

Game-based learning and gamification in Cuban English teacher trainees

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This study investigates the potential of game-based learning and gamification to enhance English Language Teaching in resource-limited contexts, focusing specifically on Cuban teacher trainees' engagement, motivation, and vocabulary learning. Based on interviews with Cuban trainees. These activities incorporate educational games, simulations, and interactive tasks aimed at vocabulary learning, using mechanics such as awarding points for contextual vocabulary use. Using a mixed-methods approach with surveys and interviews, findings reveal that Cuban teachers also had favorable perceptions of gamification, recognizing its ability to create more interactive classrooms despite resource challenges. The study suggests gamification could transform ELT in Cuba.

Keywords: Cuban teacher trainees, English language teaching, Game-based learning, gamification, vocabulary learning.

1. Introduction

In many countries, English serves as a global lingua franca. It often serves as a link for communication between different cultures. As a result, proficiency in English has become a valuable skill. It is also a necessary skill, especially for students of English as a Foreign Language (EFL) or English as a Second Language (ESL). Numerous studies (Zohud 2019; Dehghanzadeh 2021) have explored effective ways to develop them. For instance, Guo (2022, 40-42) argues that mastering the language opens up different opportunities. These opportunities include academic growth, enhanced career advancement, and social discussion.

In this context, learning institutions aim to provide comprehensive educational experiences that enhance their communicative competence. This comprehensive approach not only facilitates students to communicate effectively, but it also promotes critical thinking and cultural awareness. This preparation is

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essential for the complexities of today's world. To achieve these goals, educators are encouraged to adopt innovative teaching methods (Lan 2020, 1–26).

1.1. English language learning education in Cuba

Cuba has included the teaching of English as a second language in various subsystems of education. Recently, the system has undergone significant changes. These changes are part of the Third Educational Revolution. The aim is to improve the quality of education in terms of knowledge, skills, and values for students. Therefore, several programs and actions have been implemented to increase the quality of the teaching-learning process.

For example, in Higher Education, the teaching of English is necessary for the comprehensive development of future professionals. Moreover, it promotes their integration into different areas of society. English language, as part of the curriculum, is taught from the first year until the 4th with different syllabi to foster learning of the main elements of the communicative skills: writing, speaking, reading, and listening. The main objective of this subject is to develop communicative competence (Delgado and Valdés 2024). In this context, there is an increasing emphasis on ensuring that future professionals are well prepared, not only in their specific careers but also in essential skills such as foreign languages, especially English. This is a significant requirement in the Curriculum, enabling students to develop practical skills like understanding spoken and written English, communicating naturally, and writing about topics related to their careers (Rey 2018).

To strengthen how future professionals develop strong English language skills, several researchers (e.g., Van and Dávila 2018) have dedicated their work to enhancing the English language in Cuba. In this regard, the training of foreign language teachers, specifically English language ones, has always been a paramount activity in the development of the educational policy carried out by the Cuban government. It also becomes imperative to enhance the quality of Cuban English language professors to make them competent communicators and educators.

2. Gamification and teaching

Gamification introduces game elements into contexts that are not a game environment, such as learning. By incorporating aspects such as competition, incentives, challenges and progress tracking it aims to foster fun and engagement with the course. Drawing on the concept of gamification, Deterding et al. (2011), Kap (2012), and Werbach (2014) describe gamification as a strategy that involves game

design elements into contexts where games are not typically expected to be used. In this regard, Kap (2017, 10) defines gamification as “using game-based mechanics, aesthetics, and game thinking to engage people, motivate action, promote learning, and solve problems.”

Gamification encourages active participation by incorporating elements such as leaderboards, level points, badges, progress tracking, reward systems, avatars, and social interaction. These elements are important because they facilitate keeping people motivated, which is the main goal of gamification. Studies conducted by Sailer et al. (2013, 28–37) explain that certain activities are built using specific design patterns, which include various elements or components.

Applying gamification to language learning transformation provides the possibility to make language learning active and interactive. It is an important tool to encourage knowledge acquisition, retention, and motivation (Abdullah 2020; León-Flores 2022; Cruz et al. 2023; Wulantari 2024; Penuh 2024). Consequently, integrating gamification into English learning can enhance the enjoyment of activities, improve the learning experience, and increase satisfaction for both teachers and students. By incorporating game-like elements allows instructors to more effectively achieve their teaching. Generally, students tend to perform better when they receive feedback.

Researchers have shown that gamified activities can increase student engagement and reduce common anxieties associated with language learning. For example, Barcombe and Cardoso (2020) stated that to increase students’ interest and motivation, they must be meaningfully engaged in the learning process. This is achieved through a combination of interactive activities, practical applications, and personalized learning that matches individual goals and interests. Almusharraf (2023) emphasizes that fostering this engagement can lead to significant improvements in students’ learning performance.

For English teachers, a strong vocabulary is essential for creating effective teaching methods and improving communication skills. In Cuban Foreign Language Programs, students are required to learn new vocabulary in a meaningful way, rather than just memorizing words. This involves understanding word forms, uses, and meanings in real-life situations, including recognizing spelling, pronunciation, and grammar.

Nation (2001) explains that word knowledge includes three aspects of vocabulary that learners should possess: form, meaning, and use (see Figure 1) The form refers to how the word appears in both spoken and written forms, its morphological components (such as roots and affixes), and its relationship to other words within a word family. This is essential for both recognition and production. The meaning focuses on the relation between the form and its underlying concept.

The use encompasses the grammatical functions of the word, its typical collocations (words it often appears with), and the constraints on its usage, such as register (formal or informal) and frequency. Together, these three dimensions provide a comprehensive framework for understanding and mastering vocabulary, which is fundamental for effective language use.

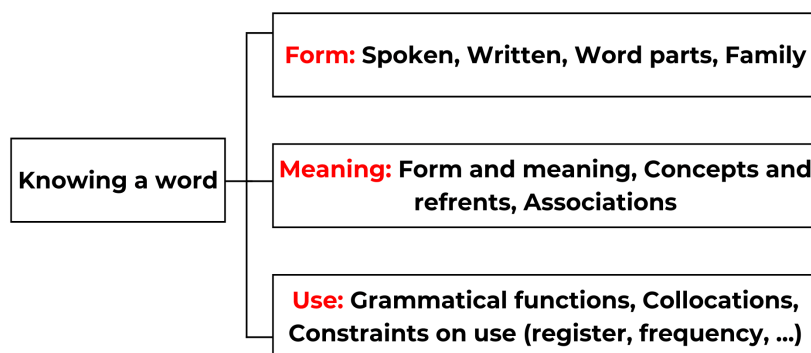


Figure 1. The three dimensions of knowing a word (Nation 2001).

2.1. Addressing vocabulary learning difficulties in ESL contexts

Although gamification has not yet been introduced in Cuba, Nation's framework offers valuable guidance as a linguistic competency. It could provide the designing of gamified activities that enhance vocabulary learning by making it interactive and enjoyable. For instance, games can support vocabulary learning in terms of form by encouraging students to identify correct spelling, pronunciation, or word structures. This might involve linking sounds to written words or completing word families. Similarly, gamification can reinforce vocabulary meaning through activities like associating words with images, quizzes, and interactive challenges. These help students solidify their understanding of word concepts. Regarding vocabulary use, students can engage in role-playing, simulations, and sentence-building exercises. These activities allow them to practice how words function in different contexts, including grammar, collocations, and varying registers.

The Cuban Foreign Language Program is in charge of training English teachers across all educational levels. In other words, they must show a wide command of the general and particular didactics, as well as the linguistic and cultural contents to be an advanced user of the target language. Due to the priority given to oral skills overwriting, students in these programs often have less competence in written communication. Additionally, they frequently encounter academic words in abstract

or unfamiliar contexts, making it difficult to understand or use them correctly. At the same time, the traditional approach to language learning has often been seen as confined to the conventional classroom environment, where students engage in repetitive activities and learn vocabulary mechanically. However, there is a growing interest in exploring new methods that integrate technological competencies and innovative teaching strategies to improve language learning. In response to these limitations, one essential approach that has increased attention for enhancing vocabulary learning in foreign languages is gamification.

Building on this idea, this study explores the potential of game-based learning (GBL) and gamification to enhance English Language Teaching (ELT) in resource-limited Cuban contexts, focusing specifically on Cuban student teachers' engagement, motivation, and vocabulary learning.

3. Research methodology

A mixed-methods approach, combining surveys and interviews, was chosen for a comprehensive analysis. The study involved 98 English teachers from four universities in the central region of Cuba. These participants were selected based on their enrolment in The Foreign Languages Program and their voluntary interest in taking part in the study. To gather data, a structured questionnaire was developed to assess teachers' opinions on four key areas: their technological competence, perception of gamification, its impact on student engagement, and their readiness to experiment with gamified approaches in the classroom. Additionally, 24 students were chosen from the foreign language program at the University of Ciego de Avila. Specifically, these students, aged 21 to 23, included 16 girls and 8 boys who are in their third year of a foreign language major to carry out the activities. The study is conducted in two phases over the academic term. Phase 1, from September to November 2024, involved a 14-week course that employed conventional teaching methods. This instruction focused on lectures, textbook exercises, and traditional assessment techniques. Phase 2, from December to February 2024-2025, gamified learning is introduced for 13 weeks (see Figure 2). These interventions incorporate essential elements like rewards, levels, puzzles, challenges, progress monitoring, and collaborative activities on platforms such as ClassDojo. The researcher will compare the improvements in language learning between the traditional and gamified teaching phases. This comparison aims to determine whether gamification leads to a significant improvement in language skills, engagement, and motivation compared to traditional teaching methods.

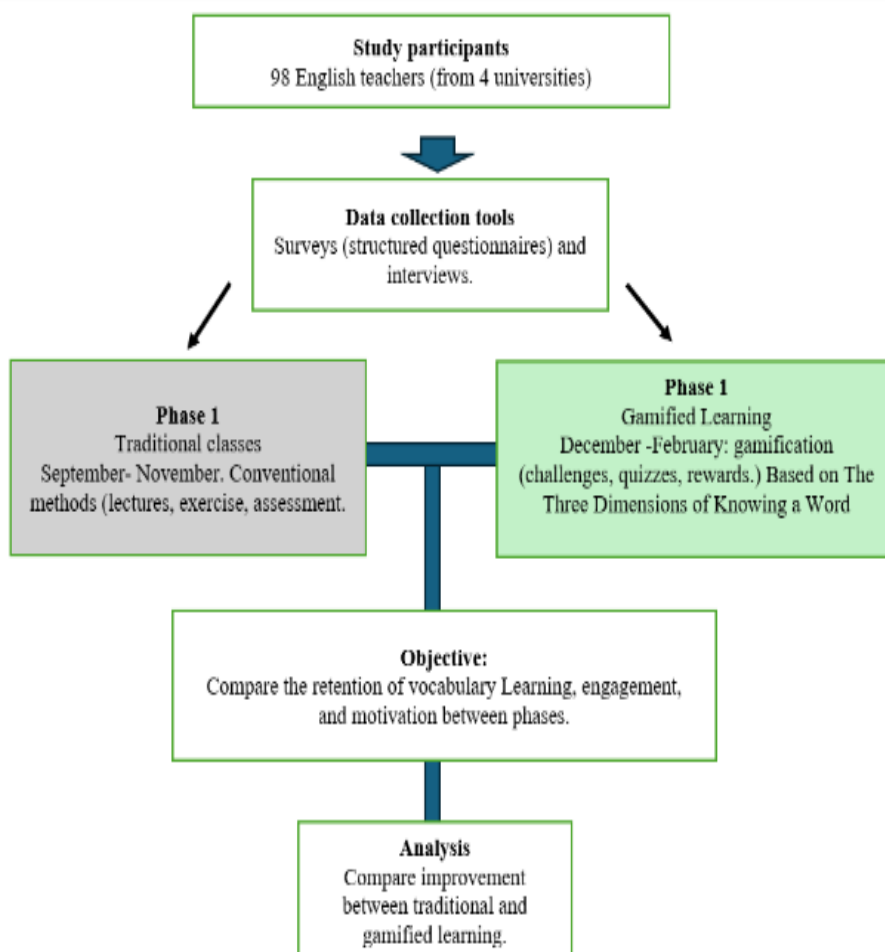


Figure 2. Gamification enhances vocabulary learning: A comprehensive mixed-methods study

4. Findings and contributions

4.1. Gamification for enhancing vocabulary learning

The study on gamification's role in English Language Teaching (ELT) in Cuban classrooms reflects similar patterns observed in other developing regions (see Table

1). Across these studies, game-like elements in education are reshaping student engagement, vocabulary learning, and motivation in significant ways. To begin with, the Cuban context reveals that gamification is a powerful tool for enhancing student motivation and engagement.

For instance, research from Ecuador (Gortaire 2022) where Kahoot! was used as a learning platform demonstrates that gamified vocabulary activities made learning more enjoyable and interactive for both teachers and students. Similarly, in China, activities like “Jeopardy” and other competitive games encourage repeated practice, fostering continuous motivation (Lui 2017). Together, these studies illustrate how well designed gamified activities sustain student interest and focus, transforming classroom dynamics into practical ways.

Regarding vocabulary retention, the Cuban Foreign Language Program aims to highlight how gamification can positively impact memory and word retention among teacher trainees, this is supported by findings from other regions, such as Chile (Cancino and Fonseca 2021), where basic, low-cost games such as card-based activities proved effective without advanced technology. Furthermore, a study in Negeri by Sultan (2024) showed mixed outcomes with card games, noting that while gamified tools such as points and instant feedback led to short-term retention, their impact on long-term retention was inconsistent. In contrast, research from Turkey (Sadeghi et al. 2022) found that although gamification enhanced students’ motivation, it only modestly improved vocabulary retention.

These findings suggest that gamification’s effectiveness might depend on the design and availability of activities, especially for sustained vocabulary gains. In resource-limited Cuban classrooms, this underscores the need to adapt gamified tools specifically for long-term impact. Therefore, gamification does not necessarily require high-tech resources to be impactful. It focuses on creative game design and contextually relevant activities that can boost student learning and enjoyment even in low-resource settings.

Finally, teacher adaptability plays a critical role in the successful implementation of gamification. Although Cuban and Ecuadorian teachers expressed positive perceptions of gamified learning, generational differences in attitudes toward digital tools sometimes influenced how readily these methods were adopted. Thus, tailored training programs or a gradual introduction of gamified methods could help teachers feel more comfortable with these techniques. This is particularly relevant in countries like Cuba, where limited digital infrastructure can challenge the adoption of new educational tools. Overall, this Cuban study, together with similar research from other developing nations, suggests that gamification can significantly enhance ELT by fostering motivation and engagement in resource-constrained environments.

4.2. Educational level for gamification implementation

The study revealed that gamification can be applied to learners of all ages from different educational levels. Moreover, a gamification approach has been helping international students learn foreign languages (Săftoiu, Nechifor, Burbea, and Căpeneață 2022). In addition, gamification has been applied to other age groups, such as in teaching vocabulary in primary school foreign language classrooms (Pohl 2009), and in secondary education (Khan et al. 2017). However, it has been most commonly used with university students.

In this sense, research conducted by Pelizzari (2024) shows how gamification can transform higher education's traditional methods and practices by enhancing student engagement, motivation, and learning outcomes. Gamification has been most commonly used with university students for several reasons: they typically possess the maturity and cognitive skills required to engage deeply with complex gamified systems. They can handle complicated game mechanics and understand abstract concepts that might be too challenging for younger students. At the same time, students are often more self-directed and motivated to learn independently.

For Cuban English teacher trainees, gamification can enhance student engagement and motivation by providing them with an understanding of its mechanics and benefits. This practical experience can better prepare them to introduce gamification in their future classrooms, enhancing their teaching methods and making language learning more effective for their students. Additionally, gamification can inspire trainees to adopt innovative teaching methods in their future careers allowing them to integrate gamified activities into their lesson plans, making English learning more interactive and effective for their students.

4.3. Teacher's perceptions towards gamification

The effectiveness of gamification implementation depends on how teachers perceive these resources and incorporate them into their classroom routines. In the study, 98 English teachers were surveyed regarding the potential for introducing gamification into the English classroom in Cuba. These findings are further supported by reflecting on teachers' technological competencies, specifically their confidence and ability to use gamification in the classroom. The concept of gamification is presented as a strategy to add fun to the learning process for students. Additionally, the study explores teachers' readiness to experiment with gamification, specifically their receptiveness to its implementation (see Table 1).

The successful implementation of gamification requires a certain level of comfort and skills with digital tools and interactive platforms. However, the data

reveals a significant gap in teachers' self-reported technological proficiency. Only 15% of the respondents consider themselves highly proficient in using gamification technologies, while 23.5% rate themselves as having average proficiency. A notable 61.5% of respondents acknowledge having a low level of proficiency. This highlights an insistent necessity for professional development and training initiatives to connect with this technological divide, as a lack of proficiency could hinder the effective adoption of gamified approaches in classrooms. Teacher feedback demonstrates these difficulties more clearly. For instance, one teacher mentioned: "I understand the potential in gamification, but I have a lack of confidence in using digital tools effectively." Another teacher expressed concerns about the learning curve, saying: "It's challenging to incorporate something new when you're not fully comfortable with the technology." Such responses underscore the necessity of skill-building programs to empower educators to use gamification confidently.

Teachers' attitudes towards gamification are crucial to its implementation in the classroom. From the data, it is possible to conclude that teachers' opinions can be bifurcated. On the positive side, 39.8% of the teachers who participated in this study have a positive attitude towards gamification, as the approach offers significant possibilities of enhancing students' interest and performance. One teacher noted: "Gamification could transform how we teach; it's an excellent way to make lessons more interactive and enjoyable." Conversely, 39.8% of teachers recognize the potential advantages of gamification but have notable concerns about its practical implementation. They believe in the benefits of gamification and, at the same time, express considerable doubts concerning its application. Finally, 20.4% of teachers report limited experience with the effectiveness of incorporating games into traditional lessons. This lack of familiarity can lead to doubts about the potential impact of game-based elements on student learning and the classroom environment.

Another criterion closely related to the use of the gamification approach in learning is the ability to increase engagement among students. 50% of the interviewed teachers believe that through gamification, students' participation is enhanced as well as the whole classroom atmosphere. 29.6% of educators notice moderate changes in engagement, and 20.4% find a minimal impact. These findings pointed to a perception that in an appropriate manner, gamification is able to change the face of learning to make it an interesting session.

The most promising result of this research work is that teachers are interested in trying out changes based on gamification. 59.2% of teachers express a positive attitude toward experimenting with gamification, indicating a strong inclination to adapt new methodologies that could enhance teaching and learning. One respondent commented: "I'm excited to try gamification in my classroom. It feels like a way to influence students in a format they enjoy." 25.5% reveal a certain degree

of readiness to experiment, while 15.3% express a preference for traditional methods, with one teacher stating: “I prefer traditional methods because they have proven effective, and I worry gamification might reduce rigor.” This suggests that, beyond technological expertise and appreciation of gamification, a vast majority of teachers are receptive to change and emergent practices in classrooms.

	Indicators	High	Average	Low
1	Technological competence	15(15%)	23(23,5%)	60(61,5%)
2	Perception of gamification	39(39,8%)	39(39,8)	20(20,4%)
3	Impact on engagement	49(50%)	29(29,6%)	20(20,4%)
4	Readiness to experiment with gamification	58(59,2%)	25(25,5%)	15(15,3%)

Table 1. Assessment of technological competence and gamification perception

The overall findings concerning perceived gamification by English teachers in Cuba are consequently a combination of optimism and dilemmas regarding its applicability in classroom learning (Figure 3). Most educators surveyed view gamification as an effective strategy for enhancing learning, indicating a general perception of the strategy among educators. Further, it is possible to observe that teachers are ready to play a role in using gamification elements in the classroom, as the willingness score is quite high. However, the research also discovers a set of concerns that presents a series of urgent needs for developers of staff development programs aimed at narrowing these gaps in the technological competencies of teachers. Future research must define when and how it is possible to integrate gamification most effectively, and how to respond to distrustful attitudes.

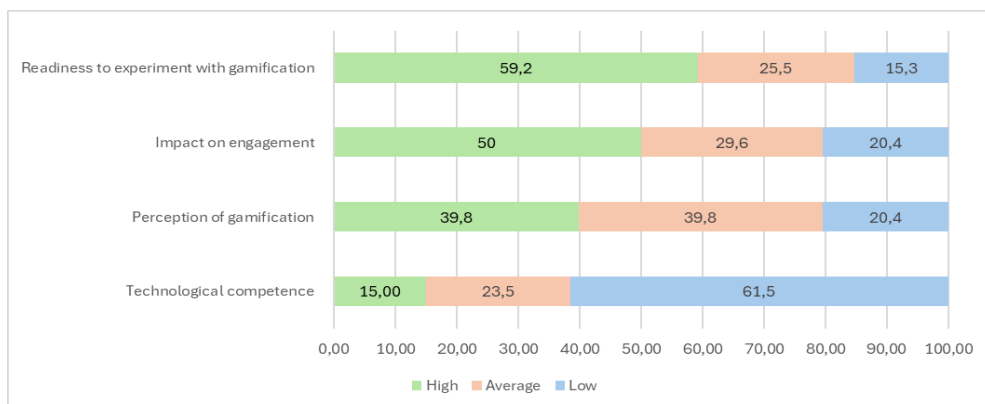


Figure 3. Assessment of readiness, impact, and technological competence in gamification

5. Limitations

This study provides potential benefits; however, certain limitations may affect its generalizability and applicability. Firstly, the research was conducted in an environment with limited resources and access to modern technology. As a result, the gamification elements are used only in limited forms, such as low-data platforms like ClassDojo, which could influence the outcomes. Consequently, the results regarding gamification in Cuban classrooms might differ from those observed in other educational contexts with more advanced technological resources.

Additionally, the study was also limited to self-reported teacher data, which could introduce biases. Teachers might underestimate their technological skills or may not be fully prepared for gamification. While surveys and interviews provide valuable insights into teacher perspectives, incorporating objective measures of student engagement and outcomes could enhance the credibility and depth of these findings.

Another important consideration is the short duration of the study, which limits the ability to assess the long-term effects of gamification on vocabulary retention and language proficiency. While the current approach can facilitate more insights than what is currently available, it is important to note that the proposed gamified activities are currently not yet fully implemented, nor is the comparative analysis between traditional and gamified approaches. By extending the observation period and focusing on both short-term and long-term impacts, future research could offer a more comprehensive understanding of how sustained gamified instruction influences language learning and teaching effectiveness over time.

6. Conclusion

This research highlights the potential of gamification and game-based learning (GBL) to transform English Language Teaching (ELT) among Cuban student teachers, especially in resource-limited contexts. The teachers' positive experiences emphasize the value of gamification making learning more interesting and effective. Despite these benefits, the study also identified challenges, such as the requirement for initial technology training and ongoing support, suggesting that successful implementation requires adequate preparation and resources. In particular, when technology is available, platforms like ClassDojo offer a practical way to bring gamification into the classroom. By incorporating elements like points, rewards, and challenges, these tools make learning more engaging without requiring many data or advanced tech. This makes ClassDojo particularly well suited to classrooms where resources are limited, but there is still access to basic devices, ensuring that

gamification can be implemented even in less tech-rich environments. As evidenced by teachers' perceptions, it can be concluded that they support the introduction of gamification in Cuban English lessons. In addition, teachers can improve their English teaching skills and create a good atmosphere through game-based learning. The implementation of game-based learning and gamification contributes to the expanding literature. These strategies highlight their applicability and effectiveness in the Cuban educational context. By implementing these innovative teaching methods, Cuban educational institutions can enhance the effectiveness of English language teaching and produce more qualified and motivated teachers to meet the demands of modern education.

Looking ahead, future research should investigate a variety of directions. First, conducting a longitudinal study would offer insights into how gamification affects vocabulary retention and language proficiency over extended periods. Moreover, the study could be extended to other technological tools beyond ClassDojo and even more sophisticated game mechanics. It would also be helpful to explore the degree of gamification for other language competencies (speaking and listening). Future research may also examine professional developments such as technology integration or how to incorporate gamification skills into teaching practices. A final consideration, a comparative study between several countries having different technological means might provide useful evidence of resource dependency on gamification effects and guide less advanced nations through the specific challenges that Cuba is facing.

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