Game On! The Effectiveness of Gamified Approaches in Thai Higher Education

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***Abstract*—Despite the growing interest in the use of gamification applications in English language teaching and learning, research on the effectiveness of gamified grammar learning compared to conventional methods and its impact on students' learning enjoyment in the Thai higher education context remains limited. This study employed a quasi-experimental research design and a sequential mixed-methods explanatory design to investigate the learning outcomes and factors that contribute to students' learning enjoyment in a gamified English grammar class. The study involved 52 first-year Liberal Arts and Management students aged 18–20 with A1–A2 CEFR levels. The quantitative data were analyzed using descriptive statistics and Wilcoxon tests, while the qualitative data were examined through thematic analysis. The results showed that gamified grammar learning ($Z = 4.32$, $p < 0.001$) is more effective than traditional learning approaches ($Z = 4.49$, $p < 0.001$), leading to better learning outcomes, and five themes that contributed to the students' learning enjoyment in a gamified English grammar class were identified. The findings suggest that integrating gamification into English grammar classes could provide an engaging and motivating learning environment that enhances learning outcomes. Future research could expand on these findings by investigating other outcomes and comparing the effectiveness of different gamification applications.**

***Keywords*—gamified grammar learning, foreign language enjoyment, gamification apps, traditional grammar learning**

I. Introduction

Over the past decade, there has been a growing interest in studying the integration of gamification apps into English teaching and learning, as digital gamification has been argued to be a fun and enjoyable way to support English learning both inside and outside the classroom and for low and high proficiency learners [1, 2]. Recent studies have reviewed the positive effects of gamification on English learning, including enjoyment, engagement, motivation, and satisfaction [3]. Gamification has gained popularity in more than ten non-English-speaking countries, and it appears to improve students' English language skills and abilities, attitudes, and emotional responses [4]. However, there is a research gap in identifying specific gamification elements associated with these learning experiences and outcomes [3].

Teachers have favorable attitudes towards gamification, but they lack practical knowledge regarding the use of digital games in foreign language learning [5]. Feedback, points, quizzes, digital badges, leaderboards, and rewards are the most frequently used gamification elements, and the disadvantages primarily consist of technical issues, a short-lived positive effect, and the negative influence of gamified competition [4]. Although gamification has the potential to facilitate English instruction and learning in the twenty-first century [6], there is a need for further research to identify the effectiveness of gamified learning compared to conventional learning on improving learning outcomes and the extent to which it influences students' enjoyment of learning English as a foreign language (EFL).

Thus, this study seeks to contribute to the development of gamification research in EFL contexts by comparing the learning outcomes of gamified grammar learning to conventional grammar learning in an English course at a Thai university and examining students' learning experiences through their engagement in gamified English grammar instruction with respect to their foreign language enjoyment. Recently, studies have investigated the impact of gamified online quizzes on student learning in various courses, including psychology, science, and chemistry [7, 8]. These studies have confirmed that gamified quizzes lead to improved learning outcomes, with students completing more quizzes and demonstrating better learning through the testing effect [9]. Innovative gamified e-quiz applications and paper-based quizzes have been found to effectively evaluate student learning performance, particularly as formative assessments, yet the gamified instructional approach boosts student engagement by incorporating game-like features such as points, badges, certificates, and leaderboards in non-game contexts [10]. Gamified online quizzes have also been found to enhance student learning through instant feedback, post-quiz discussions, and learning from mistakes, leading to improved overall student performance [11]. Despite the positive findings on gamified learning in various fields, there is still limited research on the efficacy of gamified grammar learning in Thai higher education and its impact on students' enjoyment of learning a foreign language, which this study aims to explore.

This study is both relevant and significant as it addresses a gap in the current research on gamification within the specific context of EFL grammar instruction in Thai higher education. It seeks to provide empirical evidence on the effectiveness of gamified learning approaches to enhance foreign language learning experiences and outcomes. By examining the impact of gamification on student engagement and enjoyment, the study aims to offer practical insights for educators and policymakers, potentially leading to improved teaching strategies and higher language proficiency. The unique challenges and opportunities in Thai higher education, such as limited English exposure outside the classroom,

traditional teaching methods, and a lack of interactive materials, underscore the need for innovative approaches [12, 13]. This research aligns with the Thai government's educational reform initiatives aimed at boosting English proficiency [14], exploring how gamification can create a more engaging and motivating learning environment to overcome these challenges.

II. Literature Review

Gamified learning embodies the infusion of gaming elements, mechanisms, and dynamics within non-gaming contexts to cultivate an engaging and pleasurable educational atmosphere for learners [15]. This pedagogical approach has garnered considerable attention within the domain of English language education, where empirical investigations have probed the efficacious deployment of gamification applications aimed at enhancing various linguistic competencies. Notable examples include using Quizizz for vocabulary enhancement [16], Quizlet for improving vocabulary retention and promoting student motivation and autonomous learning [17], and Kahoot for boosting reading comprehension through engagement, quick feedback, and a positive learning environment [18]. These applications demonstrate gamified learning's versatility in achieving significant linguistic advancements across various skills.

The exploration of gamified learning's impact on English grammar acquisition has yielded empirical evidence of its efficacy, particularly among English as a Foreign Language (EFL) learners in diverse geographical contexts. Research conducted in Malaysia [19] and Vietnam [20] has demonstrated measurable improvements in learners' proficiency, as evidenced by their performance advancements from pre-tests to post-tests. However, the literature reveals a notable gap in understanding the implications of this educational strategy within the Thai context. In-depth qualitative studies, including observations, reflective journals, and interviews, have unveiled the multifaceted benefits of gamified learning in EFL grammar education. These studies, such as those by [21, 22], stress the role of gamification in enhancing student engagement, goal orientation, task concentration, enjoyment, collaborative learning, and intrinsic motivation. Furthermore, learners' positive perceptions toward gamified grammar learning—characterized by their acknowledgment of its effectiveness in enhancing learning efficacy, system utilization, engagement, loyalty, enjoyment, attitudes, and their willingness to recommend it to others—speak volumes about its potential as a transformative educational tool [23].

The current study endeavors to evaluate the efficacy of gamified English grammar instruction in comparison to traditional pedagogical methods at the tertiary education level, an area where empirical evidence remains inconclusive due to the divergent outcomes of existing research. For instance, [24] investigation involving first-year university students in Poland highlighted an exposure to gamified grammar instruction via platforms like Quizlet and Kahoot, succeeded by conventional grammar teaching in the following year, revealing marginally superior outcomes for gamification without significant differences. This suggests that the enhanced array of practice exercises and competitive gaming elements inherent in gamification may have contributed to these improved results. In contrast, [20] observed a pronounced efficacy of gamified grammar instruction, utilizing Quizizz for English major freshmen at a Vietnamese university, where the experimental group notably excelled in the achievement exam over the control group. Corroborating these findings, [25] documented similar positive impacts among low-level EFL learners in Ecuador through the gamified NEO LMS platform. Additionally, positive outcomes were reported from integrating gamification through Classcraft in an English syntax course at a Thai university [26], consistent with findings [27] that gamified learning interventions significantly increased Thai students' enthusiasm for learning English. Collectively, these studies accentuate the potential of gamified instruction to enhance English grammar learning, though the extent of its effectiveness over traditional methods warrants further investigation.

The burgeoning field of gamified learning has garnered substantial attention for its transformative potential in English education, particularly for its capacity to render the learning process more enjoyable, engaging, motivating, and fun [28]. This sentiment is robustly supported by scholarly investigations, such as the work of [3], which point out the significant role gamified learning plays in diminishing learner anxiety and fostering epistemic curiosity. This curiosity, in turn, propels students towards deeper engagement with the subject matter, thereby enhancing learning outcomes. Further extending this discourse, [29] have elucidated how gamified learning leverages intrinsic motivation, driving learners to explore and understand English language concepts more profoundly and with greater enthusiasm. The pedagogical efficacy of gamification in English language learning thus emerges as a multifaceted tool, capable of transforming the educational experience into a more dynamic and interactive journey.

Building on these foundational insights, the theoretical and practical dimensions of gamified learning have been elaborated by [30] through a thorough systematic literature review. Their analysis illuminates the core principles underpinning gamification in education, such as goal orientation, path guidance, immediate feedback, performance reinforcement, and the breakdown of complex content into digestible tasks. Notably, the adaptability of gamified systems to individual learner goals and abilities, coupled with the incorporation of social gamification elements, underlines the potential for promoting both personalized learning trajectories and collaborative educational endeavors. Echoing these sentiments, [31, 32] emphasize that, when implemented with a keen awareness of learners' knowledge, interests, and preferences, gamified learning can significantly enhance engagement, motivation, and overall learning outcomes, whilst also facilitating a smoother transition to technology-enhanced educational paradigms. In essence, the integration of gamified learning within educational settings holds promise not only for advancing students' cognitive and socio-emotional development but also for instigating positive behavioral, attitudinal, and psychological shifts that contribute to improved academic performance [33].

Recent investigations into the pedagogical efficacy of

gamified online quizzes have illuminated their significant potential in augmenting learning outcomes and pinpointing student deficiencies, as evidenced by the findings of [34, 35]. Among these digital tools, Kahoot, a game-based student response system, stands out for its ability to foster a competitive yet enjoyable learning environment within the classroom, as noted by [36]. Despite its widespread adoption since 2013, the exploration of Kahoot's utility specifically within language learning contexts remains relatively nascent, a gap identified by [37]. Nevertheless, a body of research has begun to crystallize around the platform's positive influences on various educational dynamics, including learning performance, classroom environment, and the attitudes and psychological states of both students and teachers, with studies by [38, 39] providing compelling evidence of its benefits. These advantages encompass reduced student anxiety, heightened motivation, and increased enjoyment, emphasizing Kahoot's potential to significantly enhance the educational experience.

Contrasting perspectives have emerged on Kahoot's role in fostering interaction, collaboration, and learning outcomes. The importance of elements like competitiveness, flexibility, immersion, and feedback in optimizing learning experiences with Kahoot establishes a positive link between gamification-induced interaction and educational outcomes [40]. Despite these findings, skepticism exists, as studies by [41, 42] present a more tempered view on the efficacy of such gamified approaches, reporting minimal or negligible impacts on learning. Moreover, [43] highlight certain hurdles from the learners' perspective, including technological barriers, the fast-paced nature of the game, its competitive essence, and a noted deficiency in comprehensive debriefing post-gameplay, which collectively contribute to a reluctance among English as a Foreign Language (EFL) learners to engage with Kahoot. These insights collectively suggest a complex, multifaceted impact of gamified learning tools on educational outcomes, necessitating further nuanced investigation into their application and effectiveness within diverse learning environments.

This brief literature review highlights the effectiveness of gamified grammar learning in improving students' English language skills and their enjoyment of the learning process. While empirical research has confirmed the positive effects of gamified grammar learning on learners' performance and motivation, few studies have used a comparative approach to conventional learning, and the findings have been mixed. Therefore, this study intends to contribute by addressing the following research questions:

1) How do students' learning outcomes in gamified classes differ from those in paper-based classes in the Thai higher education context?
2) What factors construct students' learning enjoyment in a gamified English grammar class in the Thai higher education context?

III. Materials and Methods

A. Research Design

This study utilized a quasi-experimental research design in conjunction with a sequential mixed-methods explanatory design to explore the effects of gamified grammar learning on students' learning outcomes compared to traditional grammar learning, as well as its influence on students' enjoyment of foreign languages. A quasi-experimental design enables researchers to examine the efficacy of different learning methods through pre- and post-test designs in both experimental and control groups [44], while a sequential mixed-methods explanatory design gives the opportunity to perform quantitative and qualitative data analyses sequentially, enabling researchers to provide empirical findings based on statistical results with qualitative insights for the rationales behind the quantitative results [45, 46]. The combination of these two research designs allows for triangulation of data sources and methods, which can increase the validity and reliability of findings. This quasi-experimental design was chosen over other experimental designs due to its suitability for educational settings where random assignment to groups is often impractical or unethical. It allows for the examination of cause-and-effect relationships in real-world classroom environments while providing a level of control over variables through pre- and post-tests, aligning well with the research objectives by facilitating the investigation of the effects of gamified grammar learning within the natural educational context and enhancing the ecological validity of the findings.

B. Ethical Considerations

This study adhered to the established protocols for research ethics within the fields of social sciences and humanities. Participation in the study was voluntary, and the confidentiality of participants' identities was rigorously maintained. Approval for the study was obtained from the Institutional Review Board (IRB) committee of Walailak University (Approval Number: WUEC-23-199-01).

C. Research Context and Participants

The present research context is based on an empirical investigation conducted at an autonomous mid-size university located in the southern region of Thailand. Despite being ranked 1500+ by Times Higher Education, the university has demonstrated a commitment to enhancing the quality of its teaching and learning practices by implementing active learning and smart classroom technologies. To improve students' English proficiency levels, the university employs a significant number of foreign English lecturers, who play a vital role in implementing these policies and delivering quality education to students. The study focuses on an English course entitled English Communication Skills that aims to develop students' receptive skills (listening and reading) and productive skills (speaking and writing) through integrated methods. It also develops students' sub-skills, such as grammar and vocabulary, and encourages independent learning.

Using a convenience sampling technique, 52 first-year Liberal Arts and Management students aged 18–20 with A1–A2 Common European Framework of Reference for Languages (CEFR-EL) English proficiency levels were recruited (CEFR). Randomly, they were divided into experimental (male 23% and female 77%) and control (male

65% and female 38%) groups of 26 students each. Students in the experimental group learned grammar through gamification, whereas students in the control group learned grammar through the textbook and without the use of technology.

D. Research Interventions and Procedures

As illustrated in Fig. 1, the research interventions consisted of learning English grammar with gamification (the experimental group) and without gamification (the control group). While the English course involved various materials, the study's focus was solely on grammar learning. Conducted over four weeks, students learned grammar lessons including simple present tense (week 1), past tense (week 2), modal verbs (week 3), and comparative adjectives (week 4). The teaching and learning for both groups were carried out in the same way, except for the incorporation of gamification. In the first thirty minutes of the class, teachers taught the grammar lesson, then engaged students with gamified online grammar exercises in the experimental group. A web-based educational application called *Kahoot* was integrated into student grammar learning. On the other hand, students in the control group worked on the grammar exercises in the course book. Both students received the same grammar questions in the exercises. Before week 1 began, students took a pre-test, and after week 4, students took a post-test. Both tests were administered using an application involving the Student Response System (SRS), named Socrative.com. A survey questionnaire regarding foreign language enjoyment was distributed to the experimental group students after the post-test.

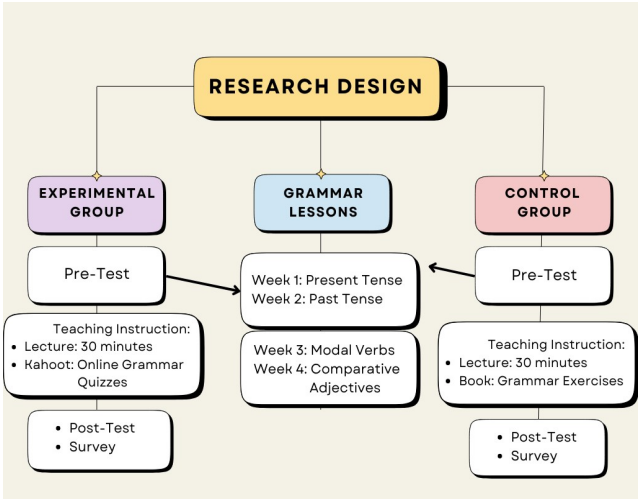

Fig. 1. Illustration of the research design.

Fig. 2. Sample gamified online grammar exercises done by the experimental group.

In the experimental group, a web-based educational application called *Kahoot* was integrated into student grammar learning. Fig. 2 below shows the sample online grammar exercise. Fig. 3 presents the sample grammar exercises in the control group.

B1. Fill in the blanks with the correct form of the past simple tense:

1. Last week I _____ (play) video games with my sister.
2. I _____ (do) my homework last weekend.
3. She _____ (call) two days ago.
4. Walt Disney _____ (open) Disneyland in 1955.
5. When _____ they _____ (paint) the house?
6. Why _____ you _____ (ask) her that question yesterday?
7. I _____ (not visit) him at the hospital. It was too crowded.
8. He _____ (not clean) his room last weekend.

B1. Fill in the blanks with the correct form of the past simple tense:

9. Last week I _____ (play) video games with my sister.
10. I _____ (do) my homework last weekend.
11. She _____ (call) two days ago.
12. Walt Disney _____ (open) Disneyland in 1955.
13. When _____ they _____ (paint) the house?
14. Why _____ you _____ (ask) her that question yesterday?
15. I _____ (not visit) him at the hospital. It was too crowded.
16. He _____ (not clean) his room last weekend.

Fig. 3. Sample grammar exercises in the coursebook done by the control group.

E. Instruments

1) Pre- and post-tests

To measure students' learning progress, identical pre- and post-tests were administered, each containing 20 multiple-choice questions focused on the simple present tense, past tense, modal verbs, and comparative adjectives. The pre-test was conducted before week 1, and the post-test followed week 4. For scoring, the results were halved, giving a factor of .5. Sample questions included: "She _____ (get on) the bus in the center of the city" with options (a) got on, (b) got, (c) drive, (d) drove; "In the morning, Kim _____ her sister to school" with options (a) played, (b) washes, (c) takes, (d) morning; "Every Sunday, Smith _____ his dog a bath" with options (a) run, (b) play, (c) give, (d) gives; and "Drivers _____ stop when the traffic lights are red" with options (a) must, (b) may, (c) need, (d) can.

2) Survey

This study utilized the foreign language learning enjoyment questionnaire developed by [47]. The original questionnaire contained 21 items, while the present study only included 20. One question from the original questionnaire was deemed irrelevant to this study. Strongly disagreeing (1) to strongly agreeing (5) were the available options. On the survey data, the reliability analysis was performed to reveal the internal consistency of the items. The minimum acceptable Cronbach's alpha value was set at 0.70 [48]. Internal consistency was high ($\alpha = 0.878$) with no items deleted. Table 2 presents the complete survey items.

3) Reflective essays

To facilitate the generation of qualitative data within this research, participants were tasked with reflecting upon their educational experiences throughout the course. They were

permitted to articulate their reflections in either Thai or English, leading to the accumulation of a dataset comprising 621 words. To maintain confidentiality, each participant was assigned a unique identifier, such as S1, S2, S3, etc. The primary aim of gathering this qualitative data was to analyze it from the perspective of the interpretivist paradigm.

The interpretivist paradigm posits that knowledge and truth are constructed by individuals, rather than existing as pre-determined entities to be uncovered. This approach emphasizes the importance of understanding the subjective realities of individuals [49]. Researchers who adopt this paradigm seek to explore and elucidate the reasons behind phenomena, focusing on their manifestations within specific contexts [50]. Our choice to utilize the interpretivist paradigm was motivated by our objective to comprehensively capture and analyze the intricate and profound learning experiences of the students. This approach allowed us to delve into the complexities of their educational encounters, providing insights into the nuanced ways in which knowledge and understanding are constructed and perceived.

4) *Data collection and analysis*

Before and after each class session, we conducted both pre- and post-test data collection. To facilitate this process, we utilized Socrative.com for test administration during class time. Subsequently, upon completion of the post-test, students accessed Likert-scale and open-ended surveys via scanning a QR code linked to a Google Form. Following the data collection phase, researchers undertook data cleaning procedures before subjecting the data to statistical software analyses. With a sample size of less than 30 participants, we used descriptive statistics and non-parametric tests to analyze the quantitative data, including pre- and post-test scores and Likert-scale responses.

Furthermore, for qualitative data analysis, a thematic approach inspired by [51, 52] was adopted. This process commenced with an in-depth immersion into the data, facilitating a comprehensive understanding of its contents. Initial codes were then generated to identify and categorize significant elements within the dataset. Broader themes emerged through iterative analysis and were reviewed and refined by the researchers to accurately capture their essence. Ultimately, this iterative process culminated in the precise definition and naming of emergent themes, illuminating the multifaceted impact of gender awareness on English language learning among both students and lecturers. Each student was anonymized and identified with an 'S' followed by a numerical identifier (e.g., S1, S2, etc.).

IV. Results

A. *Quantitative Findings*

1) *Learning outcomes*

First, the Wilcoxon tests were performed on both pre- and post-test scores in each group. The results showed significant improvements in both groups. In the experimental group, the pre-test mean was 4.83 (SD = 1.21), then significantly increased to 6.65 (SD = 0.52) in the post-test (Z = 4.32, p < 0.001). Furthermore, the control group students improved from a mean of 5.60 (SD = 1.08) in the pre-test to a mean of 7.27 (SD = 0.49) in the post-test (Z = 4.49, p < 0.001). These results indicate that students in both groups, regardless of the intervention, experienced significant improvements in their grammar learning. The SD values in both groups in the post tests reflect that the scores were shared closely among the students. As shown in Table 1, the experimental group students had a lower mean than the control group students in the pre- and post-tests; however, the experimental group outperformed the control group in the range of improvement made from the pre-test to the post-tests from 4.83 to 6.65, which was a 1.82 increase, while the control group only had a 1.67 increase.

Table 1. Results of the Wilcoxon U-tests

	Pre-Test (M/SD)	**Post-Test (M/SD)**	**Z**	**Asymp. Sig. (2-tailed)**
Exp. Group	4.83/1.21	6.65/.52	4.32	$p < 0.001$
Control Group	5.60/1.08	7.27/.49	4.49	$p < 0.001$

2) *Students' English learning enjoyment*

The study investigated the impact of gamified grammar learning on students' enjoyment of English learning. The descriptive data of students' perceptions were collected, and the means and standard deviations were computed. Overall, the results indicated that students had positive perceptions of their English learning experience (M = 4.21, SD = 0.39). Specifically, students reported high mean scores for items such as "I've learnt interesting things in English class" (M = 4.42, SD = 0.50), "The teacher is friendly in English class" (M = 4.46, SD = 0.65), and "English class has a positive environment" (M = 4.46, SD = 0.65). The means for items such as "I can laugh off embarrassing mistakes in English class" (M = 3.58, SD = 0.95) and "I feel as though I'm a different person during the English class" (M = 3.69, SD = 0.93) were slightly lower. Nonetheless, the overall trend was that students perceived gamified grammar learning as an enjoyable way to learn English. Table 2 displays the detailed results.

Table 2. Results of descriptive statistics

Survey Items	**Mean**	**SD**
1. I can be creative in English class.	4	0.57
2. I can laugh off embarrassing mistakes in English class.	3.58	0.95
3. I don't get bored in English class.	4.27	0.60
4. I enjoy English class.	4.04	1.11
5. I feel as though I'm a different person during the English class.	3.69	0.93
6. I learn to express myself better in English class.	3.92	0.85
7. I'm a worthy member of the English class.	4.12	0.65
8. I've learnt interesting things in English class.	4.42	0.50
9. In English class, I feel proud of my accomplishments or achievements.	4.35	0.63
10. English class has a positive environment.	4.46	0.65
11. It's cool to know and be able to use English.	4.35	0.69
12. English class is fun.	4.27	0.72
13. Making errors is part of the learning process in English class.	4.04	0.72
14. The peers are nice in English class.	4.42	0.64
15. The teacher is encouraging in English class.	4.38	0.64
16. The teacher is friendly in English class.	4.46	0.65
17. The teacher is supportive in English class.	4.42	0.64
18. There is a good atmosphere in English class.	4.31	0.62
19. We form a tight group in English class.	4.23	0.65
20. We laugh a lot in English class.	4.38	0.64
Overall	4.21	0.39

B. Qualitative Findings

A thematic analysis was conducted on the open-ended responses of students, following the approach outlined by [51, 52]. The focus was to delve into students' experiences learning English grammar using the gamification app Kahoot. The analysis involved three stages to ensure validity. First, we coded the data based on students' experiences in gamified English learning classes as presented in the literature review. Next, we grouped the responses into identified factors. Finally, we summarized and compared the findings with previous studies to ensure consistency and reliability. To maintain anonymity, students were labeled with unique identifiers, such as S1, S2, and S3. Details of the analysis are presented below.

Theme 1: Learning Effectiveness

The students expressed their learning outcomes from the lesson on English grammar. They indicated that doing many practice problems enhanced their comprehension and proficiency. One student acknowledged their weakness in grammar and languages but showed a positive attitude and motivation to improve. Another student praised the use of Kahoot as an effective study tool that reinforced their memory and clarified confusing terms, despite some errors in the answers, as expressed by the following excerpts:

> I have learned a lot from doing many practice problems and this has helped me create a better understanding of English grammar. (S1)
>
> Although I am not very good at grammar and languages, this lesson has helped me a lot and I will try harder. (S3)
>
> Kahoot is very good for studying. It helps me remember confusing terms and even though there may be some wrong answers, the results are still satisfying and helpful for future learning. (S7)

Theme 2: Enjoyment and Fun

Kahoot is a beneficial tool for learning and practicing English grammar in an engaging and enjoyable way. According to several students, Kahoot stimulates their attention and motivation, enhances their memory and comprehension of the material, and reduces their stress and anxiety. Kahoot also facilitates social interaction and collaboration among classmates, as well as self-evaluation and feedback. However, some challenges may arise from using Kahoot, such as technical difficulties, distractions, or time pressure. Despite these drawbacks, Kahoot offers a valuable opportunity for students to apply their knowledge and skills in a fun and interactive environment. Below are the examples of the students' responses.

> I really enjoy studying with Kahoot because it makes me feel alert and excited. It also helps me remember the material, which is important for grammar. Plus, it can be used for future learning. (S4)
>
> Using Kahoot is both exciting and fun. (S5)
>
> Although some people may find it difficult to see the questions on the screen or get distracted by their friends, using Kahoot for educational and fun activities in class is a great way to learn and relax. (S6)
>
> Kahoot activities are both fun and exciting. They allow me to practice my English grammar and recognize my mistakes. (S15)
>
> Using Kahoot is a lot of fun, and it helps me to apply the knowledge I've learned in class. (S17)
>
> Kahoot feels good and fun because it allows me to get to know my classmates and meet new people. (S23)

Theme 3: Teacher's Influence

The students expressed their appreciation for the teachers' kindness and competence, which facilitated their learning of English and enhanced their motivation to attend classes. They also enjoyed studying with *Kahoot*, an interactive tool that improved their understanding of English grammar. The excerpts below illustrate the positive impact of effective teaching methods and supportive teacher-student relationships on learners' outcomes and attitudes.

> The teacher is very kind, which makes learning less stressful. It's enjoyable to learn English and the teacher is knowledgeable and has good pronunciation. (S11)
>
> Studying with Kahoot is enjoyable and helps me to understand English grammar better. The teachers are very kind, and this makes me want to attend classes more often. (S9)

Theme 4: Self-Improvement

The students conveyed positive feedback on their grammar learning experience with Kahoot, an interactive tool that facilitated their practice and comprehension of English grammar. They reported that Kahoot enhanced their confidence and motivation in class, despite making occasional errors. They also appreciated the opportunity to review the content and identify their mistakes and areas for improvement. They described Kahoot activities as informative, useful, fun, and exciting for self-improvement. Below are the representative excerpts.

> My grammar learning experience with Kahoot was informative and useful. Although I sometimes used it wrong, it gave me more courage to speak and use English correctly in class. (S13)
>
> Kahoot activities are both fun and exciting. They allow me to practice my English grammar and recognize my mistakes. (S15)
>
> Using Kahoot helps me to review and understand the content more clearly." (S19)
>
> I gained a lot of knowledge in grammar classes and enjoyed practicing my skills with Kahoot activities. It allowed me to recognize my mistakes and areas for improvement, making the activity both fun and exciting. (S22)

Theme 5: Learning Benefits

Students reported that the gamified learning enhanced their English proficiency, increased their engagement and motivation, fostered their collaboration and interaction, and assessed their knowledge and progress. Kahoot was seen as a fun and informative way to learn new forms of instruction, improve vocabulary and grammar, memorize words and phrases, and answer questions quickly and accurately, as reflected by the following excerpts.

> Using Kahoot is both fun and informative. It helps me to learn new forms of instruction and understand English more than ever before. (S10)

> Kahoot helps me to answer questions quickly and improve my vocabulary. It's a great way to measure my knowledge and progress in my studies. (S14)

> Kahoot is a great teaching material that helps me to memorize words and phrases accurately. It keeps me active and motivated to do well on exams. (S18)

> Using Kahoot helped me to answer questions early, learn a lot of vocabulary, and gauge my knowledge of the subject matter. (S21)

V. Discussion

The present study investigated the differences between students' learning outcomes in gamified and traditional English grammar classes and the factors that contribute to their learning enjoyment in gamified classes. Two points are worth discussing.

A. Point 1: Enhancing Learning Outcomes through Gamified Grammar Instruction

Within the domain of educational discourse, a central question persists: can gamification truly serve as a valuable tool for enhancing students' learning outcomes? Our comprehensive research delves into this inquiry, revealing compelling insights into the potential of gamified grammar learning to surpass traditional pedagogical methods. The empirical evidence we present emphasizes the substantial improvements in students' grammar proficiency, irrespective of whether they engage in a traditional or gamified course. However, a nuanced analysis of these findings uncovers a noteworthy distinction: students enrolled in the gamified curriculum exhibited a marginally superior rate of progress when compared to their peers in conventional settings. This pivotal discovery stresses the potential of gamification as a promising avenue for enhancing students' learning outcomes.

Gamification, we argue, is not merely a superficial embellishment of the learning process; rather, it embodies a dynamic and engaging pedagogical approach capable of catalyzing learners' motivation and, consequently, boosting their educational achievements. The evidence presented herein echoes similar positive outcomes observed in distinct cultural and educational contexts. For instance, [19, 20, 25] conducted studies in Malaysia, Vietnam, and Ecuador, respectively, reaffirming our findings by demonstrating significant gains in the English as a Foreign Language (EFL) skills of students participating in gamified language courses. Moreover, investigations into an English syntax course at a Thai university substantiate the benefits of gamification, revealing a marked improvement in Thai students' motivation to learn English following gamified interventions [26, 27].

Moreover, beyond the quantitative enhancements in learning outcomes, our study unveils an equally crucial facet of gamified grammar learning: the subjective experience of students. In our investigation, students consistently reported a palpable sense of enjoyment in the process of acquiring English language skills through gamification. Their positive disposition towards the English learning experience serves as a testament to the constructive impact of gamification on the learners' engagement and overall enjoyment of the grammar learning in the course. Particularly, the scores pertaining to items related to fostering a positive learning environment registered remarkably high, indicating that gamification exerts a tangible, positive influence on the classroom atmosphere. This overarching trend aligns seamlessly with prior research that has consistently identified gamification as a potent catalyst for elevating student engagement and motivation in educational settings. In tandem, qualitative inquiries into gamified learning corroborate this notion, shedding light on its multifaceted advantages, including the facilitation of goal setting, task focus, enthusiasm cultivation, playful learning experiences, peer collaboration, and the fulfillment of intrinsic motivational needs [21, 22].

In sum, this research not only underlines the potential of gamified grammar instruction to foster enhanced learning outcomes but also illuminates the integral role it plays in shaping a positive and engaging learning environment. These findings beckon educators and curriculum designers to consider gamification as a viable strategy to not only elevate academic achievements but also to invigorate the classroom experience and inspire learners to embark on their educational journeys with heightened enthusiasm.

B. Point 2: Influential Factors in Students' Gamified Grammar Learning Experiences

The current research delves into the multifaceted landscape of students' experiences in gamified English grammar classes, unveiling five pivotal themes that underpin their learning enjoyment. Through a rigorous thematic analysis of open-ended responses, we discerned these themes, which collectively illuminate the influential factors that contribute to students' enthusiasm and engagement in a gamified educational context. The first theme emphasizes the app's efficacy in improving students' grasp of English grammar, even in the presence of occasional errors in the provided answers. This theme underlines the resilience of gamification as a pedagogical tool, where its inherent appeal compensates for minor imperfections, ultimately leading to enhanced comprehension. The second theme accentuates the profound enjoyment and engagement that students derive from Kahoot as a learning platform. Students perceive Kahoot as an enjoyable and captivating medium, fostering their motivation, and alleviating the stress typically associated with grammar learning. The element of enjoyment, we posit, is a powerful driving force behind the gamified

approach's effectiveness.

Furthermore, the third theme elucidates the pivotal role of educators in shaping students' gamified learning experiences. Teachers play a significant part in cultivating a supportive and conducive learning environment, employing effective teaching methodologies that harmonize seamlessly with the gamification approach. Their guidance and mentorship serve as a linchpin for students' success [21]. The fourth theme spotlights Kahoot's role in bolstering students' confidence by offering them opportunities for review and self-assessment. The platform empowers students to engage actively with their own learning process, fostering a sense of autonomy and self-assurance in their grammar proficiency [22]. The fifth theme reflects the broad-ranging benefits students accrue from Kahoot, spanning from improvements in their English language proficiency and vocabulary to a heightened awareness of their knowledge and progress [21], [22]. Kahoot emerges as a multifaceted tool that transcends traditional instruction, offering students a holistic learning experience.

While extant studies have identified the efficacy and enjoyability of gamified online quizzes in enhancing learning outcomes [41, 42, 53]; it is noteworthy that certain research has reported minimal or no discernible impact. Furthermore, recent investigations have spotlighted specific challenges associated with Kahoot, such as technical glitches and potential distractions, factors that may temper students' willingness to fully engage with this game-based application [43, 54]. Nevertheless, our comprehensive study reaffirms Kahoot's utility as a valuable and enjoyable tool for students to navigate the complexities of English grammar. The gamification framework within Kahoot appears to serve as a potent motivator and engagement catalyst, with teachers serving as indispensable pillars of support. Additionally, Kahoot demonstrates promise in assessing student progress and fostering collaboration among peers. These collective findings highlight the potential of gamified online quizzes, exemplified by Kahoot, as effective instruments within language learning classrooms. Nonetheless, we advocate for further research to examine its limitations and refine its implementation to optimize learning outcomes continually.

C. *Implication of the Findings*

The findings of the study have several implications for English teaching and learning, English course development in higher education, and research development in gamified learning. First, incorporating gamified learning activities in English language classrooms can enhance student motivation and engagement in the learning process. Teachers can design activities that are challenging and interactive, using game mechanics such as points, badges, and leaderboards to create a competitive and immersive learning experience. Teachers can also leverage the power of technology to develop gamified learning materials that are tailored to individual student needs and preferences. With the help of learning analytics and artificial intelligence, teachers can track student progress and provide personalized feedback and recommendations to improve their language skills. Several studies on the publication of research articles regarding the incorporation of gamified learning into teaching and learning have been conducted, and the results largely support these recommendations [3, 12, 55, 56].

Second, English course developers can use gamification principles to design more effective and engaging online courses for English language learners. By incorporating gamification elements such as challenges, rewards, and social interactions, course developers can create a more immersive and interactive learning experience that motivates learners to persist in their studies. For instance, [56] used a gamified learning activity model called CSCL to gamify a News English course. This model comprises card games, presentations, and learning sheets [57, 58]. The participants regarded the activity to be enjoyable and beneficial for understanding and vocabulary development, and the results showed that gamification greatly increased the experimental group's learning ability in news English. Furthermore, research in gamified learning can benefit from these findings by focusing on the development of more effective gamified learning models and the evaluation of their impact on language learning outcomes. Future research can also explore the potential of gamification to promote the acquisition of specific language skills, such as vocabulary, grammar, and pronunciation.

VI. Conclusion and Limitation

While the study yields valuable insights, it is essential to acknowledge its limitations. Firstly, the study's scale was relatively small, which may constrain the generalizability of the findings. Future research should strive to replicate the study in a larger and more diverse sample of classes to determine the applicability of these findings in various educational settings. Second, this study primarily focused on students' learning outcomes and enjoyment. We must acknowledge that we did not explore other aspects, like the long-term retention of knowledge and the transfer of learning to real-world contexts. Future studies should consider a broader array of outcomes to comprehensively evaluate the impact of gamification. The quasi-experimental design is also good for real-life educational settings, but it is not as rigorous as true experimental designs with random assignment, which could lead to selection bias and hurt the results' internal validity. Next, the study did not differentiate between various gamification apps, and the effectiveness of different gamification tools in teaching English grammar remains unexplored. Future research endeavors could delve into comparing various gamification apps to provide valuable insights into their relative effectiveness in language instruction. Finally, this study used a quasi-experimental design and found that one gender predominated in each group, potentially influencing the results. We recommend that future studies take into account the gender distribution in their research to ensure the feasibility of comparing their findings to those of the current study. These limitations highlight areas for further investigation to build on the initial findings and strengthen the overall understanding of gamification in educational contexts.

The findings of this study offer compelling evidence to conclude that gamification represents an effective and promising approach to teaching English grammar to students. The results suggest that gamification creates an engaging and

motivating learning environment that fosters active participation among students. By incorporating game elements like points, competition, rewards, and encouraging social interaction, gamified English grammar classes not only enhance students' learning enjoyment but also yield better learning outcomes. These findings emphasize the potential of gamification as a valuable tool for educators seeking to enhance their students' language learning experiences. The gamified approach has the capacity to revitalize the teaching of English grammar, making it more engaging and effective.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

HZ conceptualized and conducted the research intervention and wrote the first draft; NK assisted with the data analysis and revision; BD supervised the research implementation and wrote the final draft; all authors had approved the final version.

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