

Implementation of Gamification as an Active Methodology to Enhance Motivation and Academic Performance in EFL Learners

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Received: May 14, 2025

Accepted: August 5, 2025

Online Published: October 21, 2025

doi:10.5430/wjel.v16n2p203

URL: <https://doi.org/10.5430/wjel.v16n2p203>

Abstract

Gamification is a dynamic instructional methodology that enhances motivation and learning by incorporating game elements, which actively engage students. In this context, the present research aimed to determine the impact of gamification on public school students' motivation to learn English as a Foreign Language. The sample consisted of N=441 learners (251 female and 190 male) who attended onsite classes. Their ages ranged from 11 to 12 years old. A quasi-experimental design was used to carry out this quantitative and qualitative study, which lasted five months. The techniques used were survey, interview, pre-test and post-test. The findings revealed that gamification had a positive influence on students' motivation to learn this language because students became interested in learning it in a fun way. Furthermore, the use of gamification helped students to improve their performance, which favoured their English academic achievement. Further research might consider using this methodology to promote students' motivation to develop English skills in other learning environments, such as virtual ones.

Keywords: active methodology, academic performance, EFL learning, gamification, motivation

1. Introduction

Motivation is a complex and influential factor in the learning process that significantly shapes learners' behavior regarding direction, intensity, and persistence. It involves the psychological processes that initiate, guide, and sustain individuals' efforts toward achieving specific goals (Albrecht & Karabenick, 2018). Wang and Littlewood (2021) mention that motivation is a vital element in any learning process as it is the force that controls whether a student sets about an activity or not. In the context of language learning, Getie (2020) manifests that motivation plays a pivotal role since it directly influences learners' willingness to invest time and effort in studying a language, actively participate in communicative activities, and persist through the inevitable challenges of language learning.

Regarding English as a Foreign Language (EFL), Mihaljević (2015) highlights that motivation is one of the most influential factors in EFL learning, as it significantly contributes to better learning outcomes. In fact, motivated learners tend to achieve more effective language competencies, improving essential language skills such as listening, speaking, reading, and writing. Similarly, Nguyen (2019) affirms that motivation is considered a fundamental factor that helps to achieve a good level in EFL. To maximize the impact of motivation in the EFL learning process, it must be supported by effective classroom methodologies and the integration of innovative tools that foster the achievement of desired learning outcomes for EFL students.

One of these methodologies is gamification, which, according to D'áz and Zajia (2020), increases EFL learning students' motivation and helps them to achieve higher levels of competence, autonomy, and relatedness (Anisa et al., 2020). Furthermore, Zhang and Hasim (2023) assert that gamification positively influences learners' motivation, attitudes, and emotional responses toward EFL instruction. It also fosters an authentic learning environment that promotes language competence. Kraus et al. (2020) suggest that gamification can be an effective methodology to enhance the foreign language learning experience if key elements such as clear instructions and a diverse range of activities are incorporated to maintain students' engagement and interest. Additionally, Jiménez-Sánchez and Gargallo-Camarillas (2020) conducted a study revealing that participants in gamified learning environments gained higher levels of intrinsic motivation. The study also highlighted that personality traits can influence how learners respond to gamification in certain situations, suggesting that individual differences play a role in the effectiveness of this methodology.

The theoretical grounding of this study draws upon several well-established frameworks that help explain the mechanisms through which gamification influences language learning. Vygotsky's Sociocultural Theory (1978) emphasizes the importance of social interaction in cognitive development, suggesting that interactive and collaborative game-based activities provide meaningful learning contexts. Self-Determination Theory supports the idea that gamification enhances intrinsic motivation by fulfilling learners' psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2000; Deci & Ryan, 2013). From a behaviorist perspective, Skinner (1957, 1974) argues that reinforcement, such as immediate feedback and rewards, can effectively strengthen learning behaviors, which are often embedded in gamified environments. Additionally, Cognitive Load Theory (Sweller et al., Ayres, & Kalyuga, 2011; Clark, Nguyen, &

Sweller, 2021; Skulmowski & Xu, 2022) provide insight into how instructional design can affect learning by managing the amount of information processed in working memory. In gamified environments, well-designed game elements can reduce extraneous cognitive load by presenting content in visually engaging, interactive ways, thereby allowing learners to focus more effectively on essential learning tasks and improving vocabulary acquisition and knowledge retention. The importance of gamification as a methodology in the EFL context becomes evident when we consider its potential impact on motivation and academic achievement.

Given the central importance of learner engagement in achieving lasting proficiency, this study examines the potential of game-based elements to foster a truly immersive classroom atmosphere, one that not only sparks initial interest but also maintains sustained effort and enjoyment over time. However, despite the growing body of research on gamification in education, there is still a lack of evidence regarding its effectiveness in enhancing both motivation and academic performance among EFL learners in the preadolescent stage. Addressing this gap, the present study seeks to explore how gamification can be implemented as an active methodology to meet the specific motivational and academic needs of young learners in this critical stage of language development. By exploring the specific mechanisms through which gamification techniques strengthen students' motivation, alongside measurable gains in English performance, our research offers concrete insights for instructors seeking to design more responsive, student-centered EFL curricula. In doing so, it provides evidence-based guidance on integrating points, badges, narrative scenarios, and collaborative challenges in ways that align with best practices in second-language pedagogy. To structure this inquiry, we address the following questions:

RQ1: How does gamification influence students' motivation to learn English as a Foreign Language?

RQ2: How does gamification impact students' English academic achievement?

2. Literature Review

2.1 Learning English as a Foreign Language

English as a Foreign Language (EFL) is considered a primary language for communication between people of different linguistic and cultural backgrounds; as a lingua franca, it facilitates connections across borders (Husna & Murtini, 2019). Furthermore, Amiti (2020) emphasizes that English plays a crucial role in areas such as tourism, commerce, work, diplomacy, entertainment, science, education, and technology enabling effective communication and collaboration across cultures.

In academic settings, English is often the language of instruction, making it vital for students who aim to study abroad or engage in international academic collaboration (Salomone & Salomone, 2022). Bećirović (2017) reinforces this by stating that learning English can significantly improve a person's life, opening doors to countless opportunities. However, as Fandiño et al. (2019) state, learning a foreign language requires a comprehensive approach that involves both individual and contextual factors. Contextual factors include the social, educational, and linguistic environments, as well as practical aspects like the time required to learn and use the language, and societal beliefs and values regarding language learning. On the individual level, aptitudes such as grammar, pronunciation, and pragmatic language skills, along with emotional aspects like self-esteem, empathy, and motivation, are key to successful language acquisition. In line with this, Cevallos and Villafuerte (2022) argue that achieving a high level of English proficiency is a significant asset for any professional profile, providing added value in the global workforce.

2.2 Motivation to Learn EFL

Motivation is not merely considered as a personal characteristic but as a process of negotiating meaning within social relationships (Boström & Bosted, 2022). Ilyina (2013) further broadens this definition by describing motivation as the result of both internal and external factors that drive individuals to act, shape their activities, and focus their efforts toward achieving specific goals.

In the context of foreign language learning, motivation plays a crucial role, Getie (2020) emphasizes that it directly influences learners' willingness to invest time and effort in studying and engage in communicative activities. Motivation also serves as the driving force that enriches language learning experiences, stimulates students to enthusiastically participate in activities, and use their intellect and emotions to reach their academic and professional goals (Affuso et al., 2023; Feng et al., 2023; Tsai et al., 2024).

Furthermore, Maruf et al. (2022) highlight the positive impact of motivation on learning English, reinforcing the importance of internal and external factors in driving language learning. Gardner (2001) reinforces this fact and emphasizes that a high level of motivation significantly increases the chances of success in learning a new language. On the other hand, Azar and Tanggaraju (2020) argue that a lack of motivation is one of the key obstacles to language learning. They further underline the essential role that motivation plays in the language learning process.

2.3 The Use of Gamification to Motivate English Language Learning

Gamification is defined as the integration of game mechanics (competition, cooperation, immediate feedback, and rewards) into non-game settings to drive engagement and participation (Sailer & Homner, 2020). Furthermore, Brougère (2021) notes that gamification applies game-playing elements, such as point scoring and rules, in settings where entertainment and games are not the primary goal per se. Likewise, Sheldon (2020) supports this idea by stating that gamification involves incorporating game mechanics into real-world tasks which, if applied to education, enhances student engagement and motivation, making the learning experience more interactive and effective.

In the English language learning field, gamification is an effective approach for developing students' skills (listening, speaking, reading,

and writing), promoting active learning, improving engagement, and increasing motivation through the use of game elements (D'áz & Zajia, 2020; Ertan & Kocadere, 2022; Thomas et al., 2021). In this regard, Abdel-Ghany Al-Sabbagh (2023) argue that students acknowledge the value of gamification in English classrooms because it enhances language learning, making it more enjoyable and effective than traditional methods.

According to Kotob and Ibrahim (2019), gamification has a positive impact on both student achievement and motivation, indicating that teachers can use this methodology to create a more engaging and dynamic classroom environment, promoting student participation while improving performance. In line with this, Huseinović (2023) also found that gamification significantly enhances students' motivation to learn English as a foreign language, leading to improved success in EFL learning and academic achievement.

3. Method

3.1 Setting and Participants

The sample included 441 seventh-grade students (N=441) from public schools in Ecuador, consisting of 251 females and 190 males, all native Spanish speakers aged 11 to 12. In line with the Ecuadorian Ministry of Education policies, they attended three forty-minute English classes per week, and their English proficiency level was classified as A1 according to the Common European Framework of Reference for Languages. The sample was intentionally selected, drawn from groups of participants who were readily available for the study. Convenience sampling is a method in which participants are chosen based on their accessibility and willingness to take part in the research (Mertler, 2020).

3.2 Instruments

Table 1. Research Instruments

Instrument	Purpose	Number of items
Pre-test and post-test.	The pre-test helped us assess the students' English proficiency, providing a baseline to initiate the intervention and allowing us to compare those results with the post-test outcomes.	Ten items related to students' English knowledge
Pre-survey and post-survey motivation questionnaires.	The pre-survey questionnaire allowed us to determine the participants' level of motivation to learn English. The post-survey questionnaire helped us to find out the level of motivation after using gamification methodology.	Seventeen items for eliciting answers on a four-point Likert scale (Strongly disagree, Disagree, Agree, Strongly agree).
Questionnaire (interview)	It was administered to triangulate information regarding how the use of gamification impacted on students' motivation to learn English.	Eight open questions

3.3 Procedure

The study was conducted over a period of five months and used a mixed approach, which, according to Creswell and Plano Clark (2017), is a research method that combines both qualitative and quantitative techniques. It also incorporates philosophical foundations and brings together these two methodologies within a single study. Besides, it used a quasi-experimental design, White and Sabarwal (2014) explain that a quasi-experimental design is employed to assess the impact of an intervention when participants are not randomly assigned to groups. This approach utilizes techniques like matching or statistical adjustments to account for differences between the groups.

This research consisted of three stages. In the first one, students were informed about how the intervention would be implemented using the gamification methodology. Additionally, students took a pre-survey motivation questionnaire adapted from Attitude Motivation Test Battery (AMTB) designed by Gardner (1985). The AMTB questionnaire has been widely used in first language learning contexts demonstrating strong reliability and validity, with Cronbach's alpha coefficients commonly above .85 and solid evidence of construct validity (Gardner, 2004).

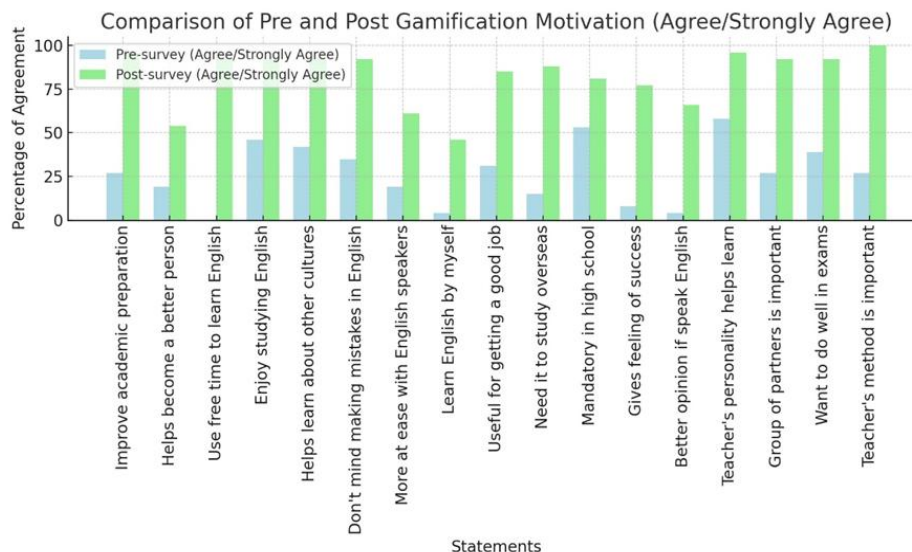
In the second stage, the participants attended on-site English classes. Each 45-minute class was planned based on the stages of the didactic sequence: anticipatory set, main teaching input, and assessment. In each stage, students completed different activities by using game elements such as rewards, rules, badges, time pressure, points, leaderboard, levels, and challenges, which allowed students to learn the planned topics and keep them motivated, making the learning process more appealing. Some of the topics studied during the intervention were good and bad habits, daily life, free time, appearance, and personal experiences. In addition, to complete the gamified activities, we used the following technological tools: Bamboozle, Edpuzzle, Kahoot, Educaplay, and Padlet because they are easy to use and have a user-friendly interface.

Finally, in the last stage, the participants took a post-test which allowed the researchers to evaluate their progress regarding the English language during the intervention. Additionally, they completed a post-motivation questionnaire to determine whether the students' level of motivation to learn English increased after the use of gamification methodology. These two instruments shared the same characteristics regarding their structure and number of items as the ones administered in the first stage. Furthermore, an interview was conducted to

contrast information obtained from the aforementioned instruments. The interview data were analyzed using Reflexive Thematic Analysis, which emphasizes flexibility and the researcher's active role in theme development (Braun & Clarke, 2019, 2021). Based on it, first, the data were read repeatedly to ensure familiarization. Then, initial codes were generated inductively to capture meaningful segments related to vocabulary retention, fluency, enjoyment, and motivation. These codes were then refined into broader themes such as linguistic development through gamification, enjoyment and engagement, and increased motivation and confidence. Finally, the themes were reviewed in relation to the entire dataset to ensure coherence and depth, which provided richer insights into students' experiences while enhancing the credibility of the findings. It is worth mentioning that statistical analyses were also conducted using IBM SPSS Statistics v25, with a 95% confidence level, to examine the quantitative data obtained from the survey motivation questionnaire, and pre-test and post-test.

4. Results

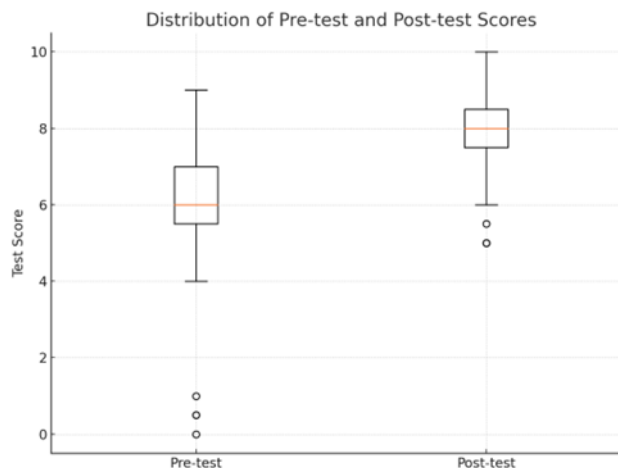
This section presents a descriptive statistical analysis of the research findings related to the study's research questions.



Graph 1. Comparison of pre and post-motivation questionnaire

The Wilcoxon signed-rank test was used to evaluate the difference in students' motivation before and after the gamification intervention in EFL learning. The results show a p-value = 0.000015, indicating a statistically significant difference ($p < 0.05$) in students' motivation after gamification.

The above illustration shows a comparison between the percentages of students who agreed or strongly agreed in the pre-intervention survey and post-intervention survey, highlighting the change in motivation after gamification. These results suggest that the implementation of gamification positively influenced students' motivation to learn English, as a significant increase in the levels of agreement or strong agreement was observed in most of the evaluated statements. This interpretation and illustration reflect the significant impact of gamification, providing empirical evidence for its use as an effective tool for EFL learning.



Graph 2. Comparison of pre-test and post-test

Graph 2 shows an average of $M = 6.23$ points ($SD = 1.08$) on the pre-test and $M = 7.80$ points ($SD = 0.80$) on the post-test, suggesting an initial gain in English achievement following the gamification intervention. Before selecting an inferential method, we evaluated the normality of the changing scores (post – pre) using the Shapiro–Wilk test. This test indicated a significant deviation from normality ($W = .88, p < .001$), warranting a non-parametric approach for our primary analysis.

Accordingly, a Wilcoxon signed rank test was performed and revealed a highly significant improvement after the intervention ($W = 0.0, p < .001$), with a large effect size ($r = .87$), demonstrating that the gamified activity produced a substantial boost in students' English performance. Moreover, to confirm the strength of this result under parametric assumptions, we conducted a paired samples t-test. Consistent with the non-parametric finding, the t test showed a significant increase in scores, $t(440) = 53.08, p < .001$, and a very large Cohen's $d = 2.53$. Together, these analyses provide strong evidence that incorporating gamification into instruction can markedly enhance learners' academic achievement in English.

5. Discussion

5.1 How Does Gamification Influence Students' Motivation to Learn English as a Foreign Language?

Graph 1 visualizes the percentage of agreement with various statements related to students' motivation to learn English, before and after the application of gamified strategies. The data demonstrate that, after gamification, students exhibited a significant increase in their motivation to engage with English learning activities. The post-motivation questionnaire results (green bars) consistently exceeded the pre-motivation questionnaire responses (blue bars), suggesting that gamified learning environments foster a more engaging and motivating atmosphere. Particularly striking are the increases in items related to intrinsic motivation, such as "enjoy studying English" and "don't mind making mistakes in English," which reflect a heightened interest and comfort in the learning process after gamification was introduced.

From the perspective of Self-Determination Theory (Ryan & Deci, 2000; Deci & Ryan, 2013), the increase in enjoyment can be explained by the satisfaction of students' needs for autonomy and competence, as game elements allowed them to make choices and track progress. This aligns with the idea that autonomy-supportive environments foster sustained intrinsic motivation. These findings imply that gamification is an effective methodology to sustain engagement in EFL learning and to transform routine tasks into more meaningful and enjoyable experiences. In this context, Kotob and Ibrahim (2019) assert that gamification helps create a more engaging and dynamic classroom environment. Moreover, these results align with those of D áz and Zajia (2020), Ertan and Kocadere (2022), and Thomas et al. (2021), whose studies concluded that the use of game elements promotes active learning, improves engagement, and increases motivation.

One of the most relevant findings is the substantial improvement in students' enjoyment of studying English. Before the implementation of gamified elements, less than 25% of students agreed that they enjoyed learning English. However, in the post-survey it jumps to over 75%. This transformation illustrates how gamification supports intrinsic motivation by creating opportunities for playful mastery (competence) and personal agency (autonomy), both central constructs in Self-Determination Theory. This indicates that gamification can transform learning from a tedious task into an engaging and enjoyable experience. This result aligns with research conducted by Duggal et al. (2021), who found that gamification enhances engagement by incorporating playful elements into traditionally non-game contexts, making the learning process more stimulating and less monotonous.

Another important finding is the notable decrease in students' fear of making mistakes after gamification was applied. The statement "don't mind making mistakes in English" saw a dramatic rise from approximately 10% agreement in the pre-questionnaire to around 75% in the post-questionnaire. This change reflects a behaviorist mechanism (Skinner, 1957, 1974), where immediate positive reinforcement rewards risk-taking and reduces the punishment of errors. At the same time, it demonstrates Vygotsky's Sociocultural Theory (1978), as collaborative scaffolding provided in group challenges allowed learners to attempt language use within their Zone of Proximal Development, supported by peers. Pereira et al. (2025) and Allehaidan and Wan Zainon (2024) highlight that incorporating gamification elements like points and leaderboards not only increases student engagement but also reduces performance anxiety, fostering a learning environment where students feel more comfortable engaging in trial and error.

The social and collaborative aspects of gamification also appear to play a significant role in increasing motivation. The statements "more at ease with English speakers" and "group of partners is important" saw substantial increases after gamification, indicating that students are more comfortable with social interactions in English and place greater value on teamwork. This finding directly reflects Sociocultural Theory, where social interaction is seen as fundamental for learning. Gamification provided structured opportunities for peer scaffolding, collaboration, and communication in English, thereby deepening engagement. These results echo the findings of Yildirim (2017), who found that gamified teaching practices promote greater peer collaboration and active participation, particularly in language learning environments. Through competition and collaboration, students are encouraged to work together and communicate in the target language, which fosters a more dynamic and supportive learning community.

Additionally, the increase in motivation related to practical and extrinsic goals, such as "useful for getting a good job" and "need it to study overseas" also warrants attention. Although these factors were already highly rated in the pre-questionnaire, they still showed improvement in the post-questionnaire results. This suggests that gamification not only boosts intrinsic motivation, such as enjoyment and self-improvement, but also reinforces the perceived utility of learning English for future career and educational opportunities. In SDT terms, gamification supports extrinsic motivation by internalizing its value—students perceived that competence gained through gamified learning contributed to long-term academic and career goals. Li et al. (2024) assert that gamification appeals to learners by satisfying their

needs for competence, autonomy, and relatedness. By doing so, gamification helps learners feel that they are making tangible progress toward their long-term goals, thereby sustaining motivation over time.

Another significant result from the graph is the increased agreement with the statements "the teacher's method is important" and "the teacher's personality helps me to learn," which highlights the importance of the teacher's role in a gamified learning environment. It implies that gamification does not function in isolation but rather works best when integrated with effective teaching methods. According to Cognitive Load Theory (Sweller, Ayres, & Kalyuga, 2011), the teacher is essential in managing extraneous cognitive load by designing tasks where game elements clarify rather than distract from learning content. Teachers act as facilitators, aligning gamified activities with learning objectives while providing necessary scaffolding (Vygotsky, 1978). In this respect, Yang (2023) declares that the teacher's role in a gamified classroom goes beyond merely providing content; it encompasses guiding and facilitating the learning process. They ensure that gamified elements align with learning goals, helping students stay motivated and engaged throughout the experience. The increase in these two statements suggests that students recognize the role of the teacher in shaping a successful gamified learning experience, reinforcing the importance of a well-designed and thoughtfully executed pedagogical strategy.

The evidence from the graph clearly illustrates that gamification has a positive impact on students' motivation to learn English as a foreign language. Both intrinsic and extrinsic motivations improve significantly after the implementation of gamified elements, with students showing greater enjoyment of the learning process, a reduced fear of making mistakes, and an increased appreciation for the social aspects of learning. These findings are consistent with literature, which highlights the transformative potential of gamification in educational contexts. By fostering a more engaging, collaborative, and enjoyable learning environment, gamification appears to offer a powerful tool for enhancing motivation and improving learning outcomes in language education. Taken together, the mentioned outcomes are also consistent with all four theoretical lenses: SDT (autonomy, competence, relatedness), Sociocultural Theory (peer scaffolding), Behaviorism (reinforcement), and Cognitive Load Theory (instructional design). As supported by Adzmi et al. (2024) and Yildirim (2017), gamification holds great promise for promoting sustained motivation and active participation in language learning.

5.2 How Does Gamification Impact Students' English Academic Achievement?

Graph 2 illustrates a clear enhancement in students' English performance after the introduction of gamified strategies. Specifically, the average score rose from $M = 6.23$ ($SD = 1.08$) on the pre-test to $M = 7.80$ ($SD = 0.80$) on the post test. A Wilcoxon signed rank test confirmed that this gain was highly significant ($W = 0.00$, $p < .001$), thereby demonstrating that the gamification intervention produced a measurable improvement in academic achievement.

From a Cognitive Load Theory perspective, this improvement may be attributed to the reduction of extraneous cognitive load through the use of structured game elements, which helped learners allocate more working memory resources to essential tasks (Sweller et al., 2011; Clark, Nguyen, & Sweller, 2021). The reinforcement of correct answers through points and rewards also reflects behaviorist principles (Skinner, 1974), strengthening desirable learning behaviors. Finally, collaborative game tasks created scaffolding opportunities (Vygotsky, 1978), enabling weaker students to progress with peer support, which in turn improved group achievement. Taken together, these mechanisms provide a theoretical explanation for the significant improvement observed in students' scores. They suggest that gamification not only sustains motivation but also translates into tangible academic gains, reinforcing its dual role as both a motivational and pedagogical strategy in EFL contexts.

Moreover, qualitative data from student interviews (see Table 2) help explain these quantitative gains. Participants consistently reported that game elements heightened their engagement and motivation.

Table 2. Students' excerpts from the interviews

Thematic Category	Question	Student's excerpts
Linguistic Development through Gamification	1. In what specific ways has gamification enhanced your command of the English language?	Gamification has improved my vocabulary retention. It has helped me practice grammar rules through nice activities and feedback.
	2. Can you describe how gamification has made the process of learning English quicker and easier for you?	... small lessons with gamification are easy ... games make difficult topics like personal experiences easier
	3. How has gamification contributed to your ability to speak English more fluently?	Gamified activities improve my pronunciation and fluency ... games allow me to gain confidence.
	4. What do you enjoy most about learning English through gamification?	... learning new English material with gamification makes me learn better. ... feedback helps me learn. I like to compete with my classmates.
Enjoyment and Engagement	5. What elements of gamification make learning English more enjoyable for you?	I like to earn points and badges. I receive rewards. I like leaderboards. My favorite element is feedback.
	6. Why do you prefer practicing English through gamification compared to traditional methods?	... gamification makes me practice in a fun way. ... traditional classes are boring while gamification is fun.

Increased Motivation and Confidence	7. What motivates you the most about learning English through gamification?	... games are more interesting than books. Competing with my friends inspires me to continue learning.
	8. How does gamification inspire you to explore and learn new English topics?	The engaging design and interactive elements make learning feel less like a chore and more like a hobby. Games allow me to learn new English topics. Gamification helps me expand my curiosity to solve games

According to the interviewed participants, badges, points, rewards and leaderboards are among their most favorite elements of gamification as seen in Table 3. For example, many learners noted that earning badges and competing with peers made practice more enjoyable and encouraged them to persist with challenging exercises. Thus, the marked increase in post test scores can be interpreted as a consequence of greater involvement and sustained effort fostered by gamified features.

Table 3. Students' preferences regarding gamification elements

Participants	Elements of Gamification					TOTAL
	Points	Rewards	Leaderboards	Badges	Others	
441	25%	24%	20%	19%	12%	100%

These findings align with those of Mahmud et al. (2020) who argued that gamified environments enhance both enjoyment and commitment to learning tasks, which in turn translate into superior academic outcomes. Taken together, the statistical and interview results indicate that gamification not only enhances immediate test performance but also cultivates the motivational and affective conditions necessary for meaningful, long-term gains in EFL achievement.

5.3 Limitations and Future Research

While these results highlight the potential of gamification to enhance both motivation and academic performance in EFL learners, some limitations should be acknowledged. First, the research was conducted within a specific age group (preadolescents aged 11–12) and cultural context (public schools in Ecuador), which may limit the generalizability of the results to other age ranges or educational settings. Second, the intervention was relatively short-term (five months), so the long-term sustainability of the motivational and academic benefits of gamification remains uncertain. Third, although gamification appeared to enhance both intrinsic and extrinsic motivation, individual differences, such as personality traits, prior gaming experience, or learning preferences, might have influenced how students responded to the methodology. Recognizing these limitations provides a balanced perspective and suggests that future research should explore longitudinal effects, cross-cultural applications, and the role of individual learner characteristics in shaping responses to gamified learning environments.

6. Conclusion

This study, conducted with 441 EFL school students, provides compelling evidence that gamification reliably enhances both motivation and academic achievement: following the intervention, motivation improved significantly, and mean test scores increased from $M = 6.23$ to $M = 7.80$ ($W = 0.00$, $p < .001$). These outcomes align with Adzmi et al. (2024), Yildirim (2017), and Jaramillo-Mediavilla et al. (2024), supporting our findings' generalizability to comparable instructional contexts. Pedagogically, teachers are encouraged to integrate game elements such as points, badges, and leaderboards into lesson design to boost engagement, reduce anxiety, and foster collaborative learning; thereby, translating heightened motivation into measurable performance gains. Although our analysis focused on immediate post-intervention effects, future studies should explore long-term retention through delayed follow-up assessments and disentangle the effects of individual game mechanics across diverse age groups and cultural settings.

Acknowledgments

We gratefully acknowledge the Universidad Técnica Particular de Loja (UTPL) authorities for their backing of this study through the EFL Learning, Teaching, and Technology Research Group, and we thank all participants for their willingness to complete the questionnaires.

It is worth mentioning that during the preparation of this work, the authors used the Chat GPT SERVICE in order to improve language and grammar.

Authors' contributions

All authors contributed equally to this work.

Funding

"Not applicable."

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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