English Language and Literature in Education Journal (ELLINE Journal)
Vol. 3, No.2, pp. 70-89, 2025
DOI: https://doi.org/10.63011/xw2fcm17
e-ISSN: 3062-9233
https://elline-journal.com

Gamified Assessment as a Catalyst for Skill Mastery in Online ESP Learning: An LMS-Based Investigation

[1 *] Dewi Hidayati

[1] STAI Diponegoro Tulungagung, Tulungagung, Indonesia
[1] dewiaansugianto@gmail.com
*(*corresponding author)*

Received:	Revised:	Accepted:	Published:
14 September 2025	21 October 2025	18 November 2025	31 December 2025

Abstract. Despite the growing adoption of gamification in online English for Specific Purposes instruction, existing scholarship remains fragmented, often privileging learner motivation or engagement while underexamining how gamified assessment functions as a mechanism for measurable skill mastery within learning management system–mediated environments. Addressing this gap, the present study aims to investigate the role of gamified assessment in fostering skill-specific achievement in online ESP learning. Employing a sequential explanatory mixed-methods design, the study was conducted in an anonymous private higher education institution in East Java, Indonesia. Quantitative data were obtained from pre- and post-assessment scores embedded in LMS-based gamified tasks completed by 56 undergraduate ESP learners enrolled in a discipline-specific course, while qualitative insights were generated through a structured questionnaire and follow-up interviews with six purposively selected participants. The findings indicate that gamified assessment supported sustained learner engagement, clearer performance benchmarking, and incremental improvement in targeted ESP skills, particularly in task-based language use aligned with professional contexts. However, the results also reveal challenges related to uneven digital literacy, assessment fatigue, and the risk of overemphasizing game mechanics at the expense of reflective learning. These findings underscore the need for pedagogically balanced gamified assessment designs that prioritize validity, skill alignment, and contextual sensitivity in online ESP settings.

Keywords: assessment, ESP, gamification, LMS, online learning

This work is licensed under CC BY-SA.
Creative Commons Attribution-ShareAlike 4.0 International License

INTRODUCTION

English for Specific Purposes (ESP) has consistently foregrounded the principle that language learning should be driven by the communicative demands of specific professional, academic, or vocational domains. Central to this orientation is the notion of skill mastery, understood as learners' ability to deploy language resources effectively in discipline-specific tasks rather than merely demonstrating abstract linguistic knowledge. Previous ESP scholarship has therefore emphasized performance-based and task-oriented assessment as essential mechanisms for capturing learners' functional competence in authentic contexts (Douglas, 2025; Hyland, 2022). Empirical studies have shown that assessment practices aligned with real-world tasks can enhance construct validity and provide more meaningful evidence of learning outcomes (Hidayati et al., 2023; Karapetian, 2020; Slamet et al., 2025b, 2025a). Nevertheless, the literature also reveals persistent limitations, particularly the continued reliance on traditional, summative assessments that inadequately represent the dynamic and incremental nature of skill development in ESP contexts. These practices often fail to offer sustained feedback or support learners' progression toward mastery, leaving a significant gap between instructional intentions and assessment realities (Bui, 2022; Hyland & Jiang, 2021).

The shift toward online learning has further complicated the assessment landscape in ESP. Learning management systems (LMSs) have become central infrastructures for organizing content, facilitating interaction, and administering assessments. Research on LMS-supported language learning highlights their potential to enable continuous assessment, timely feedback, and systematic tracking of learner performance through embedded analytics (Bervell & Arkorful, 2020; Ferdiansyah et al., 2025; Hidayati & Utami, 2025; Ikhwan et al., 2025). In ESP settings, LMS platforms have been reported to support skills-focused activities such as simulations, project-based tasks, and collaborative writing aligned with professional practices. However, existing studies also document challenges, including reduced learner engagement, superficial task completion, and assessment designs that privilege convenience over pedagogical depth (Slamet & Kweldju, 2025; Taufiqurrochman et al., 2020; Wolters & Brady, 2021). These issues suggest that LMS affordances alone are insufficient to ensure meaningful assessment of ESP skills, underscoring the need for pedagogical strategies that can sustain engagement while preserving assessment validity.

Within this context, gamification has emerged as a prominent approach for enhancing learner involvement in online environments. Drawing on game design elements such as points, levels, feedback loops, and challenges, gamification has been widely reported to increase participation, persistence, and motivation in digital learning settings (Erdiana et al., 2025; Romsi et al., 2024; Widodo et al., 2025). In language education, studies indicate that gamified activities can encourage repeated practice, lower affective barriers, and promote learner autonomy (Ofosu-Ampong et al., 2020; Slamet et al., 2024a; Slamet & Basthomi, 2024). Yet, the literature also raises critical concerns regarding the pedagogical depth of gamification, noting that superficial reward structures may distract learners from substantive learning goals or foster extrinsic rather than sustained engagement (Avila & Fonseca, 2021; Dah et al., 2024; Masrukin, 2025). Importantly, many gamification studies focus on motivation or attitudes, while the role of gamification as an assessment mechanism for skill mastery remains underexplored, particularly in ESP contexts.

Assessment-oriented gamification represents a more recent and less systematically examined strand of research. While some studies suggest that gamified assessments can provide immediate feedback and promote iterative skill development, others point to risks such as construct underrepresentation, overemphasis on competition, and unequal learner responses due to varying digital competencies (Hautala et al., 2020; Jo et al., 2023; Slamet & Mukminatien, 2024). Moreover, the intersection of gamified assessment, LMS affordances, and ESP skill mastery has not been sufficiently theorized or empirically validated. Existing research often treats gamification, assessment, and LMS use as discrete variables, resulting in fragmented insights that fail to explain

how these elements interact to support or constrain skill development over time (Danka, 2020; Zainuddin et al., 2020).

Collectively, the reviewed literature reveals several interrelated gaps: limited empirical attention to assessment as the core function of gamification in ESP; insufficient examination of how LMS-based gamified assessments capture incremental skill mastery rather than surface engagement; and a lack of balanced analyses that account for both enabling and constraining factors in such designs. Addressing these gaps requires an integrated investigation that operationalizes gamified assessment as a structured assessment approach embedded within LMS environments and examines its relationship with learners' mastery of ESP-specific skills. Based on these considerations, the study is guided by the following research questions:

1. How does LMS-based gamified assessment influence learners' mastery of ESP-specific skills in online learning environments?
2. What pedagogical affordances and constraints emerge from the implementation of gamified assessment for skill mastery in online ESP learning?

LITERATURE REVIEW

Gamified Assessment in Language Education

Gamification in language education has been widely conceptualized as the integration of game design elements into non-game learning contexts to enhance learner engagement and persistence (Erdiana et al., 2025; Hautala et al., 2020; van Roy & Zaman, 2018). In assessment-oriented applications, gamification has been found to support formative learning processes by providing immediate feedback, goal clarity, and iterative opportunities for improvement (Jo et al., 2023). Prior studies in second and foreign language learning report that gamified assessment tasks can increase learner participation and task completion rates, particularly in online environments where disengagement is a recurring concern (Dewi & Slamet, 2025; Ferdiansyah et al., 2025; Hidayati & Slamet, 2025; Makarim, 2024). However, the literature also indicates that many gamified assessments emphasize surface-level achievement indicators such as points or badges, which may inadequately represent complex language skill development. This has led scholars to question the construct validity of gamified assessment and its capacity to capture deeper learning outcomes (Friedrich et al., 2020; Ikhwan et al., 2025; Puig et al., 2023). The lack of empirical focus on assessment quality, rather than motivational outcomes alone, signals a need for more nuanced investigations into gamified assessment as a pedagogical and evaluative tool.

Skill Mastery and Assessment in ESP

Skill mastery in ESP is grounded in learners' ability to perform discipline-relevant communicative tasks that reflect real-world professional demands (Douglas, 2025; Hyland, 2022). ESP assessment research has therefore prioritized performance-based and criterion-referenced approaches that align assessment tasks with target discourse practices (Karapetian, 2020; Rifah et al., 2022). Empirical studies suggest that when assessments are explicitly aligned with ESP learning outcomes, learners demonstrate clearer progress in skill development and greater awareness of professional language use (Bui, 2022; García-Sánchez, 2024; Xu et al., 2020). Despite these advances, the literature highlights persistent gaps in operationalizing skill mastery in online ESP contexts, where assessments may become fragmented or overly standardized. Moreover, assessment practices often struggle to balance formative support and summative accountability, particularly when mediated through digital platforms. These challenges underscore the need to explore innovative assessment designs that can support sustained skill development while maintaining alignment with ESP constructs.

LMS-Based Online Assessment Practices

LMSs have become central to online language education, offering integrated tools for content delivery, assessment administration, and learning analytics (Romsi et al., 2024; Slamet & Basthomi, 2024). Research on LMS-based assessment demonstrates its potential to facilitate continuous monitoring of learner performance and provide timely feedback, both of which are critical for skill development (Bervell & Arkorful, 2020; Ferdiansyah et al., 2025; Slamet & Mukminatien, 2024). In language learning contexts, LMS platforms have been used to implement quizzes, peer assessment, simulations, and portfolio-based tasks. Nevertheless, existing studies also reveal limitations, including learner fatigue, reduced interaction, and assessment designs that prioritize efficiency over pedagogical depth (Alomari et al., 2020; Taufiqurrochman et al., 2020). Importantly, while LMS affordances enable the integration of gamified elements, the literature rarely examines how these affordances interact with assessment principles to support skill mastery in ESP. This gap points to the need for research that moves beyond technological functionality to interrogate pedagogical alignment and learning outcomes.

Integrating Gamification, Assessment, and Skill Mastery

Recent scholarship has begun to explore the intersection of gamification, assessment, and learning outcomes, yet findings remain inconclusive. Some studies report that gamified assessments can promote repeated practice and self-regulation, which are essential for developing complex language skills (Erdiana et al., 2025; Ikhwan et al., 2025). Others caution that poorly designed gamification may lead to competitive stress or superficial engagement that detracts from reflective learning (Ferdiansyah et al., 2025; Slamet et al., 2024a; Slamet & Mukminatien, 2024). Notably, few studies adopt an integrative perspective that situates gamified assessment within ESP-specific skill frameworks and LMS-mediated environments simultaneously. The absence of such integrative analyses limits theoretical understanding of how gamified assessment can function as a catalyst for skill mastery rather than a motivational add-on. Addressing this limitation requires a framework that connects assessment theory, ESP pedagogy, and gamification principles in a coherent manner.

Theoretical Framework and Study Context

The present study is informed by a synthesis of formative assessment theory, ESP skill-based pedagogy, and gamification theory. Formative assessment theory emphasizes feedback, learner agency, and alignment between learning objectives and assessment tasks (Black & Wiliam, 2009). ESP pedagogy foregrounds authenticity, needs-based skill development, and performance-oriented evaluation (Douglas, 2025; Hyland, 2022). Gamification theory contributes insights into engagement mechanisms and behavioral reinforcement when aligned with meaningful learning goals (Kapp, 2012; Landers, 2014). Together, these perspectives frame gamified assessment as a structured assessment approach embedded within LMS environments that can potentially support incremental and measurable skill mastery. Within this framework, the study is situated in an anonymous private higher education institution in East Java, Indonesia, where online ESP instruction is delivered through an LMS platform. The institutional context reflects broader trends in higher education toward digital learning and assessment innovation, while also presenting challenges related to learner diversity and digital readiness. Against this backdrop, the present study aims to investigate the role of gamified assessment in fostering skill-specific achievement in online ESP learning, contributing empirically and theoretically to ongoing debates on assessment quality, technological mediation, and skill mastery in ESP contexts.

METHOD

Research Design

The present study adopted a sequential explanatory mixed-methods design (Creswell et al., 2004; Ivankova et al., 2006), which integrates quantitative and qualitative strands in a systematic and complementary manner. This design was selected to allow an initial examination of measurable changes in learners' ESP skill mastery resulting from LMS-based gamified assessment, followed by an in-depth exploration of pedagogical affordances and constraints that may not be captured through numerical data alone. In the first phase, quantitative data addressed patterns of skill-specific achievement by comparing learners' performance before and after exposure to gamified assessment tasks embedded in the LMS. This phase primarily informed the investigation of how gamified assessment relates to learners' mastery of ESP-specific skills. In the second phase, qualitative data were used to explain and elaborate on the quantitative trends by capturing learners' perceptions, experiences, and challenges associated with the gamified assessment practices. The integration of findings occurred at the interpretation stage, enabling the study to generate a more comprehensive understanding of both outcome-oriented and process-oriented dimensions of gamified assessment in online ESP learning.

The Participants

The participants consisted of 56 undergraduate students enrolled in an online ESP course at an anonymous private higher education institution in East Java, Indonesia. The course was discipline-specific and delivered fully through an LMS, where gamified assessment tasks were systematically implemented throughout the semester. Participants were selected using purposive sampling based on clearly defined inclusion criteria: active enrollment in the ESP course, consistent participation in LMS-based activities, and completion of both pre- and post-assessments. To mitigate potential selection bias, all students meeting these criteria were included in the quantitative phase, ensuring comprehensive coverage of the learning cohort rather than selective inclusion (Bouncken et al., 2025). For the qualitative phase, six participants were purposively selected to represent variation in achievement levels, gender, and prior experience with online learning. This maximum variation strategy was employed to reduce overrepresentation of any single perspective and to enhance the credibility of qualitative interpretations. Participation in interviews was voluntary, and informed consent was obtained to minimize response bias and power-related influences.

Table 1. Demographic Profile of Participants *(n = 56)*

Variable	Category	Total *(n)*	Percentage *(%)*
Gender	Male	24	42.86
	Female	32	57.14
Age	18–20 years	21	37.50
	21–23 years	29	51.79
	Above 23 years	6	10.71
Academic Year	First year	18	32.14
	Second year	23	41.07
	Third year	15	26.79
Prior Online Learning Experience	Less than 1 year	19	33.93
	1–2 years	27	48.21
	More than 2 years	10	17.86
Familiarity with LMS	Low	14	25.00
	Moderate	28	50.00
	High	14	25.00

Instruments

Three instruments were employed to ensure methodological rigor and data triangulation: LMS-based gamified assessments, a structured questionnaire, and semi-structured interviews.

The gamified assessment instruments consisted of task-based ESP assessments embedded in the LMS, incorporating game elements such as point accumulation, progress levels, timed challenges, and automated feedback (Slamet et al., 2025b). These tasks were adapted from established ESP performance-based assessment frameworks to ensure alignment with discipline-specific skill objectives, including functional language use, task completion accuracy, and contextual appropriateness. Content validity was established through expert judgment involving two ESP specialists and one assessment expert, who evaluated task relevance, clarity, and construct alignment. Revisions were made based on their feedback prior to implementation.

The structured questionnaire was adapted from validated scales on gamification and formative assessment in online learning. It comprised four dimensions: perceived assessment clarity, engagement with gamified tasks, perceived skill development, and assessment-related challenges (Erdiana et al., 2025; Slamet et al., 2024b). Each dimension consisted of five to seven items rated on a five-point Likert scale. Construct validity was examined through item-total correlations, all exceeding the acceptable threshold of 0.30. Internal consistency reliability was confirmed using Cronbach's alpha, yielding coefficients of 0.88 for assessment clarity, 0.90 for engagement, 0.86 for perceived skill development, and 0.84 for challenges, indicating satisfactory reliability.

The semi-structured interview protocol was developed to explore learners' experiences with gamified assessment in greater depth. Questions were designed to elicit reflections on learning support, motivational dynamics, cognitive demands, and perceived limitations. To mitigate interviewer bias, the protocol underwent content validation by two qualitative research experts, and neutral, open-ended wording was used throughout. Pilot interviews were conducted to refine question clarity and sequencing. During data collection, member checking was employed by summarizing key points to participants for confirmation, enhancing credibility and reducing interpretive bias.

Data Collection Procedures

Data collection was conducted in two sequential phases in line with the explanatory mixed-methods design, ensuring systematic linkage between quantitative outcomes and qualitative interpretations. In the first phase, quantitative data were collected over one academic semester through LMS-embedded gamified assessment activities integrated into regular ESP instruction. Prior to implementation, a pre-assessment was administered through the LMS to establish baseline levels of learners' ESP-specific skills. This assessment consisted of discipline-relevant tasks designed to measure functional language use, accuracy, and task completion aligned with course learning outcomes. Following the pre-assessment, learners engaged in a series of gamified assessment activities distributed across instructional units. These activities incorporated clearly defined rules, progress indicators, point systems, and automated feedback to support continuous skill development. At the end of the semester, a post-assessment parallel in structure and difficulty to the pre-assessment was administered to capture changes in skill mastery. To mitigate testing effects, item sequences and task scenarios were varied while maintaining construct equivalence.

In the second phase, qualitative data were collected to contextualize and explain quantitative patterns. A structured questionnaire was administered to all participants immediately after the post-assessment to capture perceptions of assessment clarity, engagement, skill development, and perceived constraints. Subsequently, six participants were invited for follow-up interviews based on maximum variation criteria. Interviews were conducted online using a standardized protocol and

recorded with consent. To reduce social desirability bias, participants were assured that responses would not affect academic evaluation, and interviews were conducted by a researcher not involved in course grading.

Table 2. Gamified Assessment Scenarios and Objectives

Scenario	Indicator Activity	Description of Activity	Assessment Objective
Diagnostic	Pre-assessment task	LMS-based task simulating discipline-specific communication	Establish baseline ESP skill levels
Practice	Gamified quizzes	Timed quizzes with points and instant feedback	Reinforce target language forms and functions
Application	Task-based challenges	Scenario-based tasks requiring problem solving	Assess contextualized skill application
Progression	Level advancement	Completion of tasks to unlock higher difficulty levels	Monitor incremental skill mastery
Evaluation	Post-assessment task	Parallel performance task administered via LMS	Measure skill development outcomes

Data Analysis

Quantitative data from pre- and post-assessments were analyzed using descriptive and inferential statistics. Mean scores and standard deviations were calculated to describe overall performance trends. Paired-sample t-tests were conducted to examine statistically significant differences between pre- and post-assessment scores, providing evidence of changes in ESP skill mastery associated with gamified assessment. Effect sizes were calculated to determine the magnitude of observed differences. Questionnaire data were analyzed using descriptive statistics to identify patterns across dimensions of engagement, clarity, skill development, and challenges. Reliability of questionnaire scales had been established prior to analysis, ensuring consistency of measurement.

Qualitative interview data were transcribed verbatim and analyzed using thematic analysis. An initial coding scheme was developed deductively based on the study focus, then refined inductively to accommodate emerging patterns. To mitigate researcher bias, a second coder independently analyzed a subset of transcripts, and discrepancies were resolved through discussion. Data triangulation across assessments, questionnaires, and interviews strengthened interpretive validity by allowing convergence and divergence of findings to be systematically examined (Braun & Clarke, 2006).

Ethical Considerations

Ethical principles guided all stages of the study. Institutional permission was obtained prior to data collection, and participants were informed about the study aims, procedures, and voluntary nature of participation. Written informed consent was secured for both quantitative and qualitative phases. Anonymity was maintained by assigning numerical codes to participants and removing identifying information from datasets. Data were stored securely and accessed only by the research team. To mitigate power imbalance and coercion, participation or nonparticipation had no impact on course grades. Member checking and transparent reporting were employed to enhance trustworthiness, while reflexive memoing was used throughout analysis to monitor and reduce researcher bias.

RESULTS

RQ1: How does LMS-based gamified assessment influence learners' mastery of ESP-specific skills in online learning environments?

To address RQ1, quantitative analyses were conducted using pre- and post-assessment scores derived from LMS-embedded gamified tasks completed by 56 undergraduate ESP learners enrolled in a discipline-specific online course. The analyses aimed to examine changes in learners' ESP-specific skill mastery following sustained exposure to gamified assessment practices within the LMS.

Before presenting the statistical outcomes, it is important to note that the assessment tasks were designed to measure skill mastery across three core ESP performance dimensions, namely task-based language accuracy, contextual appropriateness, and functional task completion. Scores were standardized on a 100-point scale to allow for direct comparison between pre- and post-assessment results.

Table 3. Descriptive Statistics of Pre- and Post-Assessment Scores *(n = 56)*

Assessment	Mean	Std. Deviation	Minimum	Maximum
Pre-assessment	63.42	7.85	48.00	78.00
Post-assessment	74.86	8.12	58.00	90.00

Table 3 presents the descriptive statistics for learners' ESP skill performance before and after the implementation of LMS-based gamified assessment. The mean post-assessment score demonstrates a noticeable increase compared to the pre-assessment mean, suggesting an overall improvement in learners' skill mastery. The relatively comparable standard deviations indicate that score dispersion remained stable across measurement points, implying that improvements were observed across the cohort rather than concentrated among a small subgroup of learners.

To determine whether the observed differences were statistically meaningful, inferential analyses were conducted using a paired-sample t-test. This analysis was selected to examine within-group changes over time, given that the same participants completed both assessments under comparable conditions.

Table 4. Paired-Sample t-Test Results for ESP Skill Mastery

Comparison	Mean Difference	t	df	p	Cohen's d
Post vs. Pre	11.44	9.62	55	< .001	1.29

As shown in Table 4, the paired-sample t-test revealed a statistically significant difference between pre- and post-assessment scores. The large t value and significance level indicate that the increase in ESP skill performance is unlikely to be attributable to chance. The effect size, as measured by Cohen's d, reflects a large magnitude of change, suggesting that LMS-based gamified assessment exerted a substantial influence on learners' skill mastery. This magnitude indicates not only statistical significance but also educational relevance, as the observed improvement represents a meaningful shift in learners' ability to perform ESP-specific tasks.

To provide a more granular understanding of skill development, further analyses examined performance across individual ESP skill dimensions embedded in the gamified assessments.

Table 5. Pre- and Post-Assessment Scores by ESP Skill Dimension

Skill Dimension	Pre-Assessment Mean	Post-Assessment Mean	Mean Gain
Language accuracy	64.10	75.32	11.22
Contextual appropriateness	62.85	74.18	11.33

Task completion	63.31	75.08	11.77

Table 5 indicates consistent gains across all assessed ESP skill dimensions. Task completion demonstrated the highest mean gain, suggesting that learners became more effective in completing discipline-relevant communicative tasks within the gamified LMS environment. Improvements in language accuracy and contextual appropriateness further indicate that learners were better able to apply linguistic resources appropriately to professional scenarios. The relatively balanced gains across dimensions suggest that gamified assessment supported holistic ESP skill mastery rather than isolated skill improvement.

Overall, the quantitative findings demonstrate that LMS-based gamified assessment was associated with substantial and consistent improvements in learners' ESP-specific skill mastery. The combination of statistically significant score gains, large effect size, and balanced improvement across skill dimensions indicates that gamified assessment functioned as an effective assessment mechanism for supporting skill development in online ESP learning environments.

RQ2: What pedagogical affordances and constraints emerge from the implementation of gamified assessment for skill mastery in online ESP learning?

To address RQ2, findings from the structured questionnaire are presented to elucidate how learners perceived LMS-based gamified assessment in relation to ESP skill mastery. The questionnaire comprised four dimensions, each operationalized through five items rated on a five-point Likert scale ranging from strongly disagree to strongly agree. The analysis focuses on distributional patterns, central tendency, variability, and effect sizes to provide a detailed account of learners' perceptions. Prior to each table, a brief contextual bridge is provided to orient the analysis.

Before examining item-level responses, it is important to note that the questionnaire was administered to all 56 participants after sustained exposure to gamified assessment tasks, ensuring that responses reflected informed and experience-based judgments rather than initial impressions.

Table 6. Perceived Assessment Clarity *(n = 56)*

No	Item	SD *n (%)*	D *n (%)*	N *n (%)*	A *n (%)*	SA *n (%)*	Mean	Std. Dev
1	I understand the assessment objectives clearly	1 (1.79)	2 (3.57)	4 (7.14)	32 (57.14)	17 (30.36)	4.11	0.78
2	I recognize how tasks measure my ESP skills	1 (1.79)	3 (5.36)	5 (8.93)	31 (55.36)	16 (28.57)	4.04	0.82
3	I receive clear criteria for task performance	2 (3.57)	3 (5.36)	4 (7.14)	30 (53.57)	17 (30.36)	4.02	0.89
4	I know how my scores are calculated	1 (1.79)	4 (7.14)	6 (10.71)	29 (51.79)	16 (28.57)	3.98	0.91
5	I can track my progress through the LMS	2 (3.57)	3 (5.36)	4 (7.14)	31 (55.36)	16 (28.57)	4.00	0.87

Responses in Table 6 indicate a strong perception of assessment clarity, with mean scores consistently above 3.90. Agreement and strong agreement responses accounted for more than 80 percent of responses across items, suggesting that learners clearly understood assessment objectives, criteria, and progress indicators. Effect size estimates calculated against the neutral midpoint yielded large magnitudes overall, indicating that clarity functioned as a salient affordance of gamified assessment in supporting learners' orientation toward skill mastery.

The second dimension addresses learner engagement with gamified tasks, focusing on sustained involvement and attentional investment rather than momentary enjoyment.

Table 7. Engagement with Gamified Tasks *(n = 56)*

No	Item	SD *n (%)*	D *n (%)*	N *n (%)*	A *n (%)*	SA *n (%)*	Mean	Std. Dev
6	I remain focused during gamified assessments	1 (1.79)	3 (5.36)	5 (8.93)	30 (53.57)	17 (30.36)	4.05	0.83
7	I complete tasks more consistently	2 (3.57)	3 (5.36)	4 (7.14)	31 (55.36)	16 (28.57)	4.00	0.87
8	I feel motivated to improve my performance	1 (1.79)	2 (3.57)	4 (7.14)	32 (57.14)	17 (30.36)	4.11	0.78
9	I invest effort to achieve higher levels	2 (3.57)	3 (5.36)	5 (8.93)	29 (51.79)	17 (30.36)	4.00	0.89
10	I persist even after making errors	2 (3.57)	4 (7.14)	6 (10.71)	28 (50.00)	16 (28.57)	3.93	0.94

As shown in Table 7, engagement-related items yielded high mean scores ranging from 3.93 to 4.11. The concentration of responses in the agreement categories suggests that gamified assessment sustained learners' attention and effort across tasks. Although variability slightly increased for persistence-related items, effect size estimates remained moderate to large, indicating that engagement was not superficial but linked to ongoing participation in skill-oriented activities.

The third dimension focuses directly on perceived ESP skill development, capturing learners' judgments of learning gains attributable to gamified assessment.

Table 8. Perceived Skill Development *(n = 56)*

No	Item	SD *n (%)*	D *n (%)*	N *n (%)*	A *n (%)*	SA *n (%)*	Mean	Std. Dev
11	I improve my discipline-specific language use	1 (1.79)	3 (5.36)	4 (7.14)	31 (55.36)	17 (30.36)	4.05	0.83
12	I apply ESP skills more accurately	2 (3.57)	3 (5.36)	5 (8.93)	30 (53.57)	16 (28.57)	3.98	0.89
13	I complete professional tasks more effectively	1 (1.79)	2 (3.57)	5 (8.93)	32 (57.14)	16 (28.57)	4.07	0.80
14	I understand task requirements better	2 (3.57)	3 (5.36)	4 (7.14)	31 (55.36)	16 (28.57)	4.00	0.87
15	I gain confidence in ESP performance	1 (1.79)	3 (5.36)	5 (8.93)	30 (53.57)	17 (30.36)	4.05	0.83

Table 5 reveals strong perceptions of skill development, with all means at or above 3.98. Agreement responses dominated across items, indicating that learners associated gamified assessment with improved accuracy, effectiveness, and confidence in ESP task performance. The consistently large effect sizes suggest that perceived skill mastery was a central outcome of the gamified assessment experience rather than a peripheral benefit.

The final dimension addresses assessment-related challenges, capturing constraints that may temper the overall effectiveness of gamified assessment.

Table 9. Assessment-Related Challenges *(n = 56)*

No	Item	SD *n (%)*	D *n (%)*	N *n (%)*	A *n (%)*	SA *n (%)*	Mean	Std. Dev
16	I feel pressured by time limits	5 (8.93)	18 (32.14)	7 (12.50)	20 (35.71)	6 (10.71)	3.07	1.11
17	I experience fatigue from repeated tasks	6 (10.71)	19 (33.93)	8 (14.29)	17 (30.36)	6 (10.71)	2.96	1.14

18	I struggle with technical issues	8 (14.29)	21 (37.50)	9 (16.07)	14 (25.00)	4 (7.14)	2.73	1.10
19	I focus more on points than learning	7 (12.50)	20 (35.71)	10 (17.86)	15 (26.79)	4 (7.14)	2.80	1.08
20	I feel anxious about competition	9 (16.07)	22 (39.29)	8 (14.29)	13 (23.21)	4 (7.14)	2.66	1.09

As presented in Table 6, challenge-related items yielded lower mean scores, generally below the neutral midpoint. Disagreement responses predominated, indicating that while some learners reported time pressure or fatigue, these constraints were not widely experienced. Effect size estimates relative to the midpoint were small, suggesting that perceived challenges exerted limited influence on learners' overall appraisal of gamified assessment. Collectively, the questionnaire results indicate that LMS-based gamified assessment was strongly associated with clarity, engagement, and perceived ESP skill mastery, while constraints were present but not dominant in shaping learners' experiences.

Interview Results

To extend the quantitative findings and to capture learners' nuanced experiences with LMS-based gamified assessment, semi-structured interviews were conducted with six participants (ST1–ST6). The qualitative analysis aimed to illuminate how learners interpreted the role of gamified assessment in shaping ESP skill mastery, as well as the pedagogical affordances and constraints embedded in its implementation. The findings are organized into three overarching themes, each further elaborated through subthemes. Each theme begins with a brief contextual bridge, followed by the guiding interview question, representative participant voices distributed across subthemes, and in-depth interpretive discussion. The presentation emphasizes narrative coherence, analytical depth, and balanced insights derived from all participants.

- *Theme 1: Gamified Assessment as a Developmental Structure for ESP Skill Mastery*

This theme explores how learners perceived gamified assessment not merely as an evaluative tool but as a structured mechanism that guided their gradual development of ESP-specific skills over time.

Interview Question: *How did the gamified assessment tasks influence your development of ESP-specific skills?*

Heightened Awareness of Skill Progression

Participants consistently described gamified assessment as enabling them to recognize incremental improvement in their ESP skills. One learner reflected, *"At first, I was only thinking about getting the score, but after doing several tasks, I realized my language became more appropriate for the field"* (ST3). Another participant explained, *"Because the tasks were connected, I could compare my earlier work with later ones and see where I improved"* (ST1). Similarly, ST5 noted, *"The levels made me more aware that I was improving step by step, not suddenly."* These reflections suggest that gamified assessment promoted learners' awareness of skill progression by making development visible and traceable. Rather than experiencing assessment as isolated events, learners perceived continuity across tasks. This continuity appeared to foster reflective engagement, allowing learners to evaluate their own performance growth. The sense of progression embedded in gamified structures encouraged learners to conceptualize ESP mastery as an accumulative process grounded in repeated practice and refinement.

Reinforcement of Discipline-Specific Language Use

Learners also emphasized that gamified assessment reinforced their understanding of how language should be used within specific disciplinary contexts. As ST6 stated, "*The tasks pushed me to use English that fits the subject, not just general English."* Another participant shared, *"I became more careful with choosing words because the tasks required specific expressions"* (ST2). ST4 added, *"The assessment made me realize that ESP is about using language correctly in real situations."* These accounts indicate that gamified assessment supported learners in internalizing discipline-specific language conventions. The requirement to complete contextualized tasks encouraged learners to attend to functional appropriateness, terminology, and pragmatic considerations. This suggests that gamified assessment served as a scaffold for bridging theoretical knowledge and applied language use, reinforcing the central ESP objective of functional competence.

- *Theme 2: Pedagogical Affordances Enhancing Engagement and Learning Commitment*

This theme focuses on the pedagogical features of gamified assessment that supported sustained engagement and learners' commitment to developing ESP skills.

Interview Question: *What features of the gamified assessment helped you stay engaged in learning ESP skills?*

Feedback as a Learning-Oriented Guide

Participants frequently described feedback as a critical element shaping their engagement. ST2 commented, *"The feedback helped me understand my mistakes immediately, so I did not feel confused."* Another participant explained, *"When I saw feedback right away, I knew what to fix next time"* (ST5). ST1 shared, *"Even if I got a low score, the feedback made me want to try again."* These statements suggest that feedback within gamified assessment was perceived as instructional rather than judgmental. The immediacy of feedback appeared to reduce uncertainty and encourage iterative improvement. Learners interpreted feedback as a form of guidance that supported continuous learning rather than as a final verdict on ability. This perception likely contributed to learners' willingness to reengage with tasks and persist despite difficulties.

Challenge and Personal Agency

Another salient affordance related to the sense of challenge embedded in gamified assessment. ST4 remarked, *"The challenges made me curious to see if I could do better than before."* Similarly, ST6 noted*, "I felt motivated to improve my performance because I wanted to reach the next level."* ST3 explained, *"I liked that I could decide when to attempt the task again."* These responses highlight how gamified assessment supported learner agency. The ability to control timing, repetition, and progression allowed learners to take ownership of their learning. The presence of achievable challenges appeared to foster persistence and self-regulation, as learners actively monitored their performance and adjusted strategies to improve outcomes. This autonomy contributed to sustained engagement and deeper investment in skill mastery.

- *Theme 3: Emerging Constraints in Gamified Assessment Practices*

This theme addresses learners' perceptions of challenges and limitations associated with gamified assessment, revealing conditions that may temper its effectiveness.

Interview Question: *What challenges did you experience when engaging with gamified assessment tasks?*

Cognitive Load and Task Intensity

Some participants expressed concerns related to task intensity and cognitive demands. ST5 noted, *"Sometimes I felt tired because the tasks were frequent."* Another learner explained, *"When tasks came close together, it was hard to focus deeply"* (ST2). ST1 added, *"I needed more time to think, but the tasks sometimes felt rushed."* These comments suggest that while gamified assessment supported engagement, it also introduced cognitive demands that could lead to fatigue. Frequent task cycles and time-bound challenges may have increased pressure for some learners, potentially limiting opportunities for deeper reflection. This indicates a need for careful calibration of task frequency and pacing to balance engagement with cognitive sustainability.

Tension Between Game Elements and Learning Focus

Participants also reflected on moments when game mechanics risked overshadowing learning objectives. ST6 admitted, *"Sometimes I focused more on points than on the quality of my answer."* Another participant shared, *"I wanted to get a higher score, so I rushed"* (ST3). ST4 observed, *"The competition made me nervous at times."* These insights reveal an underlying tension between extrinsic incentives and learning focus. While game elements motivated participation, they occasionally redirected attention toward performance indicators rather than skill refinement. This tension suggests that gamified assessment requires careful pedagogical design to ensure that game mechanics reinforce, rather than distract from, learning goals.

- *Theme 4: Gamified Assessment and Learners' Perceptions of Assessment Fairness*

This theme explores how learners interpreted the fairness and transparency of gamified assessment within the LMS environment.

Interview Question: *How fair and transparent did you perceive the gamified assessment process to be?*

Transparency of Criteria and Scoring

Several participants emphasized clarity in assessment criteria. ST1 stated, *"I knew what was expected because the criteria were clear."* ST5 added, *"The system showed how my score was calculated."* ST3 noted, *"Seeing my progress made the assessment feel fair."* These perceptions suggest that transparency was a key factor in learners' acceptance of gamified assessment. Clear criteria and visible progress indicators appeared to enhance trust in the assessment process, reducing ambiguity and perceived arbitrariness. Learners' awareness of how scores were generated contributed to a sense of fairness and accountability.

Individual Differences and Equity Concerns

Despite general perceptions of fairness, some participants raised concerns related to individual differences. ST2 remarked, *"Students who are faster with technology may have an advantage."* ST6 noted, *"If someone is not good with the system, it can affect performance."* ST4 added, *"Not everyone feels comfortable with competition."* These reflections highlight equity-related considerations in gamified assessment. Variations in digital familiarity and learning preferences may shape how learners experience assessment. Such differences suggest that gamified assessment should be accompanied by adequate orientation and support to ensure equitable opportunities for demonstrating skill mastery.

- *Theme 5: Gamified Assessment as a Catalyst for Learner Identity and Confidence*

This theme examines how gamified assessment influenced learners' confidence and self-perception as ESP users.

Interview Question: *How did gamified assessment affect your confidence in using ESP-related language?*

Growing Confidence Through Repetition

Participants described how repeated engagement with gamified tasks strengthened confidence. ST3 explained, *"After doing similar tasks many times, I felt more confident."* ST1 shared, *"I was not afraid to make mistakes because I could try again."* ST5 noted, *"Practice through games helped me feel more prepared."* These statements suggest that repetition within a supportive assessment structure reduced anxiety and normalized error as part of learning. Gamified assessment created opportunities for low-risk practice, allowing learners to build confidence gradually through experience.

Shifts in Learner Self-Perception

Learners also reflected on changes in how they viewed themselves as ESP users. ST6 stated, *"I feel more capable of using English for my field now."* ST2 remarked, *"The tasks made me see myself as someone who can handle professional English."* ST4 added, *"I started to believe that I can improve."* These reflections indicate that gamified assessment contributed to positive shifts in learner identity. By successfully completing discipline-relevant tasks, learners began to perceive themselves as competent ESP users. This evolving self-perception is significant, as confidence and identity are closely linked to sustained engagement and long-term skill development.

Across themes, the interview findings illustrate that LMS-based gamified assessment functioned as more than a motivational strategy. Learners perceived it as a structured, transparent, and engaging mechanism that supported ESP skill mastery through progressive tasks, feedback, and autonomy. At the same time, participants articulated constraints related to cognitive load, competition, and individual differences. These insights underscore the importance of balanced pedagogical design that aligns game elements with learning objectives while remaining sensitive to learners' diverse needs.

The confirmation of results for RQ1 and RQ2 demonstrates that LMS-based gamified assessment substantially supported ESP skill mastery while simultaneously revealing nuanced challenges. Quantitative analysis of pre- and post-assessment scores indicated significant improvements across all skill dimensions, with learners achieving higher task accuracy, contextual appropriateness, and task completion, suggesting that structured, gamified tasks effectively scaffolded skill development. Questionnaire responses corroborated these outcomes, showing high levels of perceived clarity, engagement, and skill advancement, although some learners reported occasional fatigue, time pressure, or distraction by game mechanics. Interview insights deepened this understanding by highlighting learners' growing confidence, reflective awareness, and appreciation for authentic, discipline-specific tasks, alongside cognitive demands and differential experiences linked to technical familiarity. Collectively, these findings suggest that gamified assessment fosters skill acquisition when carefully designed, while future research should explore optimization of pacing, equitable access, and mechanisms to balance challenge with sustained engagement.

DISCUSSION

The findings of the present study provide substantial evidence that LMS-based gamified assessment functions as a potent mechanism for facilitating ESP-specific skill mastery within online

learning environments. The integration of structured, progressive gamified tasks within the LMS allowed learners to engage with authentic, discipline-relevant scenarios, reinforcing both linguistic accuracy and functional task completion. This aligns with prior research emphasizing that gamified approaches can enhance learner motivation, engagement, and skill retention in language learning contexts (Bervell & Arkorful, 2020; Ferdiansyah et al., 2025), yet the present study extends this understanding by demonstrating how structured progression and immediate feedback contribute to metacognitive awareness and reflective skill development in ESP settings, areas often underexplored in previous investigations (Fajriyah & Afifah, 2025; Hidayati & Slamet, 2025; Slamet & Basthomi, 2024). The synthesis of quantitative and qualitative findings underscores that skill mastery is not merely an outcome of gamified mechanics but emerges from the interplay of iterative practice, feedback-informed self-assessment, and authentic task relevance, suggesting a more nuanced mechanism of learning than previously articulated in general gamification literature.

Furthermore, the study highlights the significance of assessment clarity and task transparency in fostering effective learning outcomes, particularly within specialized ESP domains. Learners' perceptions of clear criteria and progress indicators correspond with findings from Hidayati et al. (2023) and Slamet et al. (2025b), who emphasize the importance of perceived fairness and transparency in sustaining motivation and engagement in gamified learning contexts. However, the present research advances this understanding by demonstrating that transparency not only supports engagement but also mediates learners' confidence in applying ESP skills in authentic, professional contexts. While prior studies have primarily focused on engagement metrics or completion rates as indicators of gamification success (Douglas, 2025; Hyland, 2022), the current findings suggest that the clarity of learning objectives and task expectations is equally critical in shaping both the depth and quality of skill acquisition.

In addition, the pedagogical affordances of gamified assessment revealed in this study illuminate the complex relationship between game-based features and cognitive investment. Features such as immediate feedback, progression through levels, and incremental challenges facilitated sustained attention, task persistence, and iterative skill refinement, echoing claims by Ferdiansyah et al. (2025) regarding the motivational benefits of gamification in language education. However, this study contributes further insight by revealing that these affordances operate within the constraints of cognitive load and learner autonomy, indicating that excessive frequency or overly competitive elements may inadvertently divert focus from conceptual mastery to score attainment. This observation aligns with emerging critiques in gamification scholarship (Erdiana et al., 2025; Hidayati & Slamet, 2025) regarding the balance between extrinsic motivators and authentic learning objectives, yet it deepens the understanding by linking these dynamics directly to skill-specific outcomes in ESP learning, highlighting the need for carefully calibrated task design.

The study also underscores the role of iterative engagement and scaffolding in developing learner confidence and self-perception as competent ESP users. The integration of repeated, contextualized tasks with progressive feedback reinforced learners' belief in their ability to manage discipline-specific language challenges, extending prior findings by Karapetian (2020) and Rifah et al. (2022) which suggested that gamification can enhance self-efficacy in language learning. The present research adds depth to these claims by evidencing how structured gamified assessments contribute to sustained learner identity formation in ESP contexts, emphasizing that mastery emerges not only from skill acquisition but also from the consolidation of learner confidence and professional agency.

Nevertheless, the study identified constraints that warrant attention in the design and implementation of gamified assessments. Cognitive fatigue, variable digital proficiency, and the potential for attention to shift toward extrinsic rewards indicate that gamification, while effective, is

not a universal solution and requires careful alignment with pedagogical objectives and learner characteristics. Previous research has noted similar challenges in general gamification studies (Ofosu-Ampong et al., 2020; Slamet et al., 2024a, 2025a), yet the present study contributes a more contextually grounded understanding by linking these constraints to ESP skill development and online LMS environments, revealing that skill mastery outcomes are contingent upon balancing motivational affordances with cognitive sustainability and equitable access.

In synthesis, the findings suggest that LMS-based gamified assessment constitutes a multidimensional catalyst for ESP skill mastery, operating through structured progression, immediate feedback, authentic task alignment, and learner agency while being mediated by cognitive and motivational factors. The study advances the discourse on gamification in language learning by integrating skill-specific, pedagogical, and technological considerations, demonstrating that effective implementation requires harmonization of game mechanics with learning objectives, attention to learner diversity, and scaffolding that promotes reflection, skill refinement, and professional competence. These insights extend the body of knowledge by illustrating how gamified assessment can be strategically employed in specialized ESP learning to optimize both engagement and substantive skill acquisition.

CONCLUSION

The present study demonstrates that LMS-based gamified assessment serves as a multifaceted catalyst for fostering ESP-specific skill mastery in online learning environments by integrating structured progression, immediate feedback, and authentic, discipline-relevant tasks. Learners exhibited enhanced linguistic accuracy, contextual appropriateness, task completion, engagement, and confidence, highlighting the potential of gamified assessment to support both skill acquisition and learner identity development. At the same time, cognitive demands, task frequency, variability in digital proficiency, and the tendency to focus on extrinsic game elements revealed conditions that may constrain optimal learning, emphasizing the need for careful pedagogical calibration. These insights imply that effective implementation of gamified assessment requires balancing motivational features with cognitive sustainability, transparent criteria, and scaffolding that guides reflection and iterative improvement. While the study provides robust evidence of the pedagogical value of gamification in ESP learning, limitations include the specific institutional context, relatively small sample size, and reliance on short-term engagement measures, which may affect generalizability. Future research should explore longitudinal impacts, examine diverse learner populations, and investigate adaptive gamified designs that address individual differences while maintaining alignment with authentic skill objectives, thereby optimizing both engagement and substantive mastery in specialized language learning contexts.

REFERENCES

Alomari, M. M., El-Kanj, H., Alshdaifat, N. I., & Topal, A. (2020). A framework for the impact of human factors on the effectiveness of learning management systems. *IEEE Access*, *8*, 23542–23558. https://doi.org/10.1109/ACCESS.2020.2970278

Avila, M. O. C., & Fonseca, G. I. C. (2021). Gamification: How does it impact L2 vocabulary learning and engagement? *Electronic Journal of Foreign Language Teaching*, *18*(2). https://doi.org/10.56040/ghcc1824

Bervell, B., & Arkorful, V. (2020). LMS-enabled blended learning utilization in distance tertiary education: establishing the relationships among facilitating conditions, voluntariness of use and use behaviour. *International Journal of Educational Technology in Higher Education*, *17*(1). https://doi.org/10.1186/s41239-020-0183-9

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability*, *21*(1), 5–31. https://doi.org/10.1007/s11092-008-9068-5

Bouncken, R. B., Czakon, W., & Schmitt, F. (2025). Purposeful sampling and saturation in qualitative research methodologies: Recommendations and review. *Review of Managerial Science*. https://doi.org/10.1007/s11846-025-00881-2

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bui, H. P. (2022). Students' and teachers' perceptions of effective ESP teaching. *Heliyon*, *8*(9). https://doi.org/10.1016/j.heliyon.2022.e10628

Creswell, J. W., Fetters, M. D., & Ivankova, N. V. (2004). Designing a mixed methods study in primary care. *The Annals of Family Medicine*, *2*(1), 7–12. https://doi.org/10.1370/afm.104

Dah, J., Hussin, N., Zaini, M. K., Linda, I. H., Ametefe, D. S., & Aliu, A. A. (2024). Gamification is not working: Why? *Games and Culture*. https://doi.org/10.1177/15554120241228125

Danka, I. (2020). Motivation by gamification: Adapting motivational tools of massively multiplayer online role-playing games (MMORPGs) for peer-to-peer assessment in connectivist massive open online courses (cMOOCs). *International Review of Education*, *66*(1), 75–92. https://doi.org/10.1007/s11159-020-09821-6

Dewi, O. T. S., & Slamet, J. (2025). Formative ELF-based assessment of spoken communication via learning management system in a culturally diverse classroom. *Discover Education*, *4*(1), 516. https://doi.org/10.1007/s44217-025-00970-0

Douglas, D. (2025). ESP and assessment. In *The Handbook of English for Specific Purposes* (pp. 185–204). Wiley. https://doi.org/10.1002/9781119985068.ch10

Erdiana, L., Dziqy, A. N. A., Farouq, A. Al, & Slamet, J. (2025). Enhancing listening comprehension in non-English majors through AI-integrated gamified formative assessment. *Applied Research on English Language*, *14*(3), 1–26. https://doi.org/https://doi.org/10.22108/are.2025.144695.2475

Fajriyah, I., & Afifah, S. N. (2025). Enhancing reading comprehension and critical thinking skills through LMS integration in an English for history course for non-EFL undergraduate students. *Higher Learning Research Communications*, *15*(2). https://doi.org/10.18870/hlrc.v15i2.1638

Ferdiansyah, H., Rafi, M. F., Utama, A. P., Aprilia, T., & Slamet, J. (2025). Assessing learning outcomes and self-directed learning through gamification in LMS. *Social Sciences & Humanities Open*, *12*, 101696. https://doi.org/10.1016/j.ssaho.2025.101696

Friedrich, J., Becker, M., Kramer, F., Wirth, M., & Schneider, M. (2020). Incentive design and gamification for knowledge management. *Journal of Business Research*, *106*, 341–352. https://doi.org/10.1016/j.jbusres.2019.02.009

García-Sánchez, S. (2024). ESP intralinguistic mediation and professional knowledge building through collaborative CALL. *Computer Assisted Language Learning*, *37*(1–2), 61–84. https://doi.org/10.1080/09588221.2022.2025842

Hautala, J., Heikkilä, R., Nieminen, L., Rantanen, V., Latvala, J.-M., & Richardson, U. (2020). Identification of reading difficulties by a digital game-based assessment technology. *Journal of Educational Computing Research*, *58*(5), 1003–1028. https://doi.org/10.1177/0735633120905309

Hidayati, D., Novianti, H., Khansa, M., Slamet, J., & Suryati, N. (2023). Effectiveness project-based learning in ESP class: Viewed from Indonesian students' learning outcomes. *International Journal of Information and Education Technology*, *13*(3), 558–565. https://doi.org/10.18178/ijiet.2023.13.3.1839

Hidayati, D., & Slamet, J. (2025). Interactive multimedia via LMS on a reading comprehension course: Enhancing engagement and learning outcomes in Islamic higher education. *Journal of Studies in the English Language*, *20*(1), 95–122. https://so04.tci-thaijo.org/index.php/jsel/article/view/277426

Hidayati, D., & Utami, P. R. B. (2025). Evaluating LMS-based extensive reading activities' impact on Islamic undergraduate non-English majors' comprehension and engagement. *English Language and Literature in Education Journal, 3*(1), 20-37. https://doi.org/10.63011/m0jgmb40

Hyland, K. (2022). English for specific purposes: What is it and where is it taking us? *ESP Today*, *10*(2), 202–220. https://doi.org/10.18485/esptoday.2022.10.2.1

Hyland, K., & Jiang, F. (Kevin). (2021). Delivering relevance: The emergence of ESP as a discipline. *English for Specific Purposes*, *64*, 13–25. https://doi.org/10.1016/j.esp.2021.06.002

Ikhwan, S., Sugiarti, S., Hidayati, D., Slamet, J., & Hidayat, Y. (2025). A gamification-based reading comprehension course in learning management system: Enhancing learning outcomes, critical thinking, and self-directed learning skills for Islamic undergraduate students. *Applied Research on English Language*, *14*(4), 211–238. https://doi.org/10.22108/are.2025.146587.2609

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods*, *18*(1), 3–20. https://doi.org/10.1177/1525822X05282260

Jo, J., Yi, E., Yang, Y., & Choi, S. (2023). Game-based assessment tool using convergence of gamification and motivation theory in intelligent tutoring system. *Personal and Ubiquitous Computing*, *27*(3), 1149–1159. https://doi.org/10.1007/s00779-021-01523-6

Kapp, K. (2012). *The Gamification of Learning and Instruction. Game-Based Methods and Strategies for Training and Education*. Pfeiffer, San Francisco, CA.

Karapetian, A. O. (2020). Creating ESP-based language learning environment to foster critical thinking capabilities in students' papers. *European Journal of Educational Research*, *volume-9-2020*(volume-9-issue-2-april-2020), 717–728. https://doi.org/10.12973/eu-jer.9.2.717

Landers, R. N. (2014). Developing a theory of gamified learning: Linking serious games and gamification of learning. *Simulation and Gaming*, *45*(6), 752–768. https://doi.org/10.1177/1046878114563660

Makarim, M. N. (2024). Enhancing speaking skills through guessing games: A study on descriptive texts at SMP Sunan Ampel Porong. *English Language and Literature in Education Journal, 2*(1), 40-52. https://doi.org/10.63011/xqkamd21

Masrukin A. (2025). Enhancing learning outcomes through educational games in Islamic cultural history at MI Roudlatul Huda Bibrik Jiwan Madiun. *English Language and Literature in Education Journal, 3*(1), 58-74. https://doi.org/10.63011/3jtznq06

Ofosu-Ampong, K., Boateng, R., Anning-Dorson, T., & Kolog, E. A. (2020). Are we ready for Gamification? An exploratory analysis in a developing country. *Education and Information Technologies*, *25*(3), 1723–1742. https://doi.org/10.1007/s10639-019-10057-7

Puig, A., Rodríguez, I., Rodríguez, Á., & Gallego, I. (2023). Evaluating learner engagement with gamification in online courses. *Applied Sciences (Switzerland)*, *13*(3). https://doi.org/10.3390/app13031535

Rifah, L., Zunaidah, A., & Sari, C. C. (2022). Developing ESP-based CLIL to increase students' engagement in higher education. *2022 8th International Conference on Education and Technology (ICET)*, 147–152. https://doi.org/10.1109/ICET56879.2022.9990659

Romsi, A., Widodo, J. P., & Slamet, J. (2024). Empowering slow learners: Gamification's impact on students' engagement and academic performance in an LMS for undergraduate students. *International Journal of Information and Education Technology*, *14*(2), 193–203. https://doi.org/10.18178/ijiet.2024.14.2.2040

Slamet, J., & Basthomi, Y. (2024). Assessing gamification-based LMS for EFL students: A self-directed learning framework. *Studies in Linguistics, Culture, and FLT*, *12*(2), 100–122. https://doi.org/10.46687/CVHT3942

Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2024a). Unlocking the potential in a gamification-based MOOC: Assessing autonomous learning and self-directed learning behaviors. *Teaching and Learning Inquiry*, *12*, 1–20. https://doi.org/10.20343/teachlearninqu.12.19

Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2024b). Utilizing an SDL approach in designing a gamification-based MOOC to enhance autonomous learning. *Journal of Information Technology Education: Research*, *23*, 010. https://doi.org/10.28945/5278

Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2025a). A needs analysis for designing a gamification-based MOOC in English for specific purposes. *Studies in Linguistics, Culture, and FLT*, *13*(1), 120–139. https://doi.org/10.46687/ULRS1031

Slamet, J., Basthomi, Y., Ivone, F. M., & Eliyanah, E. (2025b). Promoting autonomous learning in ESP courses through a gamified MOOC platform: A self-directed learning framework. *Journal of Educators Online*, *22*(2). https://doi.org/10.9743/JEO.2025.22.2.7

Slamet, J., & Kweldju, S. (2025). Post-humanist pedagogies in e-learning for English language teaching: Insights from Indonesian doctorate students. *Language Related Research*, *16*(5), 125–159. https://doi.org/10.48311/LRR.16.5.5

Slamet, J., & Mukminatien, N. (2024). Developing an online formative assessment instrument for listening skill through LMS. *LEARN Journal: Language Education and Acquisition Research Network*, *17*(1), 188–211. https://so04.tci-thaijo.org/index.php/LEARN/index

Taufiqurrochman, R., Muslimin, I., Rofiki, I., & Abah, J. A. (2020). Students' perceptions on learning management systems of Arabic learning through blended learning model. *Jurnal Al Bayan: Jurnal Jurusan Pendidikan Bahasa Arab*, *12*(1), 22–36. https://doi.org/10.24042/albayan.v12i1.5276ï

van Roy, R., & Zaman, B. (2018). Need-supporting gamification in education: An assessment of motivational effects over time. *Computers & Education*, *127*, 283–297. https://doi.org/10.1016/j.compedu.2018.08.018

Widodo, J. P., Musyarofah, L., & Slamet, J. (2025). The impact of digital-interactive-book gamification-based instruction on academic learning outcomes of students who learn at their own pace: Insight from Indonesia. *MEXTESOL Journal*, *49*(2), 1–11.

Wolters, C. A., & Brady, A. C. (2021). College students' time management: a self-regulated learning perspective. *Educational Psychology Review*, *33*(4), 1319–1351. https://doi.org/10.1007/s10648-020-09519-z

Xu, X., Chan, F. M., & Yilin, S. (2020). Personal learning environment: an experience with ESP teacher training. *Interactive Learning Environments*, *28*(6), 779–794. https://doi.org/10.1080/10494820.2018.1552872

Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified e-quizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. *Computers & Education*, *145*, 103729. https://doi.org/10.1016/j.compedu.2019.103729