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Gamification Techniques and the Impact on Motivation, Engagement, and Learning Outcomes in ESL Students

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ABSTRACT: Gamification has been used in numerous apps for commercial purposes for years and shows great potential in various educational settings, particularly for ESL students in low-resource contexts using online platforms. Given that, gamification may be a handy tool for language teachers, whether in online or face-to-face settings. This has led to a growing focus in recent research examining how the technology can keep students motivated and engaged and the educational settings that benefit the most from this approach. This review focuses on literature published in the last eight years regarding gamification and its impacts on student motivation and engagement, with a particular interest in its potential for teaching English as a second language (ESL). The methods used comply with the SANRA scale for the quality assessment of narrative review articles. Keywords included gamification, ESL, low-resource settings, student engagement, language learning, and educational technology. Databases searched included JSTOR, PubMed, and Google Scholar. The resulting articles were then reviewed for relevance to the topic. Inclusion criteria eliminated articles older than ten years, those not published in English and full-text format, and those not focusing on gamification as a learning tool. The results indicate that gamification is an effective tool in the ESL classroom, whether conducted online or face-to-face. It is essential to ensure that materials are culturally sensitive, include both collaborative and individual tasks, and that teachers receive appropriate training in using this technology.

KEYWORDS: gamification, ESL, low-resource settings, student engagement, student motivation, language learning, educational technology and curriculum design

Introduction

Technology has become very popular in recent years to encourage positive behavior. One of the most popular approaches is gamification, which involves gaming features like feedback, points, storytelling, leaderboards, quizzes, and rewards (Zhang and Hasim 2023; Rodrigues, Oliveira, and Rodrigues 2019). Nowadays, gamification is used for different aspects of life, like exercise, education, and consumer behavior, which establishes that gamification is a trending socio-technological phenomenon associated with employment and social interaction (Hamari and Koivisto 2015). Gamefulness is associated with the critical features of gamification, which is making the service fun, like playing games. Although gamification is designed to make people engage in positive behavior, its primary

purpose is to promote positive outcomes, such as improving health or reinforcing certain behaviors. While much research is being done to find the effects of gamification, more evidence is still needed on what encourages people to engage in it and how it impacts their thoughts and behaviors. This could indicate the need for more theoretical research into the phenomenon (Hamari and Koivisto 2015)

Gamification started its journey in the digital media industry around 2008 and became a widespread research interest by 2010 (Seaborn and Fels 2015). The primary purpose of gamification is to make any product or service more appealing to consumers and make them use it often. In recent years, gamification has been used to influence human behavior positively in educational and health settings (Kim and Castelli 2021). It has been shown that gaming features linked to software and websites could significantly impact young people's behavior (Chan et al. 2022), and it is becoming prevalent in shaping our behavior and interaction with technology. Gamification facilitates learning through trial and error, fosters decision-making, and positively impacts intrinsic motivation and digital learning opportunities. Some widely used tools in gamification include stories, challenges, rewards, and goal setting to help the learning process become more engaging. Combining these elements in a structured way is essential to making learning fun (Zeybek and Saygı 2024). Several studies have found that gamification boosts student motivation, psychological well-being, and learning experience. Its potential for addressing low engagement in class is significant, as it makes learning more interactive for the students (Cahyani 2016; Cassano et al. 2019; Goehle 2013)

Gamification for ESL instruction has become very popular in non-English-speaking countries (Zhang and Hasim 2023). Although it is used at all levels of studies, it is more prevalent in higher education settings. Gamification in EFL/ESL instruction has many benefits, including improving the learning environment, engaging learning, and promoting comprehensive competence. It also provides immediate feedback, which helps students retain their knowledge better. Although game-based learning is a potential tool for ESL students, success depends on carefully designing gamified features (Zhang and Hasim 2023). At its most successful, gamification transforms students from passive learners to active involvement in their education, significantly reinforcing students' participation in class activities and enhancing overall learning outcomes (Xu 2023).

Keeping students motivated and engaged is a common challenge for teachers in any classroom setting (Cents-Boonstra et al. 2021). Some classes are very large, and it is hard for teachers to interact with all students. Virtual classrooms also struggle with maintaining enough interaction to keep students motivated. Asynchronous online classrooms have the biggest challenge with this. Active learning can help teachers improve learning outcomes in these classroom situations. Advanced technology like gaming can help schools promote interaction between teachers and students, thereby reinforcing the learning process (Wang and Tahir 2020). COVID-19 disrupted the educational system, and most schools shifted to online classes during the pandemic. After the pandemic, there has been a significant increase in online courses (Gopika and Rekha 2023). As a result, schools were looking for new, engaging teaching methods for their students. Gamification became popular among educators during the pandemic and in the post-pandemic environment. Gamified learning is one of the most effective methods for helping students learn compared to online and traditional learning methods. Because it uses interactive teaching methods, gamification makes learning enjoyable and motivating and has a better success rate. Gamification can help learners understand challenging subjects like computer science (Lampropoulos and Sidiropoulos 2024). This review examines how gamification helps keep students engaged and motivated in learning. It focuses on the educational settings that benefit the most from this

increasingly popular technology and analyzes existing data to provide deeper insights into gamification's effectiveness and the specific methods used.

Methodology

This paper follows a narrative review approach, with a search conducted across multiple academic databases, including JSTOR, PubMed, and Google Scholar, using a range of Boolean operators to find relevant studies related to gamification and its impact on student motivation, engagement, and language learning for ESL (English as a Second Language) students.

Search Strategy

The following Boolean operators were used to narrow down the search (Table 1):

Table 1. Search Strategy Using Boolean Operators

Keywords	Boolean Operators
Gamification	"Gamification" OR "Gamified learning"
ESL (English as a Second Language)	("ESL" OR "English as a Second Language") AND "Gamification"
Low-resource settings	("Low-resource settings" OR "Under-resourced environments") AND "Gamification"
Student engagement	"Student engagement" AND "Gamification"
Language learning	"Language learning" AND "Gamification"
Educational technology	("Educational technology" OR "EdTech") AND "Gamification"

The inclusion and exclusion criteria used to select studies for this review are presented in the table below:

Table 2. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Publication Date	Studies published from 2016 to 2024	Studies published before 2016
Language	Studies in English	Studies in other languages
Study Type	Peer-reviewed articles, conference papers, reports	Blogs, news articles, opinion pieces
Topic	Studies on gamification in education	Studies not related to gamification in education
Research Method	Both qualitative and quantitative studies	Studies without data or proper research methods
Participants	Students and teachers in education	Studies not involving students or teachers
Focus	Studies on performance, engagement, or language learning	Studies unrelated to these topics

After applying these criteria and removing duplicate studies, 29 studies were selected for analysis. The review followed the SANRA (Scale for the Assessment of Narrative Review Articles) guidelines to ensure the quality of the included studies.

Screening results

A total of 250 articles were retrieved, out of which 29 met the selection criteria. Figure 1 illustrates the study selection process for inclusion in this review.

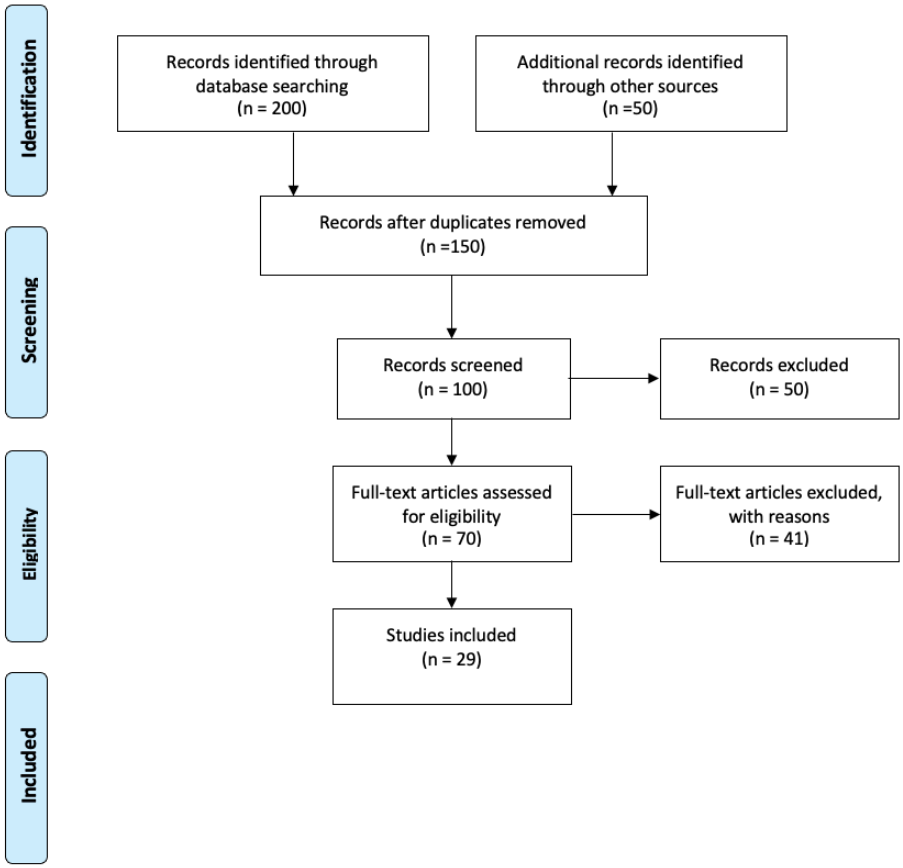

Figure 1. **Figure 1: (PRISMA-ScR) Diagram of the Included Studies**

Result and Discussion

The Impact of Gamification on Student Performance and Engagement

Wiggins (2016) conducted a study among teachers in higher education settings in Arkansas in the United States. The study aimed to find how instructors use games in university classes. The author found that most instructors who use gamification preferred role-playing and board games, which indicates that non-digital games are more common than digital games. The author also found that 17% of instructors do not use games in the classroom. The term "gamification" was known by around half of the participants, and while the other half did not know the term, many knew the strategies of gamification. A few teachers used gamification for graded assignments, and they mainly used non-digital methods. Thirty-two percent of the participants responded to the survey, with 57% reporting familiarity with 111 various gamification strategies. This shows that gamification methods are popular in Arkansas (Wiggins 2016).

Moreover, gamification has been shown to improve student performance. For example, students in a cell biology class showed a whopping 40% improvement in their performance with gamification techniques. Educational tools like '"chess" are valuable games for teaching mathematics (Malvasi, Gil-Quintana, and Bocciolesi 2022). The authors conducted this study among 4,845 students, 68% of whom knew how to play chess, and 75% did well in math class. Playing chess can also improve students' logical reasoning and problem-solving skills. Students also learn valuable skills like teamwork when participating in games requiring teams. Gamification techniques show great potential for enhancing learning strategies, emotional intelligence, and motivation. It is possible they can even help reduce the dropout rate in schools. Research conducted with 187 students in China shows that students' confidence and intrinsic motivation increased with gamification. The students were more focused and committed since they found the games fun. The finding emphasizes the need to design fun gaming features for educational settings to create an effective learning environment (Chen and Liang 2022). Still, more research is needed to fully understand gamification's effectiveness (Rapp et al. 2019).

Another recent study found that 79% of students know about gamification, and more than 70% of students and teachers acknowledge the benefits of gamification in education (Bhatia et al. 2023). Around 60% of participants emphasize that gamification helps them stay engaged in the classroom, and over 61.8% of students feel gamification works as a reward method for learning. The research also indicates that mental stimulation is higher when using gamification in learning, and more than 60% of students feel it helps build a rapport between students and teachers. This study also found that 28.2% of students feel bored in non-gamified classes. That may reflect the trend of using gamification in other areas outside of education, to which younger students are regularly exposed. One study found that younger participants were more willing to use and adapt to game-based learning than older individuals (Bhatia et al. 2023), which likely reflects the ubiquity of the technique in modern life. Another study found that 74% of students like game-based learning in their English classes, and 97% believe using gamification positively impacts their learning. It is time-consuming for teachers to prepare and manage the skill; however, using games motivates students and makes learning more enjoyable, making it worthwhile (Bendo and Erbas 2019).

Language Learning and Gamification

Gamification has excellent potential for language learning. Pham (2023) conducted a study with 63 ELS students using two groups: one group of 33 students used "quizzes on Quizizz," while the other 30 took the same quizzes using paper. Although both groups significantly improved, Quizizz had a better English outcome, which suggests that Quizizz could be helpful for ELS students. Language games are crucial in improving speaking ability by making practicing the language more enjoyable (Kaur and Abdul Aziz 2020). Specifically, students can practice the language in a relaxed environment, which promotes a greater sense of achievement. It also helps students cope with nervousness (Kaur and Abdul Aziz 2020), which fosters a positive attitude toward learning a language. Teachers who use games in the classroom find that it helps them achieve learning objectives. In sum, gamification boosts students' confidence, encouraging them to take learning risks and stay motivated.

Gamification helps ESL learners by motivating them to keep going, which fosters critical language skills. It also facilitates technological abilities and supports language learning (Laura-De La Cruz et al. 2023). For ESL students, gamified language learning methods have many possible iterations. For example, video games significantly increase

vocabulary and pronunciation (Winaldo and Oktaviani 2022). As many teenagers started playing video games in recent decades, video game characters have become a part of the culture and an essential element of how video games facilitate communication to benefit ESL students. Many video games have internal backstories, by which players often participate in online discussions with other characters. Using the character allows the ESL student to remain anonymous in a way that helps them interact more fearlessly by enabling them to take learning risks they might not take in a traditional classroom setting. Gamification makes learning enjoyable for students Learning English as a Second Language (LESL) (Dehghanzadeh et al. 2021). The authors found that a gamified environment positively correlates with student engagement, motivation, and satisfaction. Technology-based games enhanced student language skills, engagement, and motivation (Winaldo and Oktaviani 2022; Azzouz Boudadi and Gutiérrez-Colón 2020). They can foster a stimulating environment for ESL students to acquire foreign language skills. Gamification, such as video games, clearly has much potential for ESL learners. However, replacing traditional language learning methods is challenging for a few reasons, not the least of which is the need for more resources in educational institutions (Winaldo and Oktaviani 2022). Inadequate school resources are one of the most significant challenges for Digital Game-Based Learning (DGBL). Updating digital equipment, educational software, and sufficient technology training is necessary. This study indicates that institutions can focus on affordable devices and updating the school policies and curriculum to help mitigate the challenges (Kaimara et al. 2021).

The Role of Gamification in Writing, Speaking, and Vocabulary Acquisition

Gamification has a vital role to play in these language-learning areas. Students become more engaged and creative if teachers use digital games in writing lessons (Bal 2019). They become very interested and enjoy the process, facilitating teamwork and writing abilities like grammar and punctuation. For vocabulary learning, traditional learning methods emphasize memorization, which leads to much stress and is often not very effective. Gamification utilizes engaging activities, like memory matching, where gamers must match the word to its definition. These games make vocabulary learning fun and enhance understanding, making them more suitable for better memory retention of new words (Xu 2023). For English reading skills, traditional grammar learning, which mainly depends on textbooks, often needs to be more abstract for learners to apply in real-life situations. Gamification has features that provide context-rich environments and interactive tasks, such as challenges and quests, that facilitate better critical thinking and comprehension as they help improve reading abilities. However, we must understand that gamification could become a distraction rather than an effective learning tool if not correctly implemented (Xu 2023).

Both external and internal challenges ESL learners face in speaking English. Lack of confidence, limited vocabulary, and anxiety play a role in internal challenges (Kashinathan and Abdul Aziz 2021). An external challenge is the lack of opportunity to practice English. Because of these challenges, learners often try to avoid conversations in English, negatively affecting their language learning. To compete internationally, ESL students must overcome the challenges in the learning process. Traditional learning methods make it difficult for ESL students to learn, especially speaking English, as they focus on grammar and textbook instruction. While this is good, ESL students must practice speaking and engaging in real-world conversations to improve their language fluency. Mobile-assisted language learning (MALL) could help ESL learners enhance their language skills and learn from a stress-free learning environment. Examples of

MALL include instant messaging apps where teachers can have students message each other in the language they are learning. They can also use social media sites to observe authentic conversations and practice social interaction. They can use their phones to produce content in the target language that is more relevant to their lives. That increases their motivation and engagement to improve their skills (Kashinathan and Abdul Aziz 2021).

If students learn grammar using games, it is more effective than traditional grammar learning (Ghafar and Sawalmeh 2023). Language games help ESL students learn grammar by providing a relaxing environment, thus reducing their inhibitions. The games also help students use grammar in real-life situations, which is more effective than rote memorization. It makes learning grammar more enjoyable if the games are fun and students can interact with each other. That helps increase motivation and create positive attitudes, leading to a more profound learning process (Pham 2023). While some teachers still favor traditional methods, language games significantly benefit modern teaching methods. For example, students made fewer grammar mistakes using gamification in language learning than those using traditional learning methods (Lin et al. 2020).

Educational Apps and Game-Based Learning Tools

There has been a proliferation of educational apps and game-based learning tools over recent years. Rachels and Rockinson-Szapkiw (2018) conducted a 12-week quasi-experimental study to determine if using the Duolingo app would help improve Spanish language skills among third- and fourth-grade students. Two groups were formed: one was the treatment group, and another was the control group. For the Spanish lesson, the treatment group used the Duolingo app, while the control group did not use any apps; they continued to use traditional learning methods that included English-to-Spanish classroom activities. A pretest and post-test of 50 questions were conducted for both groups to determine their Spanish language skills. A particular questionnaire assessed students' self-confidence in the learning process. After data analysis, the researchers found no significant difference between the treatment and control groups, as both groups did the same in language achievement and students' confidence in learning. This indicates that the Duolingo app has the same potential as traditional learning methods for language learning classrooms (Rachels and Rockinson-Szapkiw 2018).

One of the most popular interactive games is Kahoot! It is a game-based student response system (GSRS) released in 2013, and each month, it has 70 million active users. In the USA, it is used by 50% of K-12 students. The program allows a teacher to create a game for the subject matter of their choice. They can also create trivia games or quizzes to test learning. Users see the questions on a shared screen but answer them on their devices. It is a widely recognized tool that 2.5 billion people have used in over 200 countries as of 2019. Schools use it to enhance student engagement in the classroom and create a dynamic learning environment, which helps to reduce anxiety among students. It has a positive influence on learning processes and classroom dynamics, both for teachers and students (Wang and Tahir 2020; Wang 2015). Additionally, Wang and Tahir (2020) found that 75% of students reported they have learned from using Kahoot! Moreover, this game-based system motivates students and improves engagement, which lasts even after using the game for more than five months. The game's competitive nature and immediate feedback help students retain learning (Wang 2015).

Quizlet's game-based features are easy to use and require minimal setup (Bayaksud, Putu Dian Danayanti Degeng, and Khairil Azwar Razali 2024). Multimedia interactions, such as color selection and different pictures, help students stay motivated

to participate in the classroom and learning process. These features also made learning interactive for the students and improved retention of the information. The study participants were positive about using Quizlet and noted that Quizlet has some competitive elements, which can be completed by individuals or in a group setting. Another technology software is Azota, which helps teachers with assignments, exams, and grades. This user-friendly software can be used on various platforms, like Windows and iOS. Azota is used in many schools, and studies have found that students use both pre-and post-tests. The assessments that Azota completes have 15-20 multiple-choice questions for practicing grammar (Pham 2023). About 7.7% of teachers use Azota to create and grade assignments and exams online. Teachers found it an effective tool, though the analysis by this author indicates that Azota works best when combined with other tools like "Google Forms" or "K12-online (Tu 2022)."

The Cognitive and Social Impacts of Gamification on Education

Promoting student competition using gamification can motivate students; however, it can also cause them to focus more on individual achievement (i.e., be more self-centered) rather than group collaboration (Subhash and Cudney 2018). Working individually is associated with becoming less inclined to interact with peers, which could negatively affect the dynamic of the learning environment. This is also associated with a sense of isolation, which will foster anxiety among students, and therefore, teachers should closely regulate competitive behavior to ensure a supportive learning environment. This could be done by designing features that reward personal and collaborative efforts; students should collaborate to achieve a common goal and use individual tasks that could be part of a competitive context (Subhash and Cudney 2018).

Active and reflective learners were highly engaged when gamification was used. The author conducted a study with 70 students, of which 45 were active learners and 25 were reflective (Topu 2023). Both student groups showed a high level of emotional, behavioral, and cognitive engagement coupled with a low cognitive load, indicating they were not bored during the learning process. The common themes used were Challenges and Competition, Engagement in Group Tasks and In-Class Activities, Leaderboards, and Reward Systems. Leaderboard and competition activities, however, were the favorites among the participants. Though both types of learners found the games enjoyable, some expressed that gamification caused problems like breaking up friendships. Still, the author concluded that gamification is a powerful learning and teaching approach (Topu 2023).

The role of gamification on first-year medical students to measure brain activity and performance (Mabeta et al. 2020). Two groups were created: one used traditional classroom learning, and the other used gamified learning. The results found that the gamified group did better; the average performance score for this group was 63.4%. The traditional learning group's average performance score was 16.9%. The researcher used brainwave data to show that the gamified group's students had higher attention levels in the classroom (Mabeta et al. 2020). Action games are essential in improving students' attention (Bavelier and Green 2019). This includes selective attention, where players must focus on particular data while ignoring others. Spatial attention, where players need to be aware of the space around them, and sustained attention, where the participants need to keep focused over a period of time. Playing games, especially action video games, is associated with a change in brain plasticity. Games make neural systems active as they provide signals to the brain, resulting in more brain adaptability. Besides being fun, acting in video games also significantly impacts cognitive abilities, which are associated with emotion control and increased quick reaction time.

Gamification also has long-lasting effects on brain functions, such as decision-making, which suggests that it can also help in real-life situations that require quick thinking (Bavelier and Green 2019).

Challenges in Implementing Gamification

Educational challenges in developing countries include poor infrastructure, insufficient resources, and a lack of teachers. Gamification could be the solution by addressing the gaps and making learning accessible and fun (Ghoulam et al. 2024). Using gamified features in the e-learning platform could help students participate actively, leading to a positive learning process in resource-constrained schools. While gamification can help students stay engaged and motivated, we must understand the local culture to ensure that each student gets equal access to the relevant technology. The features connected to gamified elements should resonate with the cultural value, as cultural support and relatable content help motivate students and engage them in the learning process. Policymakers should work on these countries' specific needs to make learning fair and effective. Inclusive gamification is essential for cultural diversity in developing countries. What works in one country or culture may not fit other cultures well. Culture plays a role in accepting diversity, and students' attitudes and engagement are vital factors directly linked with cultural values. Thus, these factors are crucial in students' readiness for digital learning tools like gamification. In some cultures, students seem very engaged in using gamification learning; in other cultures, they are less optimistic. If the gamification features are not designed in a culturally sensitive manner, that could result in stereotyping specific groups of students. Adhering to the policymaker's instructions is essential, and educators should be adamant in ensuring the gamification features are designed accordingly (Ofosu-Ampong et al. 2020).

Conclusion

The literature supports the conclusion that gamification can be an extraordinarily effective tool for motivating and engaging ESL students in their education. It is clear that gamified lessons keep students' attention, motivate them, and help them retain the information they have learned, particularly when it comes to language learning. It is essential, however, to ensure that gamified materials are not solely competitive, as that can result in self-centered behaviors and undermine teamwork. Therefore, games should emphasize individual and group-oriented tasks equally. Teachers can utilize a plethora of tools, such as apps, to gamify the classroom, and the ability to use such tools in an online environment has the potential to increase their educational reach. The challenges to implementing gamification include the need for appropriate resources and infrastructure, proper instructor training in utilizing the resources, and ensuring that materials are culturally relevant and sensitive. Still, in a modern world where technological breakthroughs happen daily, this educational technique holds great promise and is worth more investigation.

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