



Gamification-Based Blended Learning in EFL Classroom: An Effectiveness Study

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Abstract

This study investigates the effectiveness of gamification-based blended learning in improving student learning outcomes in an English as a Foreign Language (EFL) context. The research addresses the challenge of low student motivation and poor academic results in traditional courses. The study employed a pre-experimental One-Group Pretest-Posttest design with 40 students from an English Education program taking an Introduction to Sociolinguistics course. The blended learning approach incorporated gamification through the Wayground platform. The effectiveness of this approach was measured by comparing students' pretest and posttest scores. The analysis, conducted using SPSS Version 30, showed a significant increase in the average student score, from 70.60 on the pretest to 77.75 on the posttest. A paired-samples t-test confirmed this difference was statistically significant ($p < .001$), while a Cohen's d Effect Size analysis revealed a large effect ($d = 0.943$). These findings indicate that the gamification-based blended learning model is highly effective and has a substantial positive impact on students' academic performance. The study reinforces that integrating digital technology and game elements enhances learning and directly contributes to improved student learning outcomes. The results suggest that this innovative approach can serve as a valuable reference for developing effective digital curricula and improving the quality of language learning in higher education.

Keywords: *Gamification; Blended Learning; EFL Classroom; Effectiveness Study*

INTRODUCTION

Higher education continues to evolve in response to advancements in technology and shifting learning needs in the digital era. One innovative approach that is increasingly being applied in education is blended learning, a model that combines face-to-face instruction with online learning (Preceel et al., 2009). This model enables flexibility in learning, enhances accessibility, and fosters broader interaction between lecturers and students. However, the successful implementation of blended learning heavily depends on the strategies used to manage and develop the learning system. In the context of English as a Foreign Language (EFL) classes in higher education, a common challenge is the low motivation of students to attend lectures. Many students view the courses they take as a mere academic obligation without understanding the importance of mastering English for the professional world. This leads to low student

engagement and poor learning outcomes in these courses. Therefore, a teaching approach is needed that can effectively increase student learning outcomes.

Blended learning, also known as hybrid learning, is an approach that combines traditional, lecture-based classroom learning with technology-based learning, specifically online learning (Moskal et al., 2013). Several studies have reported the positive effects of blended learning on students' learning outcomes. Ayob et al. (2023) found that blended learning significantly improved students' academic achievement in higher education. Martin et al. (2022) reported that effective blended learning environments enhanced student engagement and learning outcomes through meaningful interaction and instructional support. In the EFL context, Sari et al. (2023) and Koniah et al. (2024) revealed that blended learning increased students' flexibility, participation, and access to learning resources. More recently, Yu (2025) found that blended learning was more effective than fully online learning in improving students' academic performance, motivation, and satisfaction. These findings suggest that blended learning is an effective instructional approach that supports both academic achievement and active student participation across various educational contexts.

One approach that can be integrated into blended learning is gamification. Gamification is the application of game elements in non-game environments, such as education, with the intention of motivating students during the learning process and maximizing their enjoyment and engagement with that learning process (Jusuf, 2016; Kiryakova et al., 2014). Some common elements used in gamification are point systems, badges, leaderboards, and mission-based challenges. These elements can increase student engagement by providing a more interactive and enjoyable learning experience. Previous studies have shown that gamification can boost student learning motivation, engagement, and academic results (Anwar et al., 2018; Mahfudah et al., 2021; Sanatang & Anandari, 2024; Zaswita et al., 2024; Candra et al., 2026). In this research, the gamification integrated into the blended learning approach uses the Wayground platform (formerly Quizziz). The advantages and applications of this platform in the teaching and learning process have been studied in previous research. According to these studies, students are happy when this application is used frequently in class. The application improves grammar skills and has a greater impact on classes that use it often (Santoso et al., 2023; Sinta et al., 2018; Zhao, 2019).

The research has novelty in several aspects compared to previous studies in the last five years, namely the integration of blended learning with gamification through the Wayground platform in English language learning in higher education. While several studies have explored the use of game-based applications in educational contexts, their main focus has been on the secondary or elementary school levels (Hamsar, 2023; Nugroho et al., n.d.; Putri & Fhatonah, 2021). Some studies on blended learning and gamification in general have been conducted in higher education (Anwar et al., 2018; Mahfudah et al., 2021), but none have specifically focused on English language learning. This research specifically examines the effectiveness of integrating blended learning and gamification through Wayground in improving student learning outcomes. This research expands the scope of previous studies by proposing a model that can be adapted in the development of a digital curriculum to improve the quality of learning in the English Education study program. With this new aspect, this research is expected to be an important reference for the development of innovative learning methods in the digital era and provide new insights into the integration of educational technology in English language learning. Thus, the objective of this research is to test the effectiveness of gamification-based blended learning in improving student learning outcomes.

LITERATURE REVIEWS

Gamification in Learning

Gamification refers to the integration of game-design elements into non-game contexts to increase user engagement, motivation, and participation (Deterding et al., 2011). In educational settings, gamification incorporates elements such as points, badges, leaderboards, challenges, levels, and rewards to create a more engaging learning environment. Unlike game-based learning, which utilizes complete educational games, gamification focuses on applying specific game mechanics to support learning objectives and improve students' learning experiences. The growing interest in gamification has been driven by its potential to enhance learners' intrinsic and extrinsic motivation. According to Self-Determination Theory (Ryan & Deci, 2020), learners tend to engage more actively when their needs for autonomy, competence, and relatedness are fulfilled. Gamification addresses these needs by providing immediate feedback, opportunities for achievement, and social interaction among learners. Consequently, students become more motivated to participate in classroom activities and complete learning tasks.

In language education, particularly in English as a Foreign Language (EFL) contexts, gamification has been widely recognized as an effective instructional approach. Several studies have reported positive impacts of gamification on students' engagement, motivation, and language performance. For instance, Hamari et al. (2014) found that gamified learning environments significantly increased learners' participation and commitment. Similarly, Bai et al. (2021) demonstrated that gamification enhanced students' vocabulary acquisition and language practice by creating enjoyable and competitive learning experiences.

Recent studies have further highlighted the role of digital gamification platforms such as Kahoot!, Wayground, Duolingo, and Classcraft in facilitating language learning. These platforms provide immediate feedback and interactive activities that encourage learners to practice language skills more frequently. Research by Ratinho & Martins (2023) revealed that gamified learning environments improved students' willingness to communicate in English and reduced language anxiety, particularly among beginner learners. Overall, the literature suggests that gamification can serve as a powerful pedagogical strategy to foster engagement, motivation, and learning outcomes in EFL classrooms. However, its effectiveness may be further enhanced when combined with other instructional approaches, such as blended learning, which provides flexible and technology-supported learning experiences.

Blended Learning

Blended learning is commonly defined as the purposeful integration of face-to-face instruction and online learning experiences to achieve educational objectives (Graham, 2019). Rather than replacing traditional classroom teaching, blended learning combines the strengths of in-person interaction with the flexibility and accessibility of digital technologies. This approach enables students to learn both inside and outside the classroom while maintaining meaningful interactions with instructors and peers. The rapid advancement of educational technology has contributed significantly to the widespread adoption of blended learning in higher education. According to Horn & Staker (2015), blended learning allows learners to control aspects of their learning process, including time, place, pace, and learning path. As a result, students can engage in self-directed learning while still benefiting from structured classroom guidance.

In EFL education, blended learning has become increasingly popular because it supports the development of language skills through multiple modes of learning. Face-to-face sessions provide opportunities for communicative practice, collaborative learning, and direct feedback, whereas online components offer flexible access to learning materials, multimedia resources, and interactive activities. Research conducted by Rasheed et al. (2020) indicated that blended learning positively influences students' academic achievement and learner autonomy by encouraging independent learning habits.

Furthermore, blended learning has been shown to improve students' language proficiency and engagement. Kintu et al. (2017) found that students participating in blended learning environments demonstrated higher academic performance than those in traditional classrooms. Similarly, studies in EFL contexts have reported that blended learning supports vocabulary development, reading comprehension, and communicative competence by providing diverse opportunities for language exposure and practice. The integration of digital platforms such as Learning Management Systems (LMS), Google Classroom, Moodle, and Microsoft Teams has strengthened the implementation of blended learning. These technologies facilitate communication, resource sharing, assessment, and feedback processes, allowing learning to continue beyond classroom boundaries. Given its flexibility and learner-centered nature, blended learning has considerable potential for enhancing EFL instruction. When integrated with gamification elements, blended learning may create a more interactive, motivating, and effective learning environment. This combination allows students to benefit from both technology-enhanced learning opportunities and engaging game-based experiences, which may ultimately improve their language learning outcomes.

METHODS OF THE STUDY

The research employed a pre-experimental design, specifically a One-Group Pretest-Posttest design. This design, which lacks a control group and uses a non-randomized sample, was chosen to measure the effectiveness of the experimental treatment. The pretest was administered before the intervention to assess students' initial abilities. The experimental treatment was the implementation of a gamification-based blended learning process. The posttest was then conducted after the intervention to measure students' final abilities.

The research subjects were 40 students from the English Education study program enrolled in the Introduction to Sociolinguistics course. These students were intentionally selected as the sample using purposive sampling, as this group was considered most suitable for the research objectives (Etikan, 2016). All 40 students were assigned to a single experimental class. The preparatory phase also included developing a Semester Learning Plan (RPS) that incorporated gamification using the Wayground application into learning activities. The research instruments included a learning outcome test (pretest and posttest) in the form of a written test. Before the instrument can be used for primary data collection, it is crucial to conduct content validity by relevant experts. For the written test, a senior lecturer in the field of Introduction to Sociolinguistics has validated the instrument to ensure it is appropriate and can accurately measure students' abilities in this course. Additionally, a class account on the Wayground application was created by the researcher.

The study was conducted over eight core meetings. In the first meeting, students took a written pretest tailored to the course material. Following the pretest, students received an explanation of the blended learning mechanism and instructions on how to

use the quiz application. Meetings two through seven were dedicated to implement gamification-based learning. In each of these meetings, the lecturer delivered core material in a face-to-face setting, after which students were directed to participate in an interactive quiz on Wayground at the end of each session. Look at the table below for the details:

Table 1. Summary of Learning Activities During the Intervention

Meeting	Learning Mode	Learning Activities	Gamification Element
1	Face-to-face	Administration of pretest, explanation of course objectives, introduction to blended learning procedures, and orientation to the Wayground platform.	Introduction to points, rankings, and quiz rules.
2	Blended Learning	The lecturer presented the first topic through face-to-face instruction followed by discussion and practice activities. Students completed a Wayground quiz at the end of the session.	Points, instant feedback, leaderboard.
3	Blended Learning	The lecturer delivered the second topic and facilitated collaborative learning activities. Students participated in a gamified quiz using Wayground.	Points, leaderboard, performance ranking.
4	Blended Learning	Face-to-face instruction on the third topic followed by guided exercises and a Wayground quiz.	Points, badges/rewards, instant feedback.
5	Blended Learning	The lecturer presented the fourth topic. Students practiced language skills and completed a gamified quiz.	Points, leaderboard, competition.
6	Blended Learning	Instruction and discussion of the fifth topic followed by a Wayground quiz session.	Points, rewards, immediate feedback.
7	Blended Learning	Review and reinforcement of previous topics. Students participated in the final gamified quiz session.	Points accumulation, leaderboard, achievement recognition.
8	Face-to-face	Administration of posttest and collection of students' feedback regarding the learning experience.	No gamification activity.

Research data were analyzed using SPSS Version 30. A Kolmogorov-Smirnov normality test was conducted before the effectiveness analysis. The effectiveness of gamification-based blended learning on student learning outcomes in the English course was determined using two analysis techniques: a paired sample t-test and Cohen's d Effect Size analysis (Yanto et al., 2022). The paired sample t-test was used to determine whether there was a significant difference between the pretest and posttest data. Cohen's d Effect Size analysis was used to measure the magnitude of this effectiveness. All data analyses were performed using SPSS 30. The effect size value from the Cohen's d analysis was then interpreted using an effect size criteria table to categorize the effect of the given intervention.

RESULTS AND DISCUSSION

Results

a. Pretest and Posttest Score Results

The following are the results of the descriptive analysis and a comparison between the pretest and posttest scores of the students in this study.

Table 2. Descriptive Analysis Result of Pretest and Posttest

Skor	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Pretest	40	30	100	70.60	20.028	401.118
Posttest	40	30	100	77.75	21.321	454.603

The table above shows the results of the pretest and posttest for 40 students participating in this study. Based on these results, the minimum and maximum values for the pretest and posttest scores are 30 and 100, respectively. This shows that the score range obtained by participants remained constant before and after the treatment. However, there was an increase in the mean score from the pretest to the posttest. The average pretest score was 70.60, while the average posttest score increased to 77.75. The increase of 7.15 points indicates an improvement in learning outcomes after the treatment was administered, suggesting that the applied learning model contributed positively to the students' skill enhancement. Furthermore, the standard deviation for the pretest was 20.028, while for the posttest, it increased to 21.321. This shows that the score distribution in the posttest was slightly higher than in the pretest. In other words, there was greater variation in posttest results among students, which may reflect different responses to the learning treatment provided. The variance also increased, from 401.118 in the pretest to 454.603 in the posttest. It reinforces the previous finding that the posttest data spread was slightly wider than the pretest. Overall, these descriptive results indicate an improvement in students' academic performance after the learning intervention, as seen from the increase in the average posttest score.

a. Normality Test of Data

Then, to determine whether the students' learning outcome data above are normally distributed, a data normality test needs to be conducted. The Kolmogorov-Smirnov normality analysis was performed before any further analysis.

Table 3. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual	
N		40	
Normal <u>Parameters^{a,b}</u>	Mean	.0000000	
	Std. Deviation	7.12001848	
Most Extreme Differences	Absolute	.122	
	Positive	.092	
	Negative	-.122	
Test Statistic		.122	
<u>Asymp. Sig. (2-tailed)^c</u>		.136	
Monte Carlo Sig. (2-tailed) ^d	Sig.	.133	
	99% Confidence Interval	Lower Bound	.124
	Upper Bound		.142

Based on the test results presented in the table above, the Asymp. Sig. (2-tailed) Significance value obtained is 0.136. This value is greater than 0.05, which indicates

that the residual data is normally distributed. This is further supported by the "most extreme differences" values, which are within a reasonable range, with an absolute value of 0.122. Additionally, the 99% Monte Carlo confidence interval shows a significance value between 0.124 and 0.142, which remains above the 0.05 threshold. This further strengthens the conclusion that the normality assumption for this data is met. Therefore, it can be concluded that the residual data from this analysis are normally distributed, fulfilling one of the basic assumptions of parametric statistical analysis.

b. Paired Sample T-test and Cohen’s d Effect Size Analysis

After ensuring the data are normally distributed, the next step is to conduct a Paired Sample T-test and Cohen's d Effect Size analysis to determine the effectiveness of gamification-based blended learning on students' learning outcomes in the Introduction to Sociolinguistics course.

Table 4. Paired Samples Test

		Paired Differences					T	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Pretest - Posttest	7.150	7.581	1.199	-9.574	4.726	-5.965	39	<.001	<.001

The results of the Paired Sample T-test indicate a statistically significant difference between the pretest and posttest scores. The analysis showed a mean difference of 7.150 with a standard deviation of 7.581. The calculated t-value was -5.965, with 39 degrees of freedom. Most importantly, the significance (p-value) was less than .001 ($p < .001$). Since this value is well below the standard significance level of .05, we can conclude that the difference between the pretest and posttest scores is highly significant. This finding confirms that the treatment or intervention had a notable effect on the students' learning outcomes.

Table 5. Paired Samples Effect Sizes

		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Pair 1	Pretest	Cohen's d	7.581	-.943	-1.313
	- Posttest	Hedges' correction	7.730	-.925	-1.287

The analysis of effect size was conducted using Cohen's d to determine the magnitude of the intervention's impact. The results showed a Cohen's d value of .943, indicating a large effect size of the gamification-based blended learning intervention. This value is substantially greater than the conventional benchmark of .80 for a large effect, confirming that the treatment was highly effective in improving student learning outcomes. The Hedges' correction value of .925 further corroborates this finding. These results, alongside the significant t-test results, provide strong evidence that the

gamification-based blended learning approach by using the Wayground application had a substantial positive effect on the students' academic performance in the course.

Discussion

Based on the results of the research data analysis, it was found that there was a significant difference between students' learning outcomes before and after the implementation of a gamification-based blended learning approach by using the Wayground application. This is evident from the comparison of the mean scores on the written test in the Introduction to Sociolinguistics course. In the pretest phase, the students' average score was 70.60, while in the posttest phase, it increased to 77.75. This difference in average scores indicates an increase in student learning outcomes after participating in the gamification-based blended learning approach. This increase can be interpreted as evidence that the integration of digital technology with game elements (gamification) using Wayground can support the effectiveness of the learning process, leading to better academic achievements. The findings of this study are in line with the findings reported by Dicheva et al. (2015), who stated that gamification in an educational context can improve academic performance through a more systematic and challenging learning experience. In addition, a study conducted by Ibáñez et al. (2014) also showed that the application of gamified learning environments can have a positive impact on student learning outcomes, especially in technology-based learning. Thus, the findings of this study reinforce the argument that the application of a gamification-based blended learning strategy directly contributes to a real improvement in student learning outcomes.

The results of the paired-samples t-test showed a t-value of 5.965 with $df = 39$ and $p < 0.001$, and an effect size (Cohen's d) of 0.943, which is categorized as a large effect. This indicates that the implementation of gamification-based blended learning is proven to be effective in improving student learning outcomes. These findings are consistent with various previous studies that affirm that integrating gamification in learning can improve students' academic performance. For example, a meta-analysis conducted by Subhash & Cudney (2018) and updated by recent research shows that gamification has a significant positive impact on learning outcomes, especially when designed with a mechanics–dynamics–aesthetics (MDA) approach that can maintain student engagement throughout the learning process. A study by Alsawaier (2020) showed that gamified elements such as badges, points, and leaderboards can increase students' focus and motivation in online environments. Meanwhile, a study by Rofiah & Sari (2021) proved that students who learned through a blended platform with gamification showed a significant increase in English reading and vocabulary skills compared to a traditional model. In addition, Ahmed et al. (2022) found that the combination of blended learning and gamification creates a more adaptive and personal learning experience, which is very effective in language learning.

Furthermore, it was also found in the class that the application of gamification-based blended learning in Introduction to Sociolinguistics courses can improve students' understanding of English well, and also creates a more interactive, enjoyable, and relevant learning experience for the needs of the current digital generation. They also become motivated to attend the class because they know that there was a Wayground quiz after each meeting. This is in line with a study by Santoso et al. (2023) in the Indonesian university environment, it was underlined that students are more motivated to complete tasks and achieve learning goals when the learning process is equipped with elements of competition and digital rewards. Gamification-based blended learning can build students' self-confidence in using English actively in the

classroom. This model not only improves the cognitive aspect but also encourages affection and social interaction in learning (Wijaya & Mahendra, 2024).

In addition, the effectiveness of blended learning in general is also supported by the findings of a meta-analysis that shows that the BL model is superior to conventional learning in improving student performance, attitudes, and learning outcomes (Rifelino et al., 2023). A recent systematic review also confirmed that blended learning contributes positively to student engagement, which in turn correlates with better academic results. In the context of language learning, especially English as a foreign language (EFL), a quasi-experimental study by Al-Azawei et al. (2017) found that integrating gamification in blended learning was able to improve reading skills while enriching the student learning experience. These findings show that the benefits of gamification in blended learning are cross-domain, not only in the Introduction to Sociolinguistics course but also in complex language skills. Thus, the results of this study reinforce previous findings that the application of gamification-based Blended Learning is not only theoretically relevant but also empirically proven to be effective. The significant increase in the average learning outcomes proves that this strategy is worth implementing in higher education, especially in Introduction to Sociolinguistics courses that require active student engagement to achieve optimal learning outcomes.

CONCLUSION

The research confirms that implementing gamification-based blended learning is an effective and empirically proven strategy for improving student learning outcomes in the context of higher education, specifically in EFL courses. The study's findings demonstrate a significant increase in students' academic performance, as evidenced by the rise in their average written test scores from a pretest mean of 70.60 to a posttest mean of 77.75. The Paired Sample T-test revealed a statistically significant difference between these scores ($p < .001$), while the Cohen's d analysis showed a large effect size ($d = 0.943$), further substantiating the effectiveness of the intervention. This model not only enhances cognitive skills but also builds student confidence and fosters a more interactive, enjoyable, and relevant learning environment that is aligned with the needs of the digital generation. The findings are consistent with previous research, which has shown that integrating gamification can boost motivation, engagement, and academic performance. By combining the flexibility of blended learning with the motivational elements of gamification, this approach creates a valuable and innovative solution for improving the quality of language learning in higher education. The significant improvement in learning outcomes confirms that this strategy is worthwhile and applicable for courses requiring active student engagement to achieve optimal results.

Despite the positive findings, this study has several limitations. First, it employed a one-group pretest-posttest design without a control group, limiting the ability to compare the effectiveness of the intervention with other teaching approaches. Second, the study involved a relatively small sample from a single university, which may restrict the generalizability of the findings. Third, the intervention was conducted over only eight meetings, preventing an examination of its long-term effects on students' learning outcomes. Therefore, future research is recommended to involve larger and more diverse samples, apply experimental designs with control groups, and investigate the long-term impact of gamification-based blended learning. Future studies may also explore additional variables, such as learning motivation, engagement, and learner satisfaction, to provide a more comprehensive understanding of the effectiveness of this instructional approach in EFL contexts.

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