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The Effectiveness and Implementation of Gamification in Higher Education English Learning

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ABSTRACT

This study investigates the effectiveness of gamification in higher education English learning, drawing on empirical studies and systematic reviews. The analysis focuses on three dimensions: the impact of gamification across language skills, the role of design elements and platforms, and the theoretical and methodological issues that shape current findings. Results show that gamification is most consistently effective in vocabulary and pronunciation, where discrete, repetitive tasks align well with immediate feedback and spaced practice. Grammar, reading, and writing benefit motivation and engagement, but improvements in accuracy, comprehension, or rhetorical sophistication remain inconsistent. Immediate feedback, progress tracking, and adaptive challenges emerge as the strongest design features, while points, badges, and leaderboards produce mixed outcomes. Platform comparisons reveal that Kahoot! is effective for synchronous participation, Quizizz supports asynchronous review, and Duolingo promotes independent learning, though none alone guarantees durable outcomes. Theoretical perspectives such as Self-Determination Theory, Flow Theory, and the ARCS model help explain motivational gains, but they are rarely tested comparatively, limiting their explanatory power. Methodological weaknesses—including short intervention durations, variable instruments, weak control-group designs, and geographic concentration in Asia—further constrain generalizability. The review concludes that gamification holds substantial, but context-dependent, promise for English language education and must be integrated strategically with pedagogical objectives to ensure sustainable learning outcomes.

Keywords: *gamification, higher education, English language learning, digital platforms, educational technology*

INTRODUCTION

Over the past decade, digital platforms such as Kahoot!, Quizizz, and Duolingo have become widely used in university English courses. Their design centres on points, badges, leaderboards, and instant feedback, and these features are often promoted as ways to address persistent problems such as low participation, passive learning, and uneven skill development. The spread of these tools mirrors broader technological changes in higher education, though adoption has often outpaced systematic evaluation. Zhang & Hasim (2023) documented their extensive use across institutions but also noted significant differences in the depth of pedagogical integration.

Whether gamification provides lasting benefits rather than short-term novelty remains open to debate, with findings differing across skills and learner groups.

Studies focusing on specific language areas present a varied picture. Research on vocabulary learning shows consistent benefits, notably when game features support repetition and retrieval (Panmei & Waluyo, 2022). Evidence from writing instruction is more mixed, with outcomes shaped by task complexity and the design of game mechanics (Zhihao & Zhonggen, 2022). In the area of reading, quasi-experimental studies have found increases in learner enjoyment and engagement, though the impact on deeper comprehension strategies is less clear (Cheng et al., 2025). Sailer & Homner's (2020) meta-analysis, synthesising experimental studies, confirmed that gamification generally produces small to moderate positive effects on motivation, behaviour, and cognition.

Theoretical perspectives help account for these results. Self-Determination Theory remains influential, with studies showing how game features can support competence, autonomy, and relatedness (Shen et al., 2024). Competence is encouraged by visible progress tracking, autonomy by opportunities to select challenges, and relatedness by collaborative or peer-oriented activities, particularly in writing and reflective learning contexts (Nilubol & Sitthitikul, 2025). Flow Theory adds another dimension by highlighting the role of difficulty calibration in sustaining engagement (Khaldi et al., 2023). The ARCS model has also been applied to gamified learning, linking design principles such as attention, relevance, confidence, and satisfaction to motivational outcomes (Baah et al., 2023). Across these frameworks, feedback emerges as a central element, though studies differ on how it should be designed and delivered (Zolfaghari et al., 2025).

Research design further influences how findings are interpreted. Quasi-experimental approaches make causal inference possible but often simplify classroom realities (Laura-De La Cruz et al., 2023). Systematic reviews offer broader perspectives but must contend with considerable heterogeneity in interventions, outcome measures, and participant profiles (Chan & Lo, 2024; Zhang & Hasim, 2023). Mixed-methods studies enrich the picture by combining test results with students' reflections, often highlighting challenges that quantitative data alone cannot capture (Nilubol & Sitthitikul, 2025). Most interventions remain short-term, typically lasting a single course or semester, and there is still little longitudinal research to assess their long-term impact. The concentration of studies in specific regions also raises questions about the broader applicability of the findings in different educational contexts.

Accordingly, this review is guided by four interconnected objectives that together frame its scope and contribution. First, it aims to analyze the effectiveness of gamification across major English language skills —vocabulary, grammar, reading, writing, and speaking/pronunciation —

to identify patterns of consistent and variable outcomes. Second, it seeks to evaluate which design elements—such as immediate feedback, points, badges, leaderboards, and adaptive challenges—and which platforms, including Kahoot!, Quizizz, and Duolingo, demonstrate reliable associations with either learning gains or motivational effects. Third, the review examines how theoretical perspectives, particularly Self-Determination Theory, Flow Theory, and the ARCS model, are used to interpret gamification's pedagogical impact, while also considering their explanatory strengths and limitations. Finally, it examines methodological weaknesses across the reviewed studies, including short intervention duration, instrument variability, weak control-group design, and geographic concentration, to highlight gaps and propose directions for future research.

METHOD

This study employed a narrative literature review approach to synthesize recent empirical and review-based research on gamification in higher education English learning collected from databases including Scopus, Web of Science, and Google Scholar. The literature search was conducted using Boolean operators to refine and combine keywords for precision, applying combinations such as "gamification" AND "English language learning" AND "higher education", "gamification" OR "game-based learning", and "EFL" OR "ESL". This ensured that both experimental and review studies were retrieved while excluding unrelated work. Inclusion criteria focused on articles investigating gamification in English as a Foreign or Second Language (EFL/ESL) contexts at the tertiary level. In contrast, exclusion criteria ruled out studies from primary or secondary education and non-peer-reviewed sources. The search strategy also filtered for studies explicitly reporting either learning outcomes or motivational effects. This systematic but flexible approach enabled the selection of a dataset that was both rigorous and relevant.

Data analysis proceeded in three phases aligned with the objectives of the review. First, selected studies were categorized by the language skills addressed: vocabulary, grammar, reading, writing, and speaking/pronunciation. Second, design elements and platforms were examined to identify patterns of effectiveness, with a focus on immediate feedback, points, badges, leaderboards, challenges, and tools such as Kahoot!, Quizizz, and Duolingo. Third, theoretical frameworks, including Self-Determination Theory, Flow Theory, and the ARCS model, were evaluated for their explanatory power, alongside methodological issues such as intervention duration, instrument variability, and cultural context. This three-phase approach allowed for both within-domain and cross-domain synthesis to highlight consistencies, contradictions, and research gaps. The narrative review format was chosen for its flexibility in integrating findings across diverse

methodologies and for enabling critical analysis of the theoretical and pedagogical implications of gamified English learning.

FINDINGS AND DISCUSSION

Gamification Effectiveness Across Language Skills

Research on gamification in higher education English learning has produced a diverse set of findings across different language skills. While some domains, such as vocabulary and pronunciation, show consistent positive outcomes, others, such as grammar, reading, and writing, show more variable results. These differences reflect both the nature of the skills themselves and the way game mechanics interact with learners' cognitive and affective processes. Vocabulary and pronunciation tend to be more easily gamified because they involve discrete, measurable elements that lend themselves to repetition and feedback. In contrast, complex skills such as writing or reading comprehension require deeper cognitive engagement, making the outcomes less straightforward. The following discussion presents how gamification has been implemented across different language domains, what patterns emerge, and how these findings should be critically interpreted.

Studies on vocabulary learning consistently show that gamification produces substantial, measurable benefits. Panmei & Waluyo (2022) reported that students who used Quizizz to practice vocabulary showed repeated exposure and achieved significantly higher retention rates than those in traditional instruction. Yu (2023) similarly found that the use of points, competition, and immediate feedback significantly increased both acquisition and satisfaction. At the same time, Min et al. (2025) noted that even when motivation improved, test scores did not always reflect lasting learning gains, suggesting that enthusiasm may not automatically translate into performance. Large-scale reviews confirm that vocabulary is the most frequently targeted skill in gamification studies, reflecting its alignment with repetition-based mechanics (Laura-De La Cruz et al., 2023; Zhang & Hasim, 2023). These findings suggest that vocabulary is particularly well suited to gamification, though long-term learning outcomes depend on thoughtful design.

Grammar-focused research, by contrast, shows more uneven results. Noori (2025) observed that gamification through social media reduced anxiety in grammar learning and encouraged practice, but accuracy gains were inconsistent. Jannah et al. (2023) reported similar findings in Indonesian higher education, noting higher student engagement but modest improvements in actual mastery of grammar rules. Khaldi et al. (2023) and Sadeghi et al. (2022) emphasized that motivational gains often outweighed cognitive ones, raising questions about the depth of learning achieved. Some evidence suggests that competitive mechanics, such as leaderboards, may increase

stress for specific learners (Sailer & Homner, 2020). Others, however, point out that when gamification emphasizes feedback rather than competition, it is more effective in lowering affective barriers to grammar practice (Baah et al., 2023). Taken together, grammar remains a domain where gamification can encourage participation but struggles to improve accuracy consistently.

In reading, gamification appears moderately effective, with results varying across contexts and study designs. Cheng et al. (2025) reported that Chinese undergraduates improved in both enjoyment and reading proficiency through gamified tasks, although novelty effects were evident over time. Matyakhan et al. (2024) found that Thai students engaged more readily with gamified reading exercises, but comprehension gains were mostly literal and had limited effects on deeper critical reading. In addition, gamification tends to increase persistence more than comprehension depth, suggesting that learners may read more but not necessarily better (Chan & Lo, 2024; Zolfaghari et al., 2025). Studies of platform use indicate that synchronous tools such as Kahoot! effectively energize participation, while asynchronous platforms like Quizizz provide opportunities for extended review (Orhan Göksün & Gürsoy, 2019; Wang & Tahir, 2020). Despite these benefits, inconsistent outcome measures limit comparability across studies. Reading, therefore, stands as a domain where gamification promotes motivation but provides limited evidence of substantial cognitive development.

Writing presents both encouraging and challenging evidence regarding gamification. Nilubol & Sitthitikul (2025) demonstrated that gamified blended learning improved both writing proficiency and metacognitive awareness when feedback and revision cycles were integrated. Zhihao & Zhonggen (2022) found that gamified time-limited writing tasks enhanced fluency and syntactic accuracy, though gains diminished after the initial intervention period. Saiyad & Mevada (2024) reported measurable improvements in the writing of engineering students, though these were closely tied to peer collaboration and instructor facilitation. Broader reviews highlight that gamification often boosts willingness to engage in writing but does not reliably develop rhetorical or argumentative sophistication (Sailer & Homner, 2020; Zolfaghari et al., 2025). In some contexts, social-media-based grammar gamification indirectly supported writing by lowering anxiety (Noori, 2025). Overall, gamification seems more effective for writing processes such as revision and reflection than for complex composition skills.

Speaking remains the least studied area of gamification, with most evidence limited to pronunciation research. Barcomb & Cardoso (2020) demonstrated that gamified pronunciation training targeting English /r/ and /l/ improved learners' accuracy and reduced anxiety in Japanese classrooms. Tejedor-Garcia et al. (2020) showed that persistence in challenge-based pronunciation

games was more predictive of improvement than initial proficiency, suggesting that motivation plays a critical role. Kahoot! has been used to encourage participation in speaking practice, though the results often remain at the level of engagement rather than communicative competence (Wang & Tahir, 2020). Shen et al. (2024) also noted that online gamification enhanced motivation and relatedness, which may, in turn, indirectly support oral interaction. Despite these promising findings, the lack of large-scale or longitudinal studies leaves speaking underexplored compared to other skills. This gap indicates that while gamification holds promise for oral communication, stronger evidence is still needed.

A cross-domain analysis highlights distinct patterns in how gamification impacts language skills. Vocabulary and pronunciation consistently emerge as the domains with the most apparent benefits, owing to their reliance on discrete and repetitive practice tasks. Grammar, reading, and writing show more variable effects, with motivational improvements often exceeding measurable learning gains. Reviews emphasize that these differences reflect not only skill complexity but also how game mechanics interact with cognitive and affective dimensions (Chan & Lo, 2024; Zhang & Hasim, 2023). Inconsistent results across studies also underline the role of instructional design, as feedback-driven approaches tend to outperform reward-driven ones. Speaking remains the most underrepresented area, underscoring a misalignment between gamification research and communicative teaching priorities. These findings suggest that gamification should not be treated as a universal tool, but rather as a targeted approach for skills that align with repetitive and feedback-oriented practice.

To illustrate these findings, Table 1 summarizes gamification's effectiveness across language domains, the key mechanisms associated with success, and representative studies.

Table 1. Summary of Gamification Effectiveness by Language Domain

Domain	Effectiveness	Key Mechanisms	Representative Studies
Vocabulary	Strong positive	Spaced repetition + immediate feedback	(Baah et al., 2023; Panmei & Waluyo, 2022; Yu, 2023)
Grammar	Variable	Anxiety reduction > accuracy gains	(Jannah et al., 2023; Noori, 2025; Sadeghi et al., 2022)
Reading	Moderate	Engagement > comprehension depth	(Cheng et al., 2025; Matyakhan et al., 2024; Orhan Göksün & Gürsoy, 2019)
Writing	Moderate	Feedback loops + revision support	(Nilubol & Sitthitikul, 2025; Saiyad & Mevada, 2024; Zhihao & Zhonggen, 2022)
Speaking/ Pronunciation	Limited but promising	Phonological training + persistence	(Barcomb & Cardoso, 2020; Shen et al., 2024; Tejedor-Garcia et al., 2020)

The table shows that gamification produces the most consistent benefits in vocabulary and pronunciation, where learning tasks are repetitive, measurable, and feedback-intensive. Grammar, reading, and writing are less consistent, with many interventions improving motivation more than actual learning outcomes. Speaking remains understudied, representing a significant opportunity for future research. These patterns indicate that gamification is most effective when aligned with discrete and practice-intensive skills rather than as a generic motivational tool across all domains.

Design Elements and Platforms Effectiveness

The effectiveness of gamification is not determined solely by the skill domain being taught, but also by the specific design elements and platforms used to implement it. Across the reviewed studies, several mechanisms consistently appear as critical drivers of learning and engagement, while others demonstrate more limited or even contradictory effects. Immediate feedback and structured progress tracking are the most reliable contributors to learning, whereas elements such as points, badges, and leaderboards primarily serve motivational functions. Similarly, the platforms most commonly used in higher education, such as Kahoot!, Quizizz, and Duolingo, display distinctive strengths and weaknesses depending on the learning context. This section examines these elements and platforms in greater detail, highlighting not only their potential but also their limitations when applied in English language instruction.

Immediate feedback is consistently reported as the most potent feature of gamification, enabling learners to identify errors and correct them during practice. In vocabulary learning, the role of feedback in spaced repetition activities has been shown to strengthen long-term retention and satisfaction (Panmei & Waluyo, 2022; Yu, 2023). Writing studies similarly emphasize that feedback loops integrated into revision cycles improve both accuracy and metacognitive awareness (Nilubol & Sitthitikul, 2025). By contrast, interventions that rely heavily on points or rankings without providing formative feedback often show limited transfer to learning outcomes (Sailer & Homner, 2020). Baah et al. (2023) further argue that feedback aligns directly with the ARCS model by enhancing confidence and satisfaction, which sustain motivation. These findings suggest that immediate feedback is not simply a technical feature but a pedagogical necessity in gamified instruction.

Points and badges remain the most visible gamification mechanics, but their effectiveness tends to be short-lived. Several studies report that while these elements encourage learners to engage more actively in the initial stages of a course, their motivational power diminishes over time (Chan & Lo, 2024). Khaldi et al. (2023) also found that points and badges mainly promote extrinsic motivation, which does not always translate into deep learning or long-term retention. In

grammar instruction, points sometimes increase engagement but fail to improve accuracy significantly (Jannah et al., 2023). At the same time, students often report satisfaction in collecting badges, which may contribute to persistence even when learning outcomes are less visible. This duality highlights the need to integrate points and badges alongside stronger pedagogical strategies carefully. While useful as entry points for engagement, they cannot substitute for meaningful cognitive tasks and feedback-driven learning.

Leaderboards are among the most controversial elements in gamification research, producing both positive and negative outcomes. On one hand, competitive ranking can increase excitement and stimulate participation, particularly in vocabulary games and classroom quizzes (Yu, 2023). On the other hand, studies report that leaderboards may create stress and demotivation for lower-performing students (Sailer & Homner, 2020). Noori (2025) observed that while some learners enjoyed competing, others felt anxious when constantly compared to peers, which reduced their willingness to participate in grammar tasks. Reviews further indicate that leaderboards often benefit high-achieving or competitive students but alienate those with weaker proficiency (Laura-De La Cruz et al., 2023). As a result, leaderboards are best employed in collaborative rather than individual competitive modes, which balance motivation with inclusivity. The evidence suggests that without thoughtful adaptation, leaderboards may amplify inequalities in learner experience.

Progress tracking is another frequently cited design feature that enhances the sustainability of gamification. By visualizing learners' advancement through levels or stages, progress tracking provides a clear sense of competence and direction (Shen et al., 2024). Vocabulary platforms that display accumulated points and completed stages motivate students to persist with practice (Panmei & Waluyo, 2022). Writing studies also confirm that progress dashboards encourage students to revisit tasks and track revisions (Nilubol & Sitthitikul, 2025). Reviews suggest that progress tracking appeals to learners' psychological need for competence in line with Self-Determination Theory (Min et al., 2025). However, without quality feedback, tracking alone risks reducing learning to mechanical score accumulation. This highlights the need to combine progress tracking with formative assessment features that give meaning to the numbers displayed. In this way, tracking becomes not only motivational but also pedagogically valuable.

Challenges represent a core element of gamification that promotes persistence and sustained engagement. Tejedor-Garcia et al. (2020) showed that students who consistently accepted pronunciation challenges achieved greater improvement than those who participated sporadically. In reading tasks, gamified challenges encouraged students to continue practicing even when comprehension gains were modest (Matyakhan et al., 2024). Challenges appear to tap into learners'

intrinsic motivation by presenting tasks that are challenging but attainable, consistent with Flow Theory principles (Khaldi et al., 2023). However, if challenges are too easy, they fail to stimulate engagement, while overly complex tasks risk producing frustration. Studies emphasize that adaptive challenges tailored to learners' proficiency are most effective in sustaining motivation (Chan & Lo, 2024). Thus, challenges remain a double-edged sword: highly effective when calibrated, but counterproductive when misaligned.

Among platforms, Kahoot! Remains the most widely studied tool for gamification in English language classrooms. It is frequently used in synchronous settings to energize participation and assess comprehension (Kohnke & Moorhouse, 2022). Wang & Tahir (2020) found that Kahoot! consistently increases classroom excitement, though its primary benefits are motivational rather than cognitive. In grammar and vocabulary contexts, Kahoot! quizzes provide immediate reinforcement but may not significantly enhance accuracy or deep comprehension. Students generally report enjoying Kahoot! Sessions, which makes it effective for formative assessment and classroom management. However, reviews caution that Kahoot!'s novelty effects wear off over time if used repetitively without integration into broader pedagogical frameworks (Zolfaghari et al., 2025). These findings indicate that Kahoot! is most effective as a complementary tool rather than a comprehensive instructional strategy.

Quizizz has emerged as another dominant platform, offering asynchronous flexibility that distinguishes it from Kahoot!. Orhan Göksün & Gürsoy (2019) reported that Quizizz allowed students to practice reading comprehension independently, enhancing engagement while providing teachers with detailed analytics. Panmei & Waluyo (2022) similarly found that Quizizz supported vocabulary retention through spaced repetition and individual progress tracking. Unlike Kahoot!, which is most effective for short bursts of synchronous engagement, Quizizz appears better suited for sustained practice and review outside class. Students often appreciate the self-paced nature of Quizizz, which reduces pressure while maintaining competitiveness through point accumulation. However, reviews note that Quizizz may lack the social energy of synchronous tools, suggesting that its benefits are context-dependent (Chan & Lo, 2024). Overall, Quizizz offers more substantial support for independent learning, particularly for skills that require repetition.

Duolingo and custom-built applications illustrate a different side of gamification, emphasizing accessibility and learner autonomy. Min et al. (2025) highlighted that Duolingo's gamification aligned well with Self-Determination Theory by supporting competence, autonomy, and relatedness. While learners often enjoy streaks, levels, and rewards, studies show that Duolingo is most effective for vocabulary and basic grammar practice rather than complex writing or speaking tasks. Reviews also caution that reliance on automated mechanics may limit opportunities

for authentic communication (Zhang & Hasim, 2023). Nonetheless, such platforms provide valuable opportunities for learners to engage with English outside formal classroom contexts. Duolingo in particular demonstrates how gamification can democratize access, though its pedagogical limitations underscore the importance of teacher integration. As with other tools, its most significant potential lies in complementing rather than replacing structured instruction.

To summarize these insights, Table 2 synthesizes the primary design elements and platforms, outlining their main functions, effectiveness patterns, and representative studies.

Table 2. Gamification Design Elements and Platforms

Element / Platform	Primary Function	Effectiveness Pattern	Key References
Immediate Feedback	Correct errors, sustain learning	Consistently positive across domains	(Baah et al., 2023; Nilubol & Sitthitikul, 2025)
Points & Badges	Extrinsic motivation	Short-term engagement, limited durability	(Chan & Lo, 2024; Khaldi et al., 2023)
Leaderboards	Competition, peer comparison	Mixed: motivate some, cause anxiety for others	(Noori, 2025; Sailer & Homner, 2020)
Progress Tracking	Visualization of progress	Supports persistence if paired with feedback	(Panmei & Waluyo, 2022; Shen et al., 2024)
Challenges	Adaptive engagement	Effective when calibrated to the learner level	(Chan & Lo, 2024; Tejedor-Garcia et al., 2020)
Kahoot!	Synchronous classroom quizzes	Strong motivational impact, modest learning	(Kohnke & Moorhouse, 2022; Wang & Tahir, 2020)
Quizizz	Asynchronous practice	Enhances retention, supports self-paced study	(Orhan Göksün & Gürsoy, 2019; Wang & Tahir, 2020)
Duolingo/Custom Apps	Independent learning	Useful for basics, limited for complex skills	(Min et al., 2025; Zhang & Hasim, 2023)

The table demonstrates that while gamification elements vary widely in function, only certain features consistently improve learning outcomes. Feedback, progress tracking, and well-calibrated challenges are the strongest pedagogical drivers, while points, badges, and leaderboards primarily influence short-term motivation. Similarly, platform comparisons reveal that Kahoot! excels in synchronous engagement, Quizizz supports asynchronous review, and Duolingo fosters independent learning but with limited depth. These patterns underscore that gamification should not be adopted solely for its novelty but rather integrated thoughtfully to align with pedagogical goals.

Theoretical Insights and Pedagogical Implications

Among the theoretical perspectives applied to gamification in English language learning, Self-Determination Theory (SDT) has been the most influential framework. Studies consistently show that gamified tasks can satisfy the three basic psychological needs identified by SDT: competence, autonomy, and relatedness (Min et al., 2025). Vocabulary platforms like Duolingo, for instance, allow learners to set personal goals and monitor progress, thereby enhancing autonomy and competence. Shen et al. (2024) further demonstrated that online gamification environments foster relatedness by creating a sense of community, even in digital contexts. At the same time, limitations arise when gamified elements overemphasize extrinsic motivators such as points and badges, which may undermine intrinsic motivation over time. This paradox indicates that while gamification can align with SDT, it does so effectively only when mechanics are designed to reinforce rather than replace internal drives. Consequently, SDT provides a valuable lens for explaining both the strengths and pitfalls of gamification in sustaining learner engagement.

Another important theoretical perspective comes from Flow Theory, which emphasizes the balance between challenge and skill as the foundation of optimal learning experiences. Gamification leverages this principle by structuring tasks into progressive levels that calibrate difficulty to learner proficiency (Khaldi et al., 2023). When learners experience this balance, they are more likely to enter a state of flow, marked by immersion, concentration, and intrinsic enjoyment. However, mismatched calibration can quickly lead to boredom when tasks are too easy or to frustration when tasks are too complicated (Chan & Lo, 2024). Pronunciation games, for example, have shown that students persist longer when challenges are slightly beyond their comfort zone but still achievable (Tejedor-Garcia et al., 2020). This suggests that flow-inducing elements are particularly effective for repetitive skills like vocabulary and pronunciation. Nevertheless, for complex tasks such as writing, achieving flow is harder because challenges are less easily standardized. Thus, Flow Theory provides valuable insights into why gamification succeeds in some skills but struggles in others.

The ARCS model (Attention, Relevance, Confidence, and Satisfaction) has also been applied to explain gamification's motivational dynamics. Studies suggest that gamified activities capture learners' attention through novelty and competition, while relevance is enhanced when tasks are contextualized to learners' goals (Baah et al., 2023). Confidence is fostered by immediate feedback and visible progress tracking, which assures learners that their efforts lead to improvement. Satisfaction emerges when achievements are rewarded through badges or recognition, reinforcing continued participation. At the same time, reviews caution that attention driven by novelty is temporary and declines without sustained relevance or meaningful challenge (Chan & Lo, 2024).

This limitation explains why many gamification interventions show strong initial engagement but weaker long-term outcomes. Nonetheless, the ARCS framework highlights that gamification's motivational appeal is multidimensional, requiring alignment of all four components to achieve lasting impact. It also emphasizes that gamification is not merely about engagement but about fostering confidence and satisfaction that support learning persistence.

Despite their explanatory value, SDT, Flow Theory, and ARCS are often applied descriptively rather than rigorously tested. Zhang & Hasim (2023) note that studies frequently invoke these theories to justify design choices but rarely conduct empirical comparisons to determine which framework best predicts outcomes. For example, while SDT explains motivation through psychological needs, it cannot fully account for why learners sometimes disengage despite high perceived autonomy. Flow Theory highlights the importance of challenge calibration, yet it does not adequately explain why motivational gains often fail to transfer into measurable learning. Similarly, ARCS captures the multidimensionality of motivation but provides limited predictive power for learning outcomes. Reviews emphasize that future research should not simply adopt these theories as rhetorical frames but test them directly against one another in controlled designs (Chan & Lo, 2024). Doing so would advance both theoretical precision and pedagogical guidance. In the absence of such comparative testing, the role of theory in gamification research remains more justificatory than explanatory.

Methodological Limitations and Future Directions

A recurrent limitation in gamification research is the short duration of interventions, which often undermines claims about long-term effectiveness. Many studies were conducted over a single semester or less, raising questions about whether improvements reflected authentic learning or temporary novelty effects (Matyakhan et al., 2024; Zhihao & Zhonggen, 2022). Vocabulary studies, in particular, have shown sharp gains early in the intervention, followed by plateaus as novelty wore off. This suggests that gamification's motivational boost may not automatically translate into sustained performance. Longitudinal research with delayed post-tests is rare but necessary to distinguish between immediate excitement and durable learning outcomes. Without extended timelines, conclusions about gamification's educational value remain provisional. Future studies must therefore prioritize longitudinal designs to assess retention and transfer beyond the initial intervention period.

Another methodological weakness lies in the variability of instruments used to measure both motivation and learning outcomes. Some studies rely on self-reported questionnaires with limited validation, while others use teacher-designed tests with varying reliability (Sadeghi et al., 2022).

This inconsistency makes cross-study comparison challenging and weakens the robustness of systematic reviews. For example, in reading studies, gains were often measured by surface-level comprehension questions, while writing outcomes were assessed through highly subjective rubrics. Such variability obscures whether observed improvements reflect genuine skill development or differences in measurement tools. Researchers have called for more standardized instruments to ensure comparability across contexts and skills (Chan & Lo, 2024). Until then, conclusions about the relative effectiveness of gamification must be interpreted cautiously. Future work should adopt validated scales for motivation and standardized proficiency assessments to improve methodological rigor.

The lack of rigorous control group design further limits the reliability of current gamification findings. Many quasi-experimental studies compare gamified instruction with traditional methods but fail to control for variables such as teacher enthusiasm, novelty effects, or additional time-on-task (Khaldi et al., 2023). In some cases, both groups receive different amounts of practice, making it unclear whether improvements are due to gamification or increased exposure. Moreover, random assignment of participants is rare, which introduces bias in interpreting treatment effects. Reviews emphasize that without strong experimental controls, it is difficult to isolate the actual impact of gamification (Zolfaghari et al., 2025). For example, studies of grammar instruction showing motivational gains may reflect teacher encouragement rather than the mechanics of the instruction. To strengthen causal claims, future research must incorporate randomized controlled trials, balanced practice time, and transparent reporting of design procedures. Only then can gamification's effects be distinguished from confounding variables.

Finally, the geographic concentration of gamification research raises concerns about the generalizability of its findings. A large proportion of empirical studies have been conducted in Asian contexts, particularly China, Thailand, and Indonesia (Laura-De La Cruz et al., 2023; Zhang & Hasim, 2023). These contexts often emphasize collective learning and high-stakes testing, which may influence how learners respond to competitive or collaborative mechanics. Evidence from collectivist cultures shows stronger acceptance of team-based competition, while individualist contexts may produce different motivational outcomes. The lack of cross-cultural studies limits our understanding of whether findings apply broadly across higher education systems.

Furthermore, the relative absence of research from regions such as Africa, Latin America, and Europe creates gaps in the literature. Comparative studies across cultural contexts are therefore crucial to identify how sociocultural variables moderate gamification effectiveness. Until such work is conducted, conclusions about gamification's universality should remain tentative.

CONCLUSION

The synthesis of empirical studies and reviews demonstrates that gamification has notable but uneven effects across different English language skills in higher education. Vocabulary and pronunciation emerge as the domains most consistently enhanced, owing to their reliance on discrete, repetitive tasks that align effectively with feedback-driven mechanics such as Quizizz, Duolingo, and pronunciation challenges. Grammar, reading, and writing, while benefiting from higher levels of motivation, show more variable learning outcomes, with improvements often concentrated in surface accuracy, persistence, or engagement rather than long-term cognitive or rhetorical gains. Immediate feedback, progress tracking, and adaptive challenges consistently stand out as the most powerful design elements across domains, whereas points, badges, and leaderboards demonstrate limited or even contradictory effects. Platform comparisons further confirm that Kahoot! excels in synchronous engagement, Quizizz supports asynchronous practice, and Duolingo fosters independent study, but none of these tools alone guarantees lasting achievement. These findings reinforce that gamification is most effective when aligned strategically with pedagogical goals, rather than adopted as a superficial motivational device.

At the theoretical level, Self-Determination Theory, Flow Theory, and the ARCS model provide complementary insights into why gamification motivates learners, yet comparative evaluations reveal that these frameworks are rarely tested against each other in empirical research. SDT explains the satisfaction of competence, autonomy, and relatedness in gamified environments, Flow Theory clarifies the role of challenge calibration, and ARCS emphasizes the multidimensionality of motivational appeal. However, all three are often invoked descriptively rather than analytically. Methodological limitations further constrain the evidence base: most interventions remain short-term, rely on inconsistent instruments, employ weak control group designs, and are geographically concentrated in Asian contexts. These limitations mean that, while current data highlight the motivational power of gamification, its capacity to produce durable language-learning outcomes is less specific. Future research must therefore prioritize longitudinal designs, standardized measures, stronger experimental controls, and cross-cultural comparisons to advance both theoretical precision and pedagogical practice. In conclusion, gamification offers promising but context-dependent benefits in English language education, and its success depends on the thoughtful integration of design elements with learners' needs and instructional objectives.

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