



Blended Grammar Instruction via LMS and Peer Teaching in EFL Classrooms

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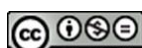
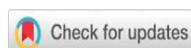
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ABSTRACT

This mixed-methods study investigates implementing a blended grammar instruction model that integrates LMS-based formative quizzes and student-led peer presentations within a lesson study framework in an Indonesian teacher education context. Drawing on mastery learning, sociocultural theory, and cognitive load principles, the study examines how this approach impacts student grammar mastery, perceptions, and instructor workload. The research employed quantitative analysis of student academic scores and Likert-scale survey data alongside qualitative insights from open-ended student reflections and instructor logs to enable triangulation of findings. Participants included 12 pre-service English teachers and three instructors in a semester-long Advanced English Structure course. Results show substantial gains in grammar performance, especially on cumulative assessments, and high student engagement with both LMS and peer learning components. Students valued repeated quiz practice, structured feedback, and collaborative presentations. Instructors reported reduced grading fatigue and increased pedagogical focus through LMS automation and team-based lesson study. Despite minor challenges in digital access and learner consistency, the model proved pedagogically effective and operationally sustainable. Findings affirm blended grammar instruction's relevance for enhancing student learning and instructional resilience in resource-constrained EFL settings.



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INTRODUCTION

In English as a Foreign Language (EFL) instruction, grammar teaching continues to present a paradox: it is both essential and problematic. Grammar is foundational for academic writing, oral fluency, and professional communication. However, its instruction, particularly in teacher education programs, often suffers from passive delivery, disengagement, and time inefficiencies (Nassaji & Fotos, 2011). In Indonesia, grammar remains a compulsory component in tertiary-level English programs, yet the dominant pedagogy still relies on lecture-based, deductive approaches (Yunita, 2016). These approaches leave little space for formative feedback, peer learning, or authentic use of grammar. Thus, learners from the elementary to the university levels in Indonesia have perceived grammar as a difficult language area to learn. Meanwhile, EFL instructors face increasing demands—curriculum overload, classroom management, and institutional pressure—all of which compound the challenge of delivering effective grammar instruction (Komara & Tiarsiwi, 2021; Reza et al., 2023).

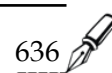
Recent developments in language pedagogy advocate a shift from traditional grammar transmission to more dynamic, learner-centered approaches. Emerging paradigms emphasize grammar in use through task-based instruction, flipped classrooms, peer teaching, and digital platforms (Ellis, 2016; Larsen-Freeman, 2015). The use of Learning Management Systems (LMS) such as Moodle or Google Classroom has become increasingly integral to this shift. These systems allow educators to deliver quizzes, track student progress, and enable multimodal learning at scale (Mbodila & Elegbeleye, 2025; D. K. Nguyen & Pham, 2025). In this context, repeated quizzing, flexible pacing, and automated feedback offer opportunities for formative assessment and mastery-based learning (Dewi & Astuti, 2021; Pashler et al., 2007). Simultaneously, peer presentations and student-led discussions activate collaborative learning, promoting deeper engagement and fostering academic agency (Deng & Sitthitikul, 2024; Swain, 2006).

Research increasingly supports the integration of LMS-based tools with interactive, peer-driven grammar instruction. Ayiz and Tauchid (2024) demonstrated that student presentations reduced anxiety and enhanced grammar retention. Duan and Modehiran (Duan & Modehiran, 2025) highlighted the benefits of stratified teaching models using online platforms in accommodating learner diversity. Similarly, Cao (2023) reported that blended LMS use improved course organization, student autonomy, and engagement, although technical and pedagogical challenges remained. Watanapokakul (2022) found that LMS-enhanced instruction improved English proficiency and learner flexibility in Thai universities. Other studies show that such models support collaborative knowledge construction, critical thinking, and self-directed learning—crucial for mastering abstract and rule-governed domains like grammar (Albatti, 2023; Dewi & Astuti, 2021; Sheerah, 2020).

The use of repeated LMS-based quizzes is grounded in Bloom's (1968) Mastery Learning theory. Repetition, feedback, and learner self-monitoring are key components of grammar acquisition, particularly when instruction is embedded in a scaffolded, digital environment (Black & Wiliam, 1998). Kenney and Bailey (2021) observed that frequent low-stakes quizzes promote long-term retention and metacognition. Nguyen and Hoang (2025) showed that digital quizzing corrected misconceptions and reinforced grammar rules efficiently. Nonetheless, challenges remain. Students may experience fatigue or disengagement without varied task types or instructor mediation (Ananda et al., 2024). Pedagogically, the question remains: How can LMS-driven assessments be integrated into a more holistic grammar curriculum that prioritizes both autonomy and meaningful interaction?

Peer-led instruction is an essential counterpart to the LMS structure. According to Swain's (2006) Output Hypothesis, learners internalize grammatical structures more effectively when they produce language, receive feedback, and engage in reflection. This is especially relevant in collectivist contexts like Indonesia, where group collaboration and shared academic responsibility are culturally embedded (Maujud et al., 2024). Empirical studies support this claim. Ha and Ho (2025) found that peer teaching improved grammatical fluency and confidence, while Zendrato et al. (2025) and Ahaddin, Jatmiko, & Supardi (2020) showed that student-led presentations improved their critical thinking skills and collaboration. These effects are amplified when feedback mechanisms—rubrics, guided questions, instructor scaffolding—are in place.

Amid these promising pedagogical trends, the instructor's role and well-being require careful attention. The post-pandemic education landscape has seen surges in digital fatigue, teacher burnout, and curriculum compression (Rastegar & Rahimi, 2023). The use of LMS, if strategically applied, can reduce extraneous cognitive load through automation of repetitive tasks (Van Merriënboer & Sweller, 2005). This frees instructors to engage in high-impact teaching practices such as mentoring, feedback, and reflective teaching. Lesson Study (Lewis, 2002) has been increasingly advocated as a sustainable model for teacher professional development. It enables co-planning, peer observation, and post-lesson reflection, thus addressing quality assurance and teacher agency.



Despite global advocacy, few studies in Indonesia have empirically examined the impact of blended grammar instruction on both student learning and teacher sustainability – particularly within pre-service teacher training. This dual focus is crucial, as it prepares future educators not only to master grammar but also to experience innovative teaching models. By understanding such models, pre-service teachers can later implement more interactive and technology-enhanced instruction in their classrooms. The novelty of this research lies in its integration of LMS-based grammar quizzes and peer-led presentations within a lesson study framework. This approach simultaneously addresses grammar mastery, learner engagement, and instructor workload in a developing-world higher education context. The present study is anchored in three complementary theoretical frameworks. First, Lesson Study (LS) provides a model of teacher collaboration, inquiry, and curriculum innovation. Second, mastery learning and formative assessment theories offer a foundation for quiz-based grammar practice that supports learner autonomy and low-anxiety repetition. Third, sociocultural theory, particularly Vygotsky's (1978) emphasis on mediation and peer scaffolding, explains the learning gains observed in student-led grammar presentations.

This study investigates the integration of LMS-based grammar quizzes and peer presentations within an Advanced English Structure (AES) course for future English teachers. It seeks to evaluate how this model supports grammar mastery, shapes student perceptions, and influences instructor workload and reflection. The research addresses the following questions: (1) How does an LMS-integrated grammar instruction model affect student grammar mastery in an advanced EFL course? (2) What are student perceptions toward grammar learning via LMS, peer presentation, and repeated quiz practice? (3) How does the instructional model impact instructor workload, motivation, and classroom dynamics?

RESEARCH METHOD

This study employed a convergent parallel mixed-methods design (Creswell & Clark, 2018), integrating quantitative measures of academic performance with qualitative insights from student and instructor perspectives (Figure 1). The design enabled triangulation to capture outcomes and experiences of an instructional model that combined LMS-based grammar quizzes with peer-led presentations, implemented within a lesson study framework. Mixed methods were particularly appropriate in this classroom context, where it was essential to evaluate both effectiveness and process (Tashakkori & Teddlie, 2010). Four teacher-researchers collaboratively planned, implemented, observed, and reflected on the intervention across one semester, following the principles of lesson study as adapted for higher education in EFL contexts (Darsih et al., 2021; Lewis, 2002).

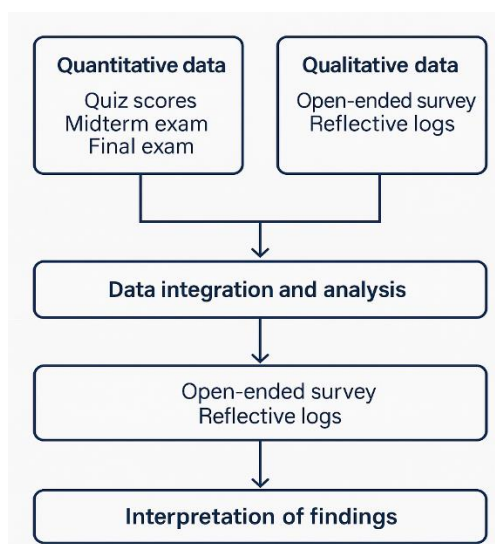


Figure 1. Research flowchart



The study was conducted in a rural teacher education college in Indonesia, involving twelve fourth-semester students (eight female, four male) enrolled in an “Advanced English Structure” (AES) course. Participants, aged 19–22, had completed prerequisite grammar courses and were expected to demonstrate metalinguistic awareness for pedagogical purposes. The teaching team included one senior lecturer specializing in teaching media and LMS development, a professor with over 30 years of EFL experience, and two assistant lecturers with training in English teaching and TOEFL scores above 550. The team engaged in weekly planning and reflection meetings over a 16-week semester.

The intervention integrated five complementary components. Central to the model were 40 Moodle-based grammar quizzes: 37 linked to discrete grammar topics (e.g., noun clauses, passive voice, modals) and three comprehensive review tests. Each quiz contained 12 items in multiple-choice or cloze format, designed for repeated attempts with averaged scores to emphasize formative progress. This approach encouraged sustained engagement and allowed learners to monitor mastery over time. Supporting resources included 37 curated LMS links to open-access videos and multimodal materials aligned with each quiz. Students were also assigned three grammar topics each for classroom presentations, requiring them to study the materials, complete the associated quiz, and then lead peer instruction. This structure blended asynchronous preparation with synchronous collaborative learning.

To ensure ongoing adaptation, instructors recorded weekly observations and participated in structured post-teaching reflections as part of the lesson study cycle. Ten in-class review quizzes and summative exams (midterm and final) were also administered to assess students under controlled conditions. Overall, the model reflected principles of mastery learning (Bloom, 1968), sociocultural theory with peer scaffolding (Swain, 2006), and the affordances of LMS for flexible engagement (D. K. Nguyen & Pham, 2025).

Data were collected from multiple sources. Quantitative data comprised scores from LMS quizzes, the midterm, and the final exam, providing indicators of grammar mastery over time. A 15-item Likert-scale questionnaire, administered in Week 14, explored student perceptions of the LMS, repeated quiz practice, peer presentations, and instructor support, using a five-point response scale. To complement this, four open-ended survey questions invited students to elaborate on benefits, challenges, and suggestions. Instructors’ perspectives were documented through weekly reflective logs and a final group reflection session.

Data analysis combined quantitative and qualitative approaches. Academic scores were analyzed descriptively using Microsoft Excel, with attention to mean, range, and standard deviation across assessment components. Survey data were summarized via frequency distributions and visualized with stacked bar charts to highlight patterns across domains. This analytic strategy follows established practice in evaluating LMS-mediated learning (D. K. Nguyen & Pham, 2025). Qualitative data from student narratives and instructor reflections were subjected to thematic analysis (Braun & Clarke, 2006), focusing on recurrent themes such as reinforcement, confidence, anxiety reduction, and access challenges. Coding was conducted collaboratively by the research team, with intercoder discussions to enhance reliability and interpretive rigor (Creswell, 2013). The integration of these analyses provided a multilayered understanding of the intervention’s impact, supporting methodological triangulation and trustworthiness (Adam & Sailuddin, 2025; Denzin, 2012).

Ethical approval was obtained from the college's institutional review board. All participants provided informed consent. Student identities were anonymized in reporting, and participation did not affect course grading.

RESULTS AND DISCUSSION

Student Academic Performance

The academic performance of the 12 students in the study was analyzed across six core components: attendance, peer presentations, LMS-based quizzes, assignments, midterm exams,



and final exams. These assessments collectively informed each student's final numerical average, which was subsequently converted into institutional letter grades.

Table 1. Descriptive statistics of academic components

Component	Mean	Std. Dev	Min	Max
Attendance	90.25	10.28	66	100
Presentation	81.67	8.56	67	90
Assignment	73.17	13.16	47	90
Quizzes	73.83	15.78	31	89
Midterm (UTS)	85.00	13.24	50	97
Final (UAS)	74.00	15.87	43	94
Final Score	78.50	10.78	56	93

As shown in Table 1, descriptive statistics reveal that the highest average score was recorded in the midterm exam ($M = 85.00$), suggesting that students had consolidated their understanding of grammar content effectively by the semester midpoint. This performance likely reflects the cumulative learning effect of regular LMS-based quiz cycles and the reinforcement provided by peer teaching sessions. Presentation scores also remained relatively high ($M = 81.67$, $SD = 8.56$), underscoring the pedagogical value of student-led teaching and collaborative grammar exploration.

In contrast, assignments and quizzes—though designed for repeated formative engagement—showed greater variability and somewhat lower means ($M = 73.17$ and $M = 73.83$, respectively). This variation may be attributed to differences in student pacing, quiz retake frequency, and engagement levels on the LMS platform. It also reflects the autonomous nature of these tasks and the differential digital competencies among students. Despite this, the final scores ($M = 78.50$, $SD = 10.78$) indicate strong overall achievement, with nine out of twelve students earning a B+ or higher.

These patterns are further illustrated in Figure 2, which visualizes mean scores by assessment component. The figure highlights clear trends: strongest performance in midterm exams and presentations, moderate variability in assignments and quizzes, and slightly lower but respectable outcomes in the final exam. This progression aligns with the model's pedagogical design, where repeated LMS exposure, followed by collaborative reinforcement through peer presentation and instructor feedback, culminates in meaningful learning gains.

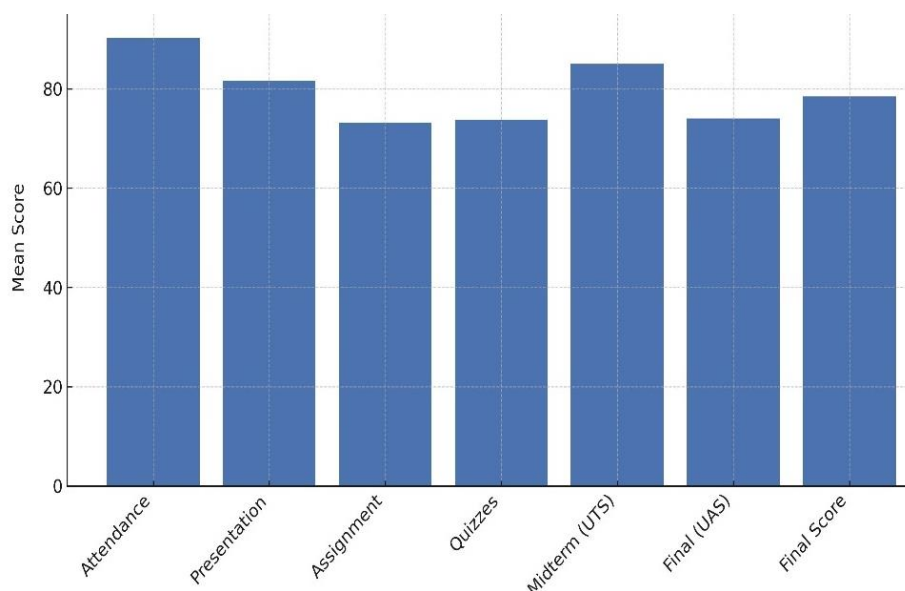


Figure 2. Mean scores by component

Further detail is provided in Table 2, which presents the full breakdown of individual student scores across all components, alongside GPA equivalents and letter grades. Notably, all students passed the course, with the lowest final score (56) still meeting the institutional passing threshold. Some students who scored lower in the quizzes managed to compensate through strong performance in peer presentations or assignments, highlighting the importance of offering diverse and balanced modes of assessment. Such diversification ensured that students with different learning styles had equitable opportunities to demonstrate their grammar mastery.

Table 2. Individual student scores and final grade

Student Initials	Attendance	Presentation	Assignment	Quizzes	UTS	UAS	Final Score (NA)	Grade Index	Grade
AS	75	90	55	89	80	86	80	3.7	A-
H	97	90	88	89	97	94	93	4.0	A
MS	100	77	81	66	93	81	83	3.7	A-
SA	100	85	83	82	89	79	85	4.0	A
DR	94	70	86	69	76	43	68	3.0	B
DA	100	88	78	69	94	68	80	3.7	A-
LS	66	75	90	78	88	65	76	3.3	B+
NS	100	78	78	64	92	71	79	3.3	B+
S	91	67	50	31	77	89	70	3.0	B
SN	100	88	84	89	92	90	90	4.0	A
NB	84	88	67	86	95	78	82	3.7	A-
PS	84	80	47	55	50	46	56	2.0	C

Overall, the results provide empirical support for the effectiveness of the LMS-integrated and peer-facilitated grammar instruction model. The use of repeated low-stakes quizzes, multimedia materials, and structured peer presentations contributed not only to content mastery but also to sustained learner engagement. The assessment outcomes thus substantiate the answer to Research Question 1, affirming that the blended model significantly enhanced student academic performance in the context of an advanced EFL grammar course.

Student Evaluation – Closed Responses

To assess student perceptions of the blended grammar instruction model, a 15-item Likert-scale survey was administered during the fourteenth week of the semester. The items were organized into four thematic domains: LMS usefulness, the impact of repeated quiz practice, the effectiveness of peer presentations, and the level of instructor support. Responses were collected using a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), which quantitatively measures student sentiment regarding different aspects of the instructional intervention.

As Figure 3 visualizes the response distribution using a stacked bar chart, student feedback was overwhelmingly positive across all domains. Regarding the usefulness of the LMS, 91% of students either agreed or strongly agreed that the platform facilitated their learning. Students highlighted the platform's value in organizing materials, offering structured access to grammar content, and allowing for progress tracking—attributes that align with established benefits of LMS platforms in language learning contexts.



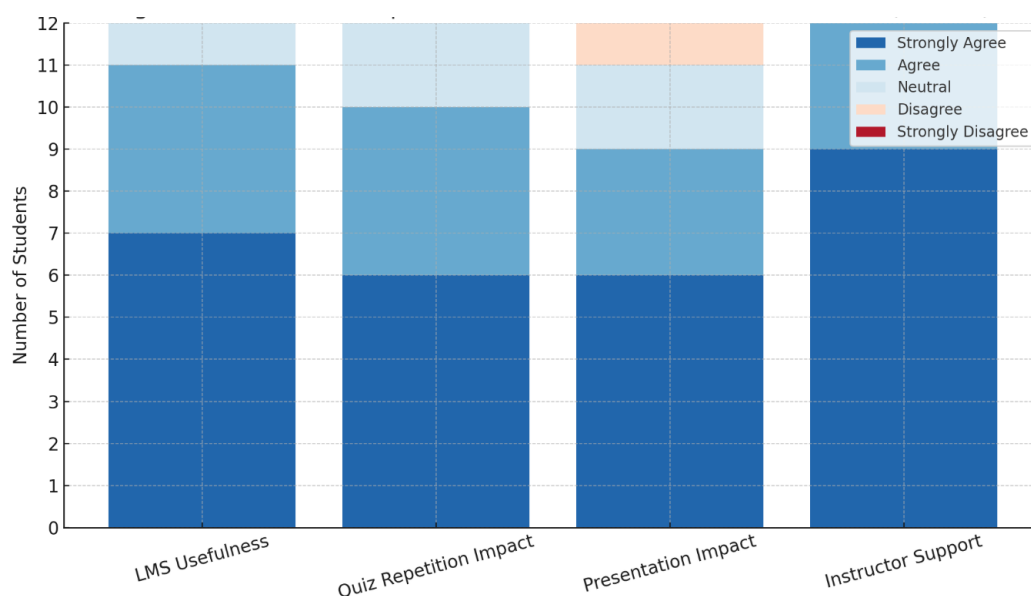


Figure 3. Student perceptions of lms-based grammar instruction (N = 12)

Repeated quiz practice was also highly rated, with 83% of students affirming that it helped reinforce their understanding of grammar. The opportunity to attempt quizzes multiple times and receive instant feedback was cited as especially beneficial, promoting mastery learning while reducing anxiety associated with high-stakes assessments. This aligns with Bloom's (1968) principles and supports recent findings on the efficacy of low-stakes repetition in grammar instruction (Kim et al., 2022).

The peer presentation component garnered similarly favorable responses. 75% of students agreed that presenting grammar topics and participating in peer discussions improved their understanding. This finding reinforces the theoretical relevance of sociocultural perspectives on language learning, particularly Swain's (2006) output hypothesis, which emphasizes the value of language production, peer scaffolding, and reflective interaction.

Notably, the strongest positive response was in the domain of instructor support. All students either agreed or strongly agreed that the instructors provided clear explanations, demonstrated patience, and offered responsive guidance throughout the course. This unanimous approval highlights the essential role of teacher presence and pedagogical clarity in blended learning environments.

The quantitative feedback presented in Figure 2 offers strong empirical support for Research Question 2. The data affirm that students perceived the blended model—particularly the integration of LMS tools, repeated assessments, peer presentations, and instructor facilitation—as compelling and engaging. The consistency of positive responses across multiple dimensions suggests that the intervention improved grammar proficiency and created a supportive and motivating learning environment.

Student Evaluation - Open Responses

To gain deeper insights into students' lived experiences with the blended grammar instruction model, participants responded to four open-ended questions addressing benefits, challenges, suggestions, and overall impressions. Thematic analysis of responses revealed four major domains: perceived benefits, learning challenges, suggested improvements, and expressions of student appreciation. These themes are summarized in Table 3, which provides a reference framework for interpreting the coded responses.



Table 3. Thematic coding reference

Code	Description
A1	LMS Autonomy and Access
A2	Quiz Engagement and Repetition
A3	Peer Presentation and Understanding
A4	Instructor Support and Clarity
C1	Cognitive Load or Content Difficulty
C2	Technical and Access Challenges
S1	Pedagogical Suggestions
S2	Tool or Platform Enhancements
T1	Teacher Gratitude and Emotional Support

Students widely acknowledged the benefits of LMS-based learning and peer presentations in enhancing grammar understanding and engagement. The most frequently cited advantages included the accessibility of LMS materials, the flexibility of self-paced quizzes, and the confidence gained through presentation tasks. For instance, one student shared, *“Doing quizzes in Moodle helped me understand grammar better”* (NS, A2). At the same time, another reflected, *“The presentation tasks really helped me understand the material deeply, especially with class discussions”* (SA, A3). These remarks align with earlier quantitative findings and emphasize how autonomous digital tasks and collaborative peer activities fostered a more engaging and practical learning experience.

Several responses also highlighted the LMS as a helpful and enjoyable tool. One student noted, *“I was able to learn vocabulary and grammar in a more fun and easier way using the LMS”* (DL, A1). Another appreciated the clarity and structure provided by instructor support: *“The explanation from the lecturer was detailed and easy to follow. The practice questions reinforced what we learned”* (AS, A4). These comments underscore the model’s success in balancing cognitive challenge with supportive instructional design.

Despite the generally positive experiences, students also identified several challenges. Some pointed to content complexity and volume, suggesting occasional cognitive overload. For example, *“There were a lot of topics, and some materials were quite difficult”* (SN, C1) and *“Sometimes I struggled to grasp the grammar rules in detail”* (DA, C1). Others mentioned external limitations, including device unavailability and internet issues: *“During the final exam, I faced challenges because I didn’t have a phone for a few weeks”* (DL, C2). These challenges illustrate the need for ongoing scaffolding, equitable access to technology, and differentiated pacing support.

Students offered thoughtful suggestions for future improvements. These ranged from increasing the quantity and variety of quizzes to incorporating more interactive tools. One participant recommended, *“Please add more quizzes so we can strengthen our understanding”* (DA, S1), while another proposed, *“It would be great to have games like Kahoot or flashcards to make learning more fun”* (SN, S2). These ideas suggest growing learner metacognition and a desire for richer multimodal engagement. The call for more frequent presentations – *“Let’s have more frequent presentations. They help us study harder”* (DL, S1) – further emphasizes the value students place on active learning formats.

Finally, a recurring theme across responses was a sense of gratitude and emotional connection with the instructors. Expressions such as *“Thank you to Mr. A and Ms. D for always being patient and explaining materials repeatedly”* (DA, T1), *“Thank you to all lecturers for your dedication in teaching us grammar”* (AS, T1), and *“I wish the lecturers good health and long life. May your efforts be rewarded”* (SA, T1) not only reflects student appreciation but also affirms the relational dynamics integral to the success of blended learning in collectivist educational settings.



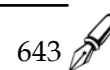
In summary, the open-ended responses provide rich qualitative support for Research Question 2 by contextualizing the statistical data with personal narratives. Students valued the LMS for its structure and autonomy (A1), benefited from repetitive assessment (A2), and appreciated the peer presentation experience (A3). While some challenges emerged, especially related to access and topic complexity (C1, C2), students also demonstrated agency through constructive suggestions (S1, S2). The strong affective responses captured in expressions of gratitude (T1) reinforce the central role of empathetic instruction in sustaining learner motivation and community.

Instructor Reflection

Insights from the instructor team were drawn from weekly reflective teaching logs and a final group reflection session. The reflections captured various instructional experiences while implementing the blended grammar model and revealed key themes related to workload management, pedagogical focus, observed student engagement, and professional collaboration. These themes are summarized in Table 4, which presents representative quotations categorized into four domains: workload reduction, increased focus on feedback, enhanced student engagement, and instructor motivation.

Table 4. Thematic matrix of instructor reflections

Theme	Lead Instructor (R1)	Assistant Lecturer 1 (R2)	Assistant Lecturer 2 (R3)
LMS Efficiency & Cognitive Relief	"Using Moodle was the realization of instructional principles I've practiced since 2007. It allowed automation and saved enormous time in grading and preparation."	"The LMS simplified everything: from uploading materials to auto-scoring. It saved me from repetitive grading and let me focus more on student mentoring."	"The LMS helped me monitor student progress more effectively and deliver targeted content. It really cut down the manual workload."
Student Engagement & Peer Learning	"Seeing student progress week by week made me believe in this model. The presentations activated peer scaffolding and deepened understanding."	"I observed rising motivation over time. Presentations made them responsible for learning and explaining, which enhanced their grammar mastery."	"Peer discussion fostered confidence. Even students who were usually quiet became more active during their presentation slots."
Challenges Encountered	"Some students still perceived class as a mechanical process. Motivating all students to engage deeply was difficult."	"Initially I wasn't used to LMS navigation. And technical problems like device breakdowns or internet issues impacted student access sometimes."	"Not all students participated equally. Some only prepared when presenting. Encouraging full-class readiness was a persistent challenge."
Recommendations for Improvement	"Continue the team-teaching and lesson study approach. Also use AI tools more consistently for material design and student feedback."	"Introduce auto-proctoring for quizzes in future iterations. Also consider brief training for new lecturers on LMS usage."	"Develop a more detailed learning contract with clear expectations, so all students understand the academic culture of collaboration and consistency."



A prominent theme across the reflections was the relief brought by LMS automation, particularly in quiz administration and grading. One instructor remarked, *"The LMS really saved our time and energy in grading. The auto-marking feature allowed us to focus on other tasks"* (R1). This sentiment was echoed throughout the semester as instructors found themselves spending less time on repetitive administrative tasks and more on meaningful interaction with students. The ability to redirect cognitive resources from scoring to mentoring is consistent with cognitive load theory and underscores the pedagogical value of technology-enhanced learning environments.

Increased time for feedback and mentoring was another key benefit. Instructors reported having more opportunities to review student presentations, guide improvements, and address misconceptions. One participant noted, *"With less time spent marking, I could focus more on providing meaningful comments and guiding the presentations"* (R2). This shift from reactive grading to proactive scaffolding reflects a deeper engagement with students' learning processes and strengthens the instructional quality of the course.

Regarding classroom dynamics, instructors observed heightened student confidence, ownership, and peer accountability. The reflective logs described how student-led grammar presentations created a more collaborative and participatory environment. One instructor observed, *"They were more confident when presenting grammar. It was like they were teaching themselves and their peers"* (R3). Such observations reinforce the idea that grammar learning becomes more authentic and lasting when student-centered and socially mediated.

Finally, instructors expressed renewed motivation and professional satisfaction. The blended model fostered a sense of pedagogical innovation and community, particularly when implemented through a collaborative lesson study process. One reflection said, *"This was a refreshing teaching experience. Working together and trying something new was rewarding"* (R4). These reflective insights point not only to the effectiveness of the instructional intervention but also to its sustainability from the educator's perspective.

In summary, the instructor reflections in Table 4 offer compelling evidence supporting Research Question 3. Integrating LMS-based automation and structured peer engagement contributed to reduced cognitive workload, deeper pedagogical involvement, and improved classroom atmosphere. These outcomes highlight the intervention's dual benefit—enhancing student learning while supporting instructor well-being and professional growth.

Discussion

This study aimed to evaluate the implementation of a blended grammar instruction model that integrated LMS-based formative assessments and student-led peer presentations within a lesson study framework in Indonesian higher education. Drawing on mastery learning, sociocultural theory, and cognitive load perspectives, the study explored how this instructional model influenced grammar achievement, student perceptions, and instructor experiences. The discussion integrates findings related to all three research questions while anchoring the interpretation in relevant theoretical and empirical literature.

The integration of LMS-based quizzes significantly contributed to students' grammar mastery. Quantitative results revealed consistently high performance on midterm and final assessments, with most students achieving a GPA equivalent of B+ or higher. These outcomes align with Bloom's (1968) mastery learning theory, which posits that frequent low-stakes assessment and feedback allow learners to reach high levels of achievement when instructional time is flexibly managed. The LMS, in this case Moodle, enabled repeated quiz attempts, instant feedback, and topic-wise pacing, creating the conditions for mastery (Pashler et al., 2007). This is further supported by studies such as Wang et al. (2024), who demonstrated that MyELT-based blended instruction led to significant improvements in both process and outcome measures of grammar learning. Likewise, Grgurović (2012) found that combining face-to-face grammar instruction with LMS-supported practice improved both retention and transfer of grammatical knowledge. In our study, the ability to access grammar modules and quizzes



asynchronously reinforced this pattern. Compared to early quiz performance, students' improvement in the midterm indicates the value of cumulative, scaffolded learning over time.

Moreover, the autonomy provided by the LMS encouraged strategic learning behaviors, such as revisiting challenging topics. As shown by Fitrawati (2021), LMS platforms facilitate self-regulated learning and provide structure for autonomous blended learning in a large system design class (Bailey & Smith, 2013). This is especially vital in rural Indonesian contexts, where students often juggle coursework with domestic or economic responsibilities and benefit from flexible access. However, this model is not without challenges. As some students noted in open feedback, quiz difficulty, topic overload, and lack of real-time correction created occasional barriers to learning. These findings reflect broader concerns in the literature about the potential of quiz fatigue and LMS disengagement without embedded scaffolding or teacher interaction (Ananda et al., 2024).

Students reported overwhelmingly positive perceptions of the blended grammar model. Survey and qualitative data indicated high appreciation for the LMS's organizational structure, repeated quizzes, and peer learning opportunities. This aligns with engagement theory frameworks (Fredricks et al., 2004; Sagayadevan & Jeyaraj, 2012), emphasizing the interplay of behavioral, emotional, and cognitive engagement for academic success. The peer presentation component particularly resonated with students. Thematic analysis highlighted the benefits of collaborative learning, confidence-building, and dialogic interaction—hallmarks of Vygotsky's (1978) sociocultural theory and Swain's (2006) output hypothesis. Students were not passive recipients of grammar knowledge but co-constructors actively engaged in negotiating meaning, correcting misconceptions, and teaching others. These findings corroborate recent work by Ayiz and Tauchid (2024), who found that peer grammar teaching enhanced motivation and reduced public speaking anxiety. Similarly, Deng and Sitthitikul (2024) argue that dialogic feedback loops in peer tasks improve grammar performance in blended classrooms.

The LMS further reinforced student agency. Platforms like Moodle allowed learners to track progress, redo quizzes, and prepare for class discussions. As confirmed by Muscarà and Beercock (2010), this kind of technological mediation promotes active learning, especially when paired with reflective tasks like presentations. Nevertheless, some students expressed difficulties with specific grammar topics, digital access, and time management—challenges that resonate with literature on blended learning pitfalls (Albatti, 2023; Cao, 2023). Students may struggle to use LMS tools effectively without adequate digital literacy and support. Institutions must ensure infrastructure readiness and provide digital literacy training.

One of the study's unique contributions is its focus on instructor sustainability. Lesson study data revealed that instructors experienced reduced grading fatigue, improved mentoring focus, and enhanced professional dialogue. This supports van Merriënboer and Sweller's (2005) cognitive load theory, which suggests that automation of routine tasks (e.g., quiz scoring) frees up mental resources for higher-order pedagogical thinking. Instructor reflections also indicated enhanced motivation and collegiality. The lesson study model provided space for collective reflection, material co-design, and post-teaching dialogue. This aligns with recent findings in teacher professional development, showing that lesson study cultivates a reflective learning community and strengthens instructional innovation (Benedict et al., 2023). Notably, instructors observed improved classroom dynamics as students became more participatory and self-directed. This mirrors observations in other studies where blended environments encouraged student responsibility and peer accountability (Ha & Ho, 2025; Zandrato et al., 2025). However, not all was seamless. Instructors noted persistent inequities in student engagement, with some students only preparing for their assigned presentation slots. This echoes the caution in Nur et al. (2024) about the risk of uneven participation in asynchronous or hybrid models. Future iterations should consider learning contracts or rotating discussion leaders to ensure consistent involvement.



Taken together, the findings affirm that blended grammar instruction, anchored in LMS repetition and peer-led engagement, is a viable and impactful pedagogical model. It fosters grammar mastery, nurtures positive student perceptions, and promotes instructor sustainability. These outcomes support calls for innovative, context-sensitive approaches to grammar teaching in EFL higher education. Importantly, the model aligns with global findings from SciSpace-indexed studies. For instance, Watanapokakul (2022) found that Thai EFL students viewed blended instruction as flexible and effective. Lastari and Rohim (2023) reported strong student support for grammar learning via LMS and ICT tools in Indonesia. Such cross-national evidence strengthens the case for policy-level LMS integration in grammar pedagogy.

Nonetheless, the successful implementation of blended grammar instruction hinges on several interrelated factors. First, careful instructional design is essential; LMS-based tasks must be explicitly aligned with intended learning outcomes, offer scaffolded feedback, and be meaningfully integrated with in-class sessions to ensure pedagogical coherence (Albatti, 2023). Second, robust technological support is critical. This includes not only reliable infrastructure but also training for users and accessible troubleshooting mechanisms to minimize disruptions during learning (Wang et al., 2024). Third, instructor adaptability plays a pivotal role. Effective professional development must address technological proficiency and pedagogical innovation to equip educators with the skills to navigate blended environments effectively. Finally, institutions must invest in student support systems by fostering digital literacy and enhancing learner motivation through structured orientations, continuous guidance, and gamified elements that sustain engagement (Shen et al., 2024). Taken together, these elements form the foundational pillars necessary for maximizing the impact and sustainability of technology-integrated grammar instruction.

CONCLUSION

This study has demonstrated that a blended grammar instruction model—combining LMS-based quizzes, peer presentations, and reflective lesson study—can effectively enhance grammar mastery, increase learner engagement, and improve instructional sustainability in an Indonesian higher education EFL context. Students responded positively to the LMS tools and peer-led sessions, indicating cognitive and affective benefits. Instructors, in turn, found that the model reduced routine workload while increasing their capacity for targeted support and reflective practice.

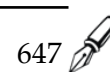
The implications of these findings are threefold. First, pedagogically, blended models should be integrated into grammar curricula to provide diversified input and output opportunities. Peer presentations deepen grammatical understanding and provide opportunities for meaningful output, while LMS-based quizzes reinforce learning and promote autonomy. Second, institutionally, universities should invest in robust LMS infrastructure and provide training for instructors on blended pedagogy. Digital literacy support for students is equally essential to bridge access gaps and promote equitable learning outcomes. Finally, national and institutional policies should support lesson study models, blended grammar instruction, and co-teaching strategies to address high instructor workload and improve instructional quality. Policymakers should promote professional learning communities and evidence-based LMS implementation frameworks in teacher education programs.

This study contributes to a growing body of evidence advocating for blended instruction in grammar education. While promising, it also highlights areas for further refinement—including sustaining student engagement, mitigating technological barriers, and scaling instructional design. Future research should explore long-term grammar retention, expand to other linguistic skills, and compare variations of blended delivery modes (e.g., flipped vs. hybrid). Ultimately, this study offers a viable, scalable model for grammar instruction that balances technological efficiency with humanistic pedagogy—essential in post-pandemic, resource-constrained EFL settings.



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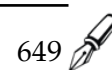
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