration, and self-regulated learning.

In the Business English course, LMS affordances were operationalized through several concrete learning activities. Digital modules provided authentic workplace materials, including sample business emails, reports, meeting agendas, and presentation guidelines. Discussion forums enabled students to analyze workplace communication scenarios, discuss

cross-cultural communication issues, and exchange ideas about professional practices. Task-based assessments required students to draft professional emails, prepare business presentations, develop meeting minutes, and respond to simulated workplace situations. The LMS also supported iterative learning cycles by allowing students to submit drafts, receive lecturer and peer feedback, revise their work, and track their progress over time.

These findings demonstrate that the value of LMS implementation extends beyond administrative functions. The platform became a space for workplace communication practice, enabling students to engage in authentic, technology-mediated tasks that mirror contemporary professional environments. Such activities are particularly relevant in vocational education contexts, where employability and workplace readiness are central learning objectives.

Extended discussion: deepening the theoretical contribution

This section extends the discussion by positioning the case within key theoretical debates: (a) digital transformation as systemic change, (b) the LMS as socio-technical infrastructure, and (c) innovative learning and autonomy as pedagogical accomplishments rather than technological outcomes.

Digital transformation beyond technology adoption

The case demonstrates that classroom-level digital transformation is observable when learning workflows are restructured: materials move online, assessment becomes digitally mediated, and feedback and learning traces become continuous rather than episodic. This aligns with OECD (2020) and UNESCO (2021), who highlight that transformation involves redesigning processes and cultures, not merely adding tools. In the PNJ case, transformation was evident in routine pre-class module engagement and formative quizzes, which changed temporal rhythms of learning: students prepared before class, and class time shifted toward practice. Such a shift is consistent with blended learning rationales that reposition face-to-face time for higher-value interaction, while online space provides access and preparation.

However, the case also highlights the fragility of transformation when infrastructure is unstable. When internet connectivity is unreliable, the LMS can become a source of anxiety and perceived unfairness. This supports UNESCO's argument that meaningful transformation requires readiness at multiple levels: infrastructure, human capacity, and institutional support. It also supports (Selwyn, 2016) critique that technology can create new vulnerabilities. Therefore, evaluating transformation requires attending to lived experiences, not just adoption metrics.

LMS As Socio-Technical Infrastructure

(Watson, W.R. & Watson, S.L., 2007) argue that clarity about what an LMS is—and what it should become—is crucial. In this case, the LMS functioned simultaneously as (a) a repository, (b) an assessment system, (c) a communication hub, and (d) a monitoring instrument. These multiple roles mean the LMS is not a neutral container; it shapes practices by making some actions easy (uploading, tracking, grading) and others harder (rich dialogue, spontaneous interaction, nuanced feedback). The dominant “task-driven” pattern suggests

that when LMS design emphasizes deadlines and submissions, it may orient learners toward completion rather than exploration. This is not necessarily negative, especially in vocational contexts where discipline and professional responsibility matter. Yet, it implies that interactive learning requires explicit design to counterbalance completion-focused behaviors.

From a knowledge management perspective, (Alavi & Leidner, 2001) conceptualize systems as enabling knowledge creation, sharing, and application. In the Business English course, the LMS supported knowledge application through authentic tasks, but knowledge sharing depended on whether peer review and collaborative activities were built into the course. In other words, the LMS enabled potential knowledge sharing; the pedagogy activated it.

Innovative Learning And Autonomy As Pedagogical Accomplishments

(Graham, 2013) describes blended learning as an emerging practice that can support student-centered approaches, including flipped and project-based learning, when design aligns online and offline components. The PNJ case provides evidence for this: pre-class quizzes and modules functioned as “flipped” preparation, enabling in-class practice. Yet, innovation was uneven across weeks, depending on task design and facilitation. This supports (Kirkwood & Price, 2014) call to ask what is truly enhanced: the platform alone did not enhance learning; rather, enhancement was seen when tasks required communication, collaboration, and iterative feedback.

Similarly, autonomy emerged through access and formative assessment, but it was not automatic. (Bates, 2015) suggests that autonomy is strengthened when learners must plan, monitor, and reflect within well-designed learning activities. In the PNJ course, formative quizzes and peer feedback created such opportunities, but some students remained assessment-triggered, suggesting that autonomy development is a gradual process. Future course design could strengthen autonomy by integrating reflective journals, goal-setting tasks, and self-assessment rubrics within the LMS.

A vocational/polytechnic lens: authenticity, professional simulation, and digital equity

A key contribution of this case is highlighting the vocational lens. Business English in a polytechnic context is oriented toward employability and workplace readiness; therefore, the most meaningful use of LMS is to support authentic professional simulations: email writing with workplace scenarios, presentation pitches, meeting minutes, customer-service dialogues, and negotiation role-plays. The LMS supports these simulations by enabling iterative drafting, feedback cycles, and documentation. Yet, equity considerations are central: if learners have uneven access to stable internet or devices, the ability to participate in these simulations becomes unequal. Therefore, institutional policy should consider minimum digital access standards, device support programs, and flexibility in deadlines when system instability occurs. Such policies align with the ethical dimension of digital transformation emphasized by UNESCO (2021).

Overall, the deeper theoretical implication is that LMS-supported digital transformation is best understood as a relationship between infrastructure, pedagogy, and

learner agency. Technology provides affordances; pedagogy activates them; institutional readiness sustains them.

4. Conclusion and Implications

This study examined the implementation of an institutional LMS (E-learning PNJ) in a Business English course at Politeknik Negeri Jakarta and analyzed its role in supporting digital transformation and innovative learning practices. Triangulated evidence from interviews, observations, and LMS artifacts indicates that the LMS became a central infrastructure for managing teaching workflows and learning routines. It enabled flexible access to digital modules, supported formative assessment through quizzes, streamlined assignment submission and feedback, and produced digital learning traces that made student progress visible and reviewable. At the classroom level, the LMS supported digital transformation by shifting core processes—content delivery, assessment, communication, and documentation—into a digital ecosystem. Learning extended beyond classroom boundaries through pre-class preparation and post-class submission and feedback cycles. The LMS also supported learner autonomy by enabling self-paced review and continuous formative checks. However, innovative learning and interactivity were not automatic outcomes of platform use. Rather, interactivity increased when pedagogical design incorporated authentic tasks, peer feedback, and multimedia-supported workplace simulations. Technical constraints (internet instability, platform performance issues, device compatibility) and human factors (uneven digital literacy, increased lecturer workload) shaped the effectiveness of LMS-supported learning. Overall, the findings support the conclusion that LMS implementation can meaningfully contribute to digital transformation when accompanied by reliable infrastructure, institutional support, ongoing professional development, and pedagogical innovation oriented toward authentic professional communication tasks.

Based on these findings, several practical recommendations can be proposed for both lecturers and higher education institutions. Lecturers are encouraged to design interactive LMS-based learning activities that move beyond content delivery by incorporating discussion forums, peer feedback, collaborative projects, authentic workplace communication tasks, and multimedia resources. They should also integrate formative assessment strategies and reflective activities that foster learner autonomy and digital engagement.

For higher education institutions, strengthening digital transformation requires sustained investment in reliable technological infrastructure, including stable internet connectivity, adequate server capacity, and device-compatible LMS platforms. Institutions should also implement continuous professional development programs that focus not only on technical LMS operation but also on digital pedagogy, assessment design, and innovative language teaching practices. In addition, digital literacy initiatives for both lecturers and students should be prioritized to ensure equitable participation and effective use of LMS features across diverse learning contexts.

Implications

Pedagogical implications

First, lecturers should design LMS spaces as interactive learning environments rather than as content repositories. In Business English, this can be achieved through peer review cycles for email writing, structured discussion prompts on workplace scenarios, collaborative presentation planning, and role-play preparation supported by online scripts and reflection. Second, formative assessment should be strengthened through short diagnostic quizzes, clear rubrics, timely feedback, and opportunities for revision. These practices support self-regulated learning and make learning progress more transparent. Third, tasks should be aligned with authentic workplace communication. Assignments such as professional email writing, meeting agenda and minutes writing, negotiation simulations, customer-service dialogues, and presentation pitching can enhance transfer of learning to professional contexts.

Institutional and technological implications

To maximize the contribution of LMS to digital transformation, institutions should prioritize four strategic areas: strengthening digital infrastructure, improving digital literacy, providing regular LMS training, and supporting the design of interactive and pedagogically meaningful LMS-based learning activities. Institutions should treat the LMS as critical infrastructure by ensuring server capacity, system stability during peak use, and reliable internet access. Device compatibility and user experience (clear notification systems, intuitive submission processes) should be improved. Continuous training for lecturers is essential, focusing not only on technical platform use but also on digital pedagogy, assessment design, and feedback strategies. Student support should include orientation modules for LMS navigation and guidance for digital learning skills.

Theoretical implications

The study contributes to digital transformation scholarship by illustrating that transformation occurs through workflow restructuring, learning culture change, and increased learner autonomy—not merely technology adoption. The findings reinforce the view that LMS functions as a pedagogical enabler rather than a standalone driver of innovation. They also support student-centered and self-regulated learning perspectives, demonstrating that autonomy emerges when LMS affordances are activated through pedagogical design.

Limitations and future research

This case study focused on one course and one institution, limiting generalizability. Future research could compare multiple courses, lecturers, or LMS platforms across vocational and non-vocational institutions. Mixed-methods studies could examine relationships between LMS engagement indicators and specific language skill outcomes. Future work may also investigate equity-oriented interventions (device support, flexible deadlines, offline access strategies) to strengthen inclusive digital transformation.

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