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**“WOMEN IN INNOVATION AND SCIENCE”
XALQARO ILMIY-AMALIY KONFERENSIYA VA FORUMI
ILMIY ISHLARI TO‘PLAMI**

Toshkent davlat transport universitetida 2026-yil 27-mart kuni “Women in Innovation and Science” xalqaro forumi ilmiy ishlari to‘plami chop etildi.

Mazkur nufuzli tadbirlar O‘zbekiston Respublikasi Oliy ta’lim, fan va innovatsiyalar vazirligi hamda Transport vazirligi hamkorligida tashkil etilib, mamlakatimizda ilm-fan, innovatsiyalar va zamonaviy texnologiyalarni rivojlantirish, shuningdek xalqaro ilmiy hamkorlikni yanada kengaytirishga qaratilgan muhim platforma hisoblanadi.

Konferensiya ochilish marosimida davlat organlari, xalqaro tashkilotlar va yetakchi oliy ta’lim muassasalari vakillari ishtirok etdi. Jumladan, Toshkent davlat transport universiteti rektori G‘ulomov Abdulaziz Abdullayevich, O‘zbekiston Respublikasi Transport vazirligi vakili Ulmasova Lobarkhon Adilovna, Osiyo taraqqiyot banki eksperti Claire Charnac, Istanbul Aydin universiteti vasiylik kengashi raisi Mustafa Aydin, Belarus davlat transport universiteti rektori Kazakov Nikolay Nikolayevich hamda Qirg‘iziston Respublikasi Transport vazirligi vakili Dinara Moldokalieva ishtirok etdilar.

Konferensiya ilmiy dasturi doirasida plenar va panel sessiyalar, shuningdek ilmiy ma’ruzalar taqdimoti o‘tkazilib, ularda sun’iy intellekt va raqamli texnologiyalarni iqtisodiyot va ta’limga joriy etish, transport va aviatsiya sohasida innovatsion yechimlar, sanoat va IT sohasida texnologiya transferi, shuningdek ta’limda raqamli platformalar va intellektual tizimlar kabi dolzarb masalalar yoritildi.

2026-yil 27-mart kuni o‘tkazilgan “Women in Innovation and Science” xalqaro forumi ayollar yetakchiligi, innovatsiyalar va STEM sohalariga bag‘ishlangan bo‘lib, mamlakatimizda ayollarning ilm-fan va texnologiya sohalaridagi ishtirokini kengaytirish, ularning yetakchilik salohiyatini rivojlantirish hamda xalqaro hamkorlikni mustahkamlashga qaratilgan strategik maydon sifatida tashkil etildi.

Forum doirasida ayollar yetakchiligini rivojlantirish va rag‘batlantirish, xalqaro tajriba almashinuvi va ilmiy tarmoqlarni kengaytirish, yosh tadqiqotchi ayollar va PhD talabalarni qo‘llab-quvvatlash hamda innovatsion ekotizimlarda gender tenglikni ta’minlash kabi ustuvor vazifalar amalga oshirildi. Shuningdek, forumda ayollar yetakchiligi va STEM, gender tenglik va ilm-fan institutsional rivoji, ayollar tadbirkorligi va innovatsion startaplar, innovatsiya ekotizimlari va xalqaro hamkorlik, yosh ayol tadqiqotchilarni rivojlantirish, mentorlik va akademik tarmoqlar yo‘nalishlarida tematik sessiyalar tashkil etildi.

Forumda davlat organlari, xalqaro tashkilotlar, yetakchi oliy ta’lim muassasalari va ilmiy markazlar vakillari, jumladan “OLIMA” uyushmasi raisi Murtazayeva Raxbar Hamidovna, “Sharq ayoli” xalqaro ayollar jamoat fondi raisi Tursunbayeva Saodat Gafurovna, Osiyo taraqqiyot banki eksperti Claire Charnac, O‘zbekiston Respublikasi Transport vazirligi vakili Ulmasova Lobarkhon Adilovna, Toshkent davlat transport universiteti rektori G‘ulomov Abdulaziz Abdullayevich, Qirg‘iziston Respublikasi Transport vazirligi vakili Dinara Moldokalieva hamda Indoneziyadan universitet dekani Yoga Prihatin ishtirok etdilar.



Shuningdek, forumda Yevropa va Osiyo davlatlaridan yetakchi olimlar, ekspertlar va yosh tadqiqotchilar keng qatnashdi.

Forum dasturiga ochilish marosimi, panel muhokamalar, ilmiy chiqishlar hamda professional rivojlanish bo'yicha workshoplar kiritilgan bo'lib, ular doirasida gender tenglik, ayollar karyerasini rivojlantirish, ilmiy tadqiqotlar va innovatsion boshqaruv bo'yicha amaliy seminarlar tashkil etildi.

Mazkur tadbirlar Osiyo taraqqiyot banki (ADB), "OLIMA" — O'zbekiston xotin-qizlar olimlari uyushmasi, "Sharq ayoli" xalqaro ayollar jamoat fondi, Germaniya xalqaro hamkorlik jamiyati (GIZ), shuningdek Rossiya, Turkiya, Indoneziya va Qirg'iziston oliy ta'lim muassasalari hamda Belarus Milliy fanlar akademiyasi ilmiy institutlari hamkorligida o'tkazildi.

Mazkur xalqaro ilmiy-amaliy konferensiya va forumning ahamiyati shundaki, ular xalqaro ilmiy hamkorlikni mustahkamlash, innovatsion ishlanmalarni amaliyotga joriy etish, raqamli va barqaror rivojlanishni ta'minlash, shuningdek ayollarning ilm-fan va innovatsiya sohalaridagi rolini kuchaytirishga xizmat qiladi. Shu bilan birga, mazkur tadbirlar yosh olimlar va tadqiqotchilarni qo'llab-quvvatlash, ilmiy tajriba almashish hamda global ilmiy makonga integratsiyalashuvni jadallashtirishda muhim ahamiyat kasb etadi.

Mazkur xalqaro ilmiy-amaliy konferensiya va forumning maqsadi zamonaviy ilmiy tadqiqot yo'nalishlarini muhokama qilish, innovatsion yondashuvlar va ilg'or texnologiyalar bo'yicha ilmiy natijalar almashuvini ta'minlash, shuningdek xalqaro ilmiy hamkorlikni rivojlantirishdan iboratdir.

Tadbirda O'zbekiston Respublikasi hamda xorijiy mamlakatlarning oliy ta'lim muassasalari va ilmiy-tadqiqot institutlari olimlari, shuningdek amaliyotda muhim natijalarga ega bo'lgan mutaxassislar o'z ilmiy ishlari bilan ishtirok etdilar.

Ushbu ilmiy to'plamda muhandislik, transport, raqamlashtirish, sun'iy intellekt, innovatsion boshqaruv, gender tenglik va barqaror rivojlanish sohalarida faoliyat yuritayotgan yetakchi olimlar, professor-o'qituvchilar va tadqiqotchilarning ilmiy ishlari jamlangan. To'plamda dolzarb ilmiy muammolar, zamonaviy yechimlar, nazariy va amaliy tadqiqot natijalari yoritilib, ushbu yo'nalishlarning bugungi holati va istiqboldagi rivojlanish tendensiyalari aks ettirilgan.

Mazkur nashr mamlakatimizda ilm-fan va innovatsion rivojlanishni ta'minlash, xalqaro ilmiy aloqalarni mustahkamlash hamda yosh olimlar va tadqiqotchilarni qo'llab-quvvatlash yo'lidagi muhim qadamlardan biri sifatida e'tirof etiladi.

Shuningdek, mazkur ilmiy to'plamda keltirilgan natijalar kelgusida ilmiy tadqiqotlar samaradorligini oshirish, amaliyotga yo'naltirilgan innovatsion yechimlarni keng joriy etish hamda sohalararo integratsiyani chuqurlashtirish uchun muhim ilmiy asos bo'lib xizmat qiladi. To'plam materiallari nafaqat ilmiy jamoatchilik, balki ishlab chiqarish sohasi mutaxassislari, doktorantlar va talabalar uchun ham foydali manba hisoblanadi.

Mazkur nashrda yoritilgan ilmiy g'oyalar va ilg'or yondashuvlar asosida yangi ilmiy izlanishlar olib borilishi, xalqaro ilmiy aloqalarning yanada rivojlanishi hamda innovatsion rivojlanish strategiyalarining takomillashishiga xizmat qilishi kutilmoqda.



Critical evaluation of ELSAKTI learning management system implementation at Universitas Pancasakti Tegal based on student document analysis

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Abstract:

This article presents a critical evaluation of the implementation of ELSAKTI Learning Management System at Universitas Pancasakti Tegal, Indonesia, based on document analysis of four student evaluation papers from the Master of Pedagogy program. The study employs a qualitative document analysis approach to examine the gap between the pedagogical potential of LMS and its actual implementation in digital learning environments. Drawing on constructivist, connectivist, TPACK, and cognitive load theoretical frameworks, the analysis identifies four primary challenges: inconsistent lecturer adoption, fragmented platform usage, limited pedagogical integration, and usability constraints that increase extraneous cognitive load. Findings reveal that while ELSAKTI possesses adequate technical infrastructure, its effectiveness is compromised by weak institutional policies, absence of standardized instructional design, and varying levels of digital competence among lecturers. Comparison with successful national LMS programs (PPG, Guru Penggerak) underscores the need for structured content and dedicated support teams. Fragmented platform usage raises equity concerns, creating unequal learning experiences across courses. The study contributes to the growing literature on LMS implementation in higher education by providing a multi-stakeholder perspective on the systemic barriers to optimal LMS utilization. Recommendations include establishing institutional policies mandating LMS as the primary learning platform, developing instructional design support teams, implementing systematic digital pedagogy training programs, and improving usability design to reduce cognitive load.

Keywords:

Learning Management System, digital learning, higher education, pedagogical evaluation, technology integration, constructivism, cognitive load, TPACK

1. Introduction

The rapid advancement of information and communication technology has fundamentally transformed higher education, ushering in what is commonly referred to as the Society 5.0 era. This transformation extends beyond mere technology adoption to encompass the quality and meaningfulness of learning experiences (Aulia et al., 2023).¹ Educational institutions worldwide have increasingly embraced digital learning platforms, with Learning Management Systems (LMS) emerging as central infrastructure for managing online and blended learning environments.

Universitas Pancasakti Tegal, a private university in Indonesia, has demonstrated its commitment to digital transformation by implementing ELSAKTI (E-Learning Universitas Pancasakti Tegal), an institutional LMS designed to facilitate course management, material distribution, academic interactions, and assessment processes. The platform represents a strategic initiative aligned with broader institutional goals of enhancing academic service quality and supporting flexible learning modalities.

However, the mere availability of technological infrastructure does not guarantee effective pedagogical outcomes. Emerging evidence suggests that LMS implementation in higher education often falls short of its transformative potential, with systems frequently utilized for administrative purposes rather than as genuine spaces for meaningful learning engagement (Al-Fraihat et al., 2020).²

reflection on experiences, and social interaction This disconnect between technological capacity and pedagogical practice raises critical questions about the conditions under which LMS can genuinely support constructivist learning environments.

The present study addresses this gap by conducting a critical evaluation of ELSAKTI implementation through document analysis of four student evaluation papers from the Master of Pedagogy program. These documents provide rich, multi-perspective accounts of LMS utilization from students who have experienced the platform across multiple courses and semesters. By synthesizing these diverse viewpoints, the study aims to: (1) assess the effectiveness, efficiency, and sustainability of ELSAKTI implementation; (2) identify systemic barriers to optimal LMS utilization; and (3) develop evidence-based recommendations for institutional improvement.

This research is significant for several reasons. First, it contributes to the growing body of literature on LMS evaluation in developing country contexts, where institutional capacity and digital infrastructure may differ substantially from well-resourced settings. Second, the multi-perspective approach captures the complexity of LMS implementation as experienced by end-users, providing insights that single-method evaluations might overlook. Third, the study's findings have practical implications for institutional policy, faculty development, and instructional design practices.



LITERATURE REVIEW**Theoretical Foundations of LMS in Higher Education**

The evaluation of Learning Management Systems in higher education requires robust theoretical frameworks that can account for both technological and pedagogical dimensions. Two complementary theoretical perspectives are particularly relevant: constructivism and connectivism.

Constructivist learning theory posits that knowledge is actively constructed by learners through engagement with content, reflection on experiences, and social interaction (Nerita et al., 2023).³ Within this framework, learning environments should provide opportunities for active participation, collaborative knowledge building, and meaningful problem-solving. When applied to LMS evaluation, constructivism directs attention to whether the platform facilitates activities that promote deep learning rather than superficial content consumption. Furthermore, personal learning environments (PLE) as an extension of constructivist thinking allow learners to customize their own learning spaces, although this remains underexplored in institutional LMS contexts (Al-Rahmi et al., 2024).⁴ According to Fadillah (2025)⁵, constructivist principles require that digital learning environments support discussion, exploration, and reflection, enabling students to build understanding through interaction with peers and instructors. Fadillah's (2025)⁵ recent work in Indonesian higher education specifically emphasizes that constructivist-based digital learning designs significantly improve student engagement and critical thinking skills.

Connectivism, developed by Siemens (2004)⁶ and further elaborated by Downes (2022)⁷, addresses learning in the digital age where knowledge is distributed across networks. Siemens (2004)⁶ originally argued that traditional learning theories fail to account for learning that occurs outside of individuals, such as learning stored and manipulated by technology. This theory emphasizes that learning occurs through navigating connections, accessing diverse information sources, and participating in knowledge communities. From a connectivist perspective, effective LMS should facilitate networked learning by enabling access to external resources, supporting peer-to-peer knowledge exchange, and helping learners develop skills in curating and evaluating digital information.

LMS Effectiveness and Pedagogical Integration

Research on LMS effectiveness has evolved from simple measures of system functionality to more nuanced assessments of pedagogical integration. Al-Fraihat et al. (2020)² developed a comprehensive evaluation framework distinguishing between technical system quality, information quality, service quality, and educational quality. Their research emphasizes that LMS success depends not only on system features but also on how those features are utilized within instructional contexts.

The Technological Pedagogical Content Knowledge (TPACK) framework, introduced by Mishra and Koehler (2006),⁹ provides valuable insights into the competencies required for effective technology integration in teaching. TPACK emphasizes that effective technology use requires the intersection of content knowledge, pedagogical knowledge, and technological knowledge. In the context of LMS implementation, this framework suggests that lecturers

require not only technical skills but also the ability to design learning experiences that leverage technology for pedagogical purposes (Herniawati et al., 2025).⁸

Recent empirical studies have documented persistent gaps between LMS potential and actual practice. Bond et al. (2021)¹⁰ found that during emergency remote teaching, many institutions relied on LMS primarily for content distribution rather than interactive learning. Similarly, Rapanta et al. (2020)¹¹ emphasized that successful online teaching requires deliberate design of learning activities and instructor presence, not merely the availability of technological tools.

Student Engagement in Digital Learning Environments

Student engagement represents a critical outcome measure for LMS implementation. Kahu and Nelson (2018)¹² developed a conceptual framework distinguishing between behavioral engagement (participation in activities), affective engagement (emotional responses to learning), and cognitive engagement (investment in deep learning). Their research emphasizes that superficial participation, such as logging into systems or completing required tasks, does not equate to meaningful engagement with learning content. This aligns with findings from Yana and Adam (2019),¹³ who demonstrated that in Indonesian higher education contexts, blended learning using LMS platforms significantly improved student learning outcomes compared to traditional face-to-face instruction, provided that the platform was used interactively.

Research by Hrastinski (2019)¹⁴ suggests that online learning engagement is fostered when environments support interaction, collaboration, and active knowledge construction. Bond et al. (2020)¹⁵ further demonstrated that student engagement in digital environments is influenced by multiple factors, including course design, instructor facilitation, peer interaction, and institutional support. These findings underscore the importance of evaluating LMS not merely as a technical system but as a component of broader learning ecosystems. Furthermore, Shafa (2023),¹⁶ in a study specifically examining ELSAKTI, found that while the platform has potential as an effective assessment medium, its success depends heavily on how lecturers design and implement assessment activities within the system.

Usability and Cognitive Load Considerations

The usability of LMS platforms significantly impacts learning experiences. Mayer and Fiorella (2021)¹⁷ articulated principles for managing cognitive load in multimedia learning, emphasizing that poorly designed interfaces can impose extraneous cognitive load that distracts from learning objectives. When learners must invest mental effort in navigating systems or understanding interface structures, fewer cognitive resources remain available for processing and integrating content.

Althobaiti and Mayhew (2022)¹⁸ conducted systematic usability evaluations of LMS in higher education, finding that intuitive navigation, clear visual design, and consistent interface elements significantly influence user adoption and satisfaction. Their research highlights that usability considerations are not merely technical concerns but have direct pedagogical implications, as systems that frustrate users may discourage engagement with learning activities.



Institutional Factors in LMS Implementation

Beyond individual user factors, institutional context plays a crucial role in LMS success. Porter et al. (2014)²² identified organizational support, policy alignment, and strategic planning as key determinants of technology adoption in educational settings. Shaheen (2020)¹⁹ emphasized that sustainable LMS implementation requires attention to infrastructure, technical support, faculty development, and governance structures.

Research in Indonesian higher education contexts has documented specific challenges in LMS implementation. Herniawati et al. (2025)⁸ found that while LMS adoption has increased in Indonesian universities, utilization often remains limited to basic functions. Factors contributing to this pattern include varying levels of digital literacy among faculty, inconsistent institutional policies, and limited pedagogical support for technology integration.

2. Materials and methods

This study employed a qualitative document analysis approach to critically evaluate the implementation of ELSAKTI LMS at Universitas Pancasakti Tegal. Document analysis is a systematic procedure for reviewing and evaluating documents to extract meaning, gain understanding, and develop empirical knowledge (Bowen, 2009).²⁰ This approach is particularly appropriate when researchers seek to understand phenomena through the lens of authentic, naturally occurring materials that reflect participants' experiences and perspectives.

The qualitative document analysis approach aligns with the study's objectives of examining how LMS implementation is experienced and interpreted by end-users. Rather than imposing predetermined categories, this approach allows themes to emerge from the documents themselves while remaining grounded in theoretical frameworks from the literature.

Document Selection and Corpus

The document corpus consisted of four final examination papers submitted by students in the Master of Pedagogy program at Universitas Pancasakti Tegal for the course "Teknologi Informasi Pembelajaran" (Information Technology in Learning). The documents were selected based on the following criteria:

1. **Relevance:** Each document directly addressed the implementation of ELSAKTI LMS in digital learning contexts at Universitas Pancasakti Tegal.
2. **Authenticity:** The documents represented original student work submitted as part of formal course requirements.
3. **Richness:** The documents provided detailed descriptions, analyses, and reflections on LMS experiences across multiple courses and semesters.
4. **Diversity:** The four documents represented different author perspectives, analytical approaches, and focal concerns, enabling triangulation of findings.

The selected documents were:

Document 1: A comprehensive evaluation examining effectiveness, efficiency, and sustainability of ELSAKTI implementation, incorporating literature review and reflective analysis based on experience across six courses in one semester.

Document 2: A critical evaluation focusing on the gap between LMS potential and actual practice, incorporating perspectives from constructivism and connectivism, and drawing on comparisons with national LMS implementations in Indonesian teacher professional development programs.

Document 3: An evaluation emphasizing the tension between administrative and pedagogical functions of LMS, with detailed analysis of usability, user experience, and cognitive load based on two semesters of participant observation.

Document 4: An evaluation examining LMS implementation through criteria of effectiveness, efficiency, student engagement, and equity, incorporating TPack framework and analysis of institutional factors.

Data Analysis Procedure

Document analysis followed an iterative process of skimming, reading, and interpretation as described by Bowen (2009).²⁰ The analysis procedure comprised four phases:

Phase 1: Document organization and preparation. All documents were converted to text format, assigned identifiers, and organized chronologically. Basic document characteristics including author, length, date, and document type were recorded.

Phase 2: Initial coding and theme identification. Documents were read multiple times to develop familiarity with content. Initial coding identified passages relevant to the study's focus on LMS implementation challenges, user experiences, and recommendations. Codes were developed inductively while remaining sensitive to themes prominent in the literature (effectiveness, efficiency, engagement, usability, institutional factors).

Phase 3: Thematic analysis and pattern identification. Codes were organized into broader thematic categories through constant comparison across documents. Patterns of convergence and divergence among documents were identified, with attention to both common experiences and unique perspectives. Themes were refined through iterative discussion and reference back to source documents.

Phase 4: Interpretation and synthesis. Themes were interpreted in relation to theoretical frameworks from the literature review. Findings were synthesized to develop a comprehensive understanding of ELSAKTI implementation, including both challenges and opportunities for improvement.

Trustworthiness and Limitations

Trustworthiness in qualitative document analysis was addressed through several strategies. Credibility was enhanced through triangulation across multiple documents representing different author perspectives. Transferability was supported by providing rich description of the context and documents, enabling readers to assess applicability to other settings. Dependability was addressed through transparent documentation of analysis procedures and maintaining an audit trail of analytical decisions.

Several limitations should be acknowledged. First, the document corpus is limited to four documents from a single academic program, which may not represent the full range of experiences across different faculties or student populations. Second, the documents represent student



perspectives; faculty and administrator perspectives were not directly included. Third, the documents were produced as course requirements, which may influence their content and framing. However, the diversity of perspectives across the four documents and the consistency of identified themes suggest that findings capture meaningful patterns in ELSAKTI implementation.

3. Results and discussion

FINDINGS

The analysis of four evaluation documents revealed four major themes regarding ELSAKTI implementation at Universitas Pancasakti Tegal: (1) inconsistent lecturer adoption and fragmented platform usage; (2) limited pedagogical integration and administrative orientation; (3) usability challenges and cognitive load implications; and (4) weak institutional policies and support structures.

Inconsistent Lecturer Adoption and Fragmented Platform Usage

A dominant theme across all documents was the inconsistent adoption of ELSAKTI among lecturers, leading to fragmented learning experiences for students. Table 1 summarizes the evidence from each document regarding lecturer adoption patterns and platform fragmentation.

Table 1
Evidence of Inconsistent Lecturer Adoption and Platform Fragmentation

Document Source	Key Findings	Specific Evidence
Document 1	Low adoption rate; reliance on alternative platforms	"In semester 2, there were 6 courses but only 2 lecturers utilized ELSAKTI. Some lecturers preferred Google Drive, Google Forms, or even email as the main media for material delivery and assignment collection."
Document 2	Gap between technical capacity and actual use	"The author sees that not all lecturers use the campus-provided ELSAKTI LMS, or do not use it optimally. This creates a gap between ideal goals and actual learning practices."
Document 3	Fragmented access points; student confusion	"The use of ELSAKTI is uneven, with only some lecturers actively using ELSAKTI, while others use alternative platforms or do not use ELSAKTI at all. This creates multiple entry points for students for the same function."
Document 4	Multiple platform usage increases complexity	"The reality is that UPS students use WhatsApp, Google Classroom, Google Forms, Google Drive, and Zoom in

addition to Elsakti. This has the potential to widen the digital divide."

Document 1 reported that in a single semester with six courses, only two lecturers actively utilized ELSAKTI, while four relied on alternative platforms including Google Drive, Google Forms, and email for material distribution and assignment collection. This pattern created what Document 3 described as "multiple entry points" for similar functions, with students required to navigate different platforms for attendance, material access, and communication across courses.

Document 2 highlighted the contrast between ELSAKTI's technical capacity and actual utilization, noting that while the platform offers features for discussion, collaborative projects, and interactive learning, these remain largely unused. The author observed that "LMS Elsakti is not a ready-to-use virtual classroom, but an empty space that can be designed according to the learning style of the lecturer who owns that space. Without proper instructional design, LMS becomes merely 'a conventional classroom forced to move into digital space'."

Document 4 provided specific examples of fragmentation, noting that students simultaneously used WhatsApp, Google Classroom, Google Forms, Google Drive, and Zoom alongside ELSAKTI. This multiplicity of platforms created confusion about where to submit assignments and access materials, with Document 1 noting that student group discussions frequently featured questions such as "where should this be submitted?" due to varying platform preferences across lecturers.

Limited Pedagogical Integration and Administrative Orientation

All four documents converged on the finding that ELSAKTI utilization remains predominantly administrative rather than pedagogical. Table 2 presents the evidence for limited pedagogical integration across the four documents.

Table 2
Evidence of Limited Pedagogical Integration and Administrative Orientation

Document Source	Administrative Focus	Pedagogical Gaps
Document 1	ELSAKTI functions for material upload and assignment collection	Interactive features remain unused; uneven adoption across courses
Document 2	LMS used as material repository for PPT and PDF files	"Minimal use of meaningful activities such as structured discussions, collaborative projects, and critical reflection. Lecturers have not yet assumed the role of learning curator or network facilitator."



Document 3	"ELSAKTI is predominantly used as an administrative medium, such as for class attendance, rather than as a means of learning that encourages conceptual understanding and academic dialogue."	Discussion forums are rarely used; feedback mechanisms remain underutilized; platform fails to support reflective, dialogic learning appropriate for graduate education
Document 4	"Elsakti is currently used in a limited way, namely only for attendance and assignment collection, while other pedagogical functions have not been optimally utilized."	Interactive features such as discussion forums, online quizzes, and progress tracking are often ignored; LMS not functioning as digital learning environment

Document 3 characterized this as the gap between "administration and pedagogy," observing that ELSAKTI functions primarily for attendance recording and assignment collection rather than as a space for substantive academic dialogue and knowledge construction. The author noted that "discussion forums are rarely used, feedback mechanisms remain underutilized, and the platform fails to support the reflective, dialogic learning appropriate for graduate education."

Document 2 analyzed this phenomenon through constructivist and connectivist lenses, concluding that ELSAKTI has not achieved meaningful pedagogical integration. From a constructivist perspective, the platform fails to facilitate active knowledge building, discussion, and reflection that characterize meaningful learning. From a connectivist perspective, ELSAKTI does not support networked learning or help students develop skills in navigating and contributing to knowledge networks. The author observed that "lecturers have not yet assumed the role of learning curator or network facilitator."

Document 1 provided quantitative evidence of limited utilization, arguing that while ELSAKTI possesses adequate features for effective LMS functioning, effectiveness remains conditional on consistent utilization by lecturers. The author noted that "the use of separate media by lecturers has implications for decreasing the systematic effectiveness of digital learning from a pedagogical perspective."

Document 4 reinforced these findings, observing that "interactive features such as discussion forums, online quizzes, and progress tracking are often ignored." The author emphasized that from a constructivist perspective, learning should involve discussion, exploration, and reflection, but ELSAKTI has not effectively helped students build meaningful knowledge independently.

Usability Challenges and Cognitive Load Implications

Documents 2 and 3 provided detailed analysis of usability and user experience (UX) challenges, identifying specific interface issues that impact learning. Table 3

summarizes the usability findings and their cognitive load implications.

Table 3
Usability Challenges and Cognitive Load Implications

Usability Issue	Document Source	Description	Cognitive/Learning Impact
Unintuitive navigation	Document 3	Navigation paths are not clear; users must explore to find features	Increased extraneous cognitive load; mental effort diverted from learning content
Confusing menu structures	Document 3	Menu organization lacks logical flow; options hidden in complex dropdowns	Time wasted searching for functions; frustration reduces motivation
Hidden dropdown menus	Document 3	Critical functions buried in dropdowns that are not immediately visible	Features remain unused because users cannot find them; inconsistent usage patterns
Inconsistent interface	Document 2	Interface design not optimized for users with varying digital literacy	Users with lower digital literacy struggle; requires systematic training
Sporadic usage patterns	Document 3	System used inconsistently across courses; students must re-learn navigation repeatedly	Cognitive load increases each time system is revisited; reduces likelihood of engagement
Lack of visual cues	Document 3	Absence of thumbnails and explicit visual displays	Users cannot quickly identify needed functions; increases task completion time

Document 3 provided the most extensive analysis of usability and user experience (UX) challenges, identifying specific interface issues that impact learning. The author noted that navigation is unintuitive, menu structures cause confusion, and the use of hidden dropdown menus creates unnecessary cognitive load. Students must devote cognitive resources to understanding how the system works rather than focusing on learning content.

The document connected these usability observations to cognitive load theory, arguing that poor UX design imposes



extraneous cognitive load that interferes with learning. This is particularly problematic when systems are used sporadically and inconsistently, as students must repeatedly re-learn how to navigate different course spaces. The author recommended interface improvements including simplified navigation, explicit visual displays using thumbnails rather than complex dropdowns, and consideration of diverse user needs including senior

Document 2 offered complementary observations about technical accessibility, noting that while ELSAKTI is accessible across devices, users with lower digital literacy may find the interface and workflow challenging. The author emphasized that systematic, tiered training is essential for smooth system utilization, particularly for lecturers who must manage their course spaces.

Document 1 noted that despite adequate system stability during the authors' study period, the potential efficiency gains of integrated LMS are undermined by inconsistent adoption. When some courses use ELSAKTI while others use alternative platforms, students cannot benefit from the streamlined experience that a unified system would provide.

Document 4 reinforced these concerns, noting that "fragmentation of the learning process occurs, increasing non-essential cognitive load due to unintuitive UX design and the use of various platforms in parallel."

Table 4

Institutional Barriers to Optimal ELSAKTI Utilization

Institutional Factor	Document 1	Document 2	Document 3	Document 4
Absence of clear policy	"No institutional standard for using Elsakti"	"No binding institutional policy"	"Lack of systematic pedagogical framework guiding technology use"	"Inconsistent institutional policies"
Lack of instructional design support	Not explicitly mentioned	"No specialized team to help lecturers manage instructional design in LMS"	"Reliance on external technical support shows limited institutional control"	"Limited pedagogical support for technology integration"
Inadequate faculty development	Implied through inconsistent adoption	"Systematic, tiered training is essential"	"Varying digital literacy among lecturers, especially"	"Digital competence of lecturers varies significantly"

No usage standards	"Efficiency not fully achieved due to absence of institutional standards"	"No minimum standards for LMS utilization"	ly senior lecturers"
Governance gaps	"Sustainability requires institutional commitment"	"Weak change management at lecturer and institutional level"	"No standard course templates or consistent design across courses"
			"Systemic problem encompassing policy, training, and change management"

Document 1 explicitly called for institutional policy strengthening, noting that "the efficiency of Elsakti in learning management can be said to be still partial. From the system side, Elsakti has met the characteristics of an efficient LMS because it is equipped with various features. However, on the implementation side, this efficiency has not been fully achieved because there is no institutional standard for using Elsakti."

Document 2 provided the most comprehensive analysis of institutional dimensions, identifying three core problems: absence of binding institutional policies, lack of specialized teams to support lecturer instructional design, and a paradigm viewing LMS as administrative obligation rather than effort to create learning ecosystems. The author drew comparisons with successful national LMS implementations in Indonesian teacher professional development programs, noting that these programs succeeded because they featured structured content, clear learning pathways, and dedicated content and facilitation teams.

The author further elaborated: "If we look at the success of the Ministry of Education's programs in implementing PPG in Position, the Guru Penggerak Program, and Self-Training in the GTK room (formerly PMM), LMS has proven effective and efficient. This happened because the LMS in these programs has structured content, clear learning pathways, and a team of content and facilitators who package the LMS in such a way."

Document 3 reinforced these observations, noting that reliance on external technical support for resolving system issues demonstrates limited institutional control over the platform. The author argued that successful LMS implementation requires not only technical infrastructure but also institutional capacity for ongoing support and responsive problem-solving.

Document 4 connected institutional weaknesses to equity concerns, observing that "varying levels of lecturer



ELSAKTI utilization create unequal learning experiences for students across different courses. The absence of standardized instructional design and inconsistent platform use means that some students receive richer digital learning experiences than others within the same institution." The author emphasized that this represents "a systemic problem that includes policy, training, and change management, not just technology."

Summary of Cross-Document Findings

Table 5 provides a consolidated summary of how each document addressed the four major themes, highlighting areas of convergence and unique contributions.

Table 5

Cross-Document Analysis Matrix					
Theme	Document 1	Document 2	Document 3	Document 4	Convergence
Inconsistent Adoption	6 courses, only 2 lecturers used ELSAKTI	Gap between technical capacity and actual use	"Uneven use; multiple entry points"	Students use 5+ platforms alongside ELSAKTI	Strong convergence across all documents
Administrative vs. Pedagogical	Used for material upload and assignment collection	"LMS as material repository" not learning space	"Attendance and assignment focus" not dialogue	"Only for attendance and assignment collection"	Strong convergence across all documents
Usability & Cognitive Load	Not extensively discussed	"Users with low digital literacy struggle"	Detailed UX analysis; hidden menus; cognitive load	"Fragmentation increases non-essential cognitive load"	Moderate convergence (Documents 2,3,4)
Institutional Factors	"No institutional standard"	"No binding policy; no design team; weak change management"	"Limited institutional control"	"Systemic problem: policy, training, change management"	Strong convergence across all documents
	Quantitative	Comparison with	Detailed UX/c	Equity and digital	Complementary

Unique Contributions	pattern (2/6 lecturers)	national LMS programs; TPAC K lens	cognitive load analysis	diverse concerns	perspectives
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DISCUSSION

The Implementation Gap: Technology Availability Versus Pedagogical Integration

The findings reveal a significant gap between ELSAKTI's technical capacity and its pedagogical utilization, consistent with patterns documented in international research (Al-Fraihat et al., 2020²; Bond et al., 2021).¹⁰ While the platform possesses features that could support interactive, collaborative, and reflective learning, actual use remains concentrated on basic administrative functions. This implementation gap reflects what Selwyn (2016) describes as the tendency for educational technology to reinforce existing practices rather than transform them, particularly when institutional support and pedagogical design are insufficient. Selwyn (2016)²¹ critically observes that technology in education often serves to maintain existing power structures and pedagogical traditions rather than challenging or changing them.

From a constructivist perspective, the limited utilization of ELSAKTI's interactive features represents a missed opportunity for fostering active knowledge construction. As Nerita et al. (2023)³ emphasize, constructivist learning environments should provide opportunities for discussion, exploration, and collaborative problem-solving. When LMS functions primarily for content delivery and assignment collection, it fails to support the social interaction and reflection that characterize meaningful learning. This finding aligns with Rapanta et al. (2020)¹¹, who argue that effective online learning requires deliberate design of activities and instructor presence, not merely content availability.

The connectivist critique offered in Document 2 is particularly salient. Downes (2022)⁷ emphasizes that learning in digital environments involves navigating networks, accessing distributed knowledge sources, and participating in knowledge communities. ELSAKTI's current utilization does little to develop students' capacities for networked learning or to help them engage with the broader digital knowledge ecosystem. This represents a missed opportunity for preparing students for learning and professional practice in digitally mediated environments.

The Role of Institutional Policy and Governance

The findings strongly suggest that institutional factors are primary determinants of LMS implementation quality, consistent with research by Porter et al. (2014)²² and Shaheen (2020).¹⁹ The absence of clear institutional policies mandating ELSAKTI as the primary learning platform, establishing minimum usage standards, and providing systematic support creates conditions where individual lecturer preferences determine platform utilization. This results in the fragmented, inconsistent experience documented across all four evaluation papers.

The comparison with successful national LMS implementations (Document 2) is instructive. Programs such



as the Teacher Professional Education (PPG) and Guru Penggerak succeeded because they combined technological infrastructure with structured content, clear learning pathways, and dedicated support teams. This suggests that LMS effectiveness depends less on technical sophistication than on the institutional ecosystem within which it operates, including clear expectations, adequate support, and alignment with pedagogical goals.

The TPACK framework (Mishra & Koehler, 2006)⁹ provides useful language for understanding the institutional dimension of technology integration. Effective LMS use requires not only individual lecturer competence in technology, pedagogy, and content, but also institutional conditions that enable the development and exercise of these competencies. When lecturers lack support for developing technological pedagogical knowledge, they may default to familiar practices, using new technologies in ways that replicate old approaches (Herniawati et al., 2025).⁸

Student Engagement and Learning Quality

The findings raise important questions about student engagement in digitally mediated learning environments. Consistent with Kahu and Nelson (2018),¹² the documents distinguish between behavioral participation (logging in, submitting assignments) and meaningful cognitive engagement with learning content. When ELSAKTI is used primarily for administrative functions, students may complete required tasks without engaging deeply with course concepts or developing the reflective, critical capacities appropriate for graduate education. This contrasts with the potential demonstrated in studies such as Yana and Adam (2019),¹³ where properly implemented blended learning environments led to deeper student engagement and improved learning outcomes.

Document 3's observation that discussion forums remain unused and feedback mechanisms underutilized is particularly significant for graduate education. As Garrison et al. (2000)²⁴ argue, higher-order learning in online environments requires cognitive presence, social presence, and teaching presence. ELSAKTI's current utilization fails to support these dimensions of meaningful learning, potentially reducing the quality of graduate education. Shafa's (2023)¹⁶ research on ELSAKTI specifically noted that assessment features, when used effectively, can enhance student engagement by providing timely and meaningful feedback, but this requires lecturer commitment to pedagogical design.

The cognitive load implications identified in Document 3 add another dimension to understanding engagement. When students must invest mental effort in navigating confusing interfaces or remembering which platform to use for which course, fewer cognitive resources remain available for engaging with learning content (Mayer & Fiorella, 2021).¹⁷ This extraneous cognitive load may reduce learning quality and discourage engagement, particularly for students with lower digital confidence or those juggling multiple responsibilities alongside their studies.

Usability as a Pedagogical Concern

The detailed usability analysis in Document 3 makes an important contribution by connecting interface design to learning outcomes. Althobaiti and Mayhew (2022)¹⁸ emphasize that usability is not merely a technical concern but has direct pedagogical implications. When systems are

difficult to navigate, users may avoid exploring advanced features, limiting the pedagogical potential of the platform. This observation helps explain why ELSAKTI's interactive features remain underutilized even when technically available.

The cognitive load framework (Mayer & Fiorella, 2021)¹⁷ provides theoretical grounding for understanding how usability affects learning. Extraneous cognitive load imposed by poor interface design reduces the cognitive capacity available for germane load (processing and integrating learning content). In ELSAKTI's case, students must allocate mental resources to understanding system navigation, locating features, and remembering which platform to use for which course—all of which detract from engagement with course content.

Implications for Practice and Policy

The findings suggest several directions for improving ELSAKTI implementation. First, institutional policy must clearly establish ELSAKTI as the primary learning platform, with other platforms serving supplementary rather than replacement functions. This policy should be accompanied by clear standards for minimum LMS utilization, ensuring consistency across courses and reducing fragmentation (Al-Fraihat et al., 2020).² Drawing on Dabbagh and Kitsantas (2012),²³ institutions might also consider how LMS can better support personal learning environments, allowing students greater autonomy in managing their digital learning experiences.

Second, instructional design support is essential. The comparison with successful national programs suggests that dedicated teams can help design engaging course structures, develop activity templates, and support lecturers in creating meaningful learning experiences. This approach addresses the TPACK gap by providing scaffolding for lecturers to develop their technological pedagogical knowledge (Mishra & Koehler, 2006).⁹ Fadillah's (2025)⁵ work on constructivist digital learning designs offers practical guidance for developing such instructional support systems.

Third, systematic faculty development programs should address both technical skills and pedagogical design. As Althobaiti and Mayhew (2022)¹⁸ emphasize, usability improvements must be accompanied by user capability development. Training should be tiered and sustained, moving from basic navigation to advanced instructional design as lecturer competence develops.

Fourth, attention to user experience and interface design can reduce extraneous cognitive load and support engagement. While major platform changes may require institutional investment, incremental improvements in navigation clarity, visual design, and consistency can significantly impact user experience (Mayer & Fiorella, 2021).¹⁷ Shafa (2023)¹⁶ recommends that training programs specifically address assessment design within LMS, as this is an area where ELSAKTI shows particular promise but remains underutilized.

Theoretical Contributions

This study contributes to theoretical understanding of LMS implementation by highlighting the multi-level nature of factors influencing technology integration. The findings suggest that individual lecturer decisions about technology use are shaped by institutional policies (or their absence), available support structures, and perceived expectations.



This aligns with sociocultural perspectives on technology adoption, which emphasize that technology use is mediated by institutional culture, available resources, and social norms (Vygotsky, 1978). In the context of contemporary digital education, Vygotsky's concept of the zone of proximal development (ZPD) remains highly relevant. As Shvarts and Bakker (2023)²⁶ argue in their analysis of Vygotsky in the digital age, the ZPD framework suggests that lecturers—as adult learners—require appropriate scaffolding and support systems within their institutional environment to progressively develop their digital pedagogical competencies. This scaffolding can take the form of instructional design teams and tiered training programs, as highlighted in the comparison with successful national LMS implementations (Gurung, 2021).²⁷

The study also contributes to understanding student engagement in digitally mediated learning by documenting how fragmented platform usage and administrative orientation may undermine meaningful engagement. This extends Kahu and Nelson's (2018)¹² framework by identifying specific technological and institutional conditions that may foster or inhibit different forms of engagement. Furthermore, by incorporating insights from Yana and Adam (2019)¹³ and Shafa (2023),¹⁶ this study provides a more nuanced understanding of LMS implementation specifically within the Indonesian higher education context].

4. Conclusion

This critical evaluation of ELSAKTI implementation at Universitas Pancasakti Tegal, based on document analysis of four student evaluation papers, reveals that the primary challenges in LMS utilization are not technological but institutional and pedagogical. While ELSAKTI possesses adequate technical infrastructure and features that could support meaningful digital learning, actual implementation remains characterized by inconsistent lecturer adoption, fragmented platform usage, limited pedagogical integration, usability challenges, and weak institutional support structures.

The findings underscore that effective LMS implementation requires alignment across multiple levels: institutional policy establishing clear expectations and standards; support structures including instructional design assistance and responsive technical support; faculty development programs addressing both technical and pedagogical competencies; and attention to user experience design that minimizes extraneous cognitive load. Without such systemic alignment, LMS risks functioning as an administrative tool rather than a genuine learning environment.

The study has several implications for practice. Universities implementing or refining LMS should consider: (1) developing clear institutional policies mandating LMS as the primary learning platform; (2) establishing minimum standards for course design and LMS utilization; (3) creating instructional design support teams to assist faculty; (4) implementing systematic, tiered faculty development programs; and (5) attending to usability and user experience in platform design and configuration.

Limitations of this study suggest directions for future research. The document corpus, while rich in detail, represents a limited sample from one graduate program. Future research should examine ELSAKTI implementation across different faculties and programs, incorporate faculty and administrator perspectives, and employ mixed methods to quantify patterns of utilization and their relationship to learning outcomes. Longitudinal research could examine how implementation evolves over time in response to institutional interventions.

In conclusion, ELSAKTI represents a valuable institutional investment in digital learning infrastructure. Realizing its potential to support meaningful, engaging, and effective learning requires moving beyond technology adoption to systemic transformation that aligns technology, pedagogy, policy, and human capacity development. The student perspectives documented in this evaluation provide compelling evidence of both current limitations and opportunities for improvement, offering a foundation for evidence-based institutional.

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