




# Gamified grammar learning in online English courses in Thai higher education

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## ABSTRACT

Gamification in the 21<sup>st</sup> century academic English grammar instruction is popular, but the lack of comparative studies on its effectiveness in online courses limits its scalability. This study aimed to address this problem by examining students' experiences and outcomes in gamified grammar learning versus non-gamified learning in a fully synchronous online English course. The 12-week course involved 80 A1-A2 English learners, split into experimental (gamified) and control (non-gamified) groups. Data were collected through surveys, learning outcomes, and written reflections using a two-group design and the sequential explanatory research method. Quantitative data were analyzed using descriptive statistics, independent t-tests, and bivariate correlations, while qualitative data underwent thematic analysis. The results indicate that gamified grammar instruction improved students' experiences, motivation, enjoyment, and engagement while reducing anxiety. Gamification also led to better learning outcomes compared to traditional methods. However, there was a gap between perceived experiences and actual outcomes, emphasizing the need for caution in interpreting emotions as achievement indicators. Some obstacles, including technical issues, comprehension difficulties, and time constraints, were observed. The study recommends policies to facilitate the integration of gamification into the curriculum.

**Keywords:** gamification, grammar, enjoyment, outcomes, experience

## INTRODUCTION

The gamification of language learning has emerged as a prominent trend in global university education during the 21<sup>st</sup> century, driven by the widespread use of smartphones and the growing popularity of mobile gaming, allowing application developers to capitalize on the wide accessibility of their products and the users' acceptance of game-like elements (Purgina et al., 2020). Compared to conventional methods, the implementation of gamification has shown to be more effective in supporting English as a foreign language (EFL) teaching and learning, as empirical studies have indicated that integrating digital gamification creates enjoyable, engaging, motivating, and fun learning experiences for students, resulting in greater learning outcomes (Dehghanzadeh et al., 2021; Pinto et al., 2021). Notwithstanding these encouraging findings, certain reports suggest that gamification research has predominantly focused on learning enjoyment, motivation, and engagement without establishing a clear connection to improved learning outcomes. Moreover, the targeted learning outcomes have primarily revolved around content language acquisition, engagement, motivation, and satisfaction, highlighting the ongoing development of the research field and the need for

practical implications to effectively guide EFL teaching and learning in higher education (Boudadi & Gutiérrez-Colón, 2020; Dreimane, 2019).

Gamification research has highlighted grammar as a popular domain for exploration (Dehganzadeh & Dehganzadeh, 2020). The availability of online gamification applications like Kahoot and Quizizz has significantly contributed to the advancement of gamified grammar learning research (Goksun & Gursoy, 2019). These game-based applications utilize student response systems, transforming the classroom into a captivating game show where teachers act as hosts and students compete (Rofiah & Waluyo, 2020; Wang, 2015). By incorporating gamification, grammar lessons become dynamic and engaging, contrasting with traditional methods that often rely on static textbooks and monotonous drills. This approach not only captures students' attention but also provides immediate feedback, fostering a supportive and collaborative atmosphere. The gamified environment promotes healthy competition, cultivates essential skills, and prepares students for real-life language use. Nevertheless, despite the popularity of gamified grammar learning, few studies have examined its implementation in fully synchronous online English courses at the university level. As a result, our understanding of comparative learning experiences and outcomes compared to traditional book-based approaches is limited. EFL learners in Thai higher education still lack thorough insights into their challenges and obstacles. Therefore, the novelty of this study is its focused examination of gamified grammar learning within fully synchronous online English courses at the university level. Unlike previous research, this study compares both gamified and traditional, non-gamified approaches to English grammar instruction. The results have the potential to offer educators and academic institutions a richer, more nuanced understanding of the advantages and limitations of integrating gamification into online English grammar courses. This could be instrumental in refining language learning programs and pedagogical strategies for higher education settings.

## LITERATURE REVIEW

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### Theoretical Frameworks: Multifaceted Impacts of Gamified Grammar Learning

A coherent body of research provides the theoretical basis for understanding how gamification can positively influence grammar learning, focusing on variables like enjoyment, motivation, anxiety reduction, and classroom engagement. Starting with enjoyment, Singh and Harun (2016) conducted a 14-week experiment utilizing gamification applications such as Kahoot and Quizlet to teach English grammar to EFL Malaysian students. Their findings revealed that students actively participated in these activities and found the collaborative games enjoyable and exciting. Through the incorporation of individual and team-based competitions, gaming elements promoted communication and engagement with the content. Correspondingly, in a quasi-experimental study concentrating on Iranian EFL learners, Ahmed et al. (2022) discovered that well-designed games significantly increased engagement, motivation, and cognitive development, resulting in enhanced learning outcomes. When students derive enjoyment from the learning process, their level of engagement with the lesson increases. Ardi and Rianita (2022) implemented Kahoot! in an Indonesian grammar class and observed increased student engagement due to goal setting, increased focus on tasks, enthusiasm and interest in learning, playful activities, collaboration, and the satisfaction of students' needs for rewards and competition. These findings highlight the potential for gamified course design and related applications to increase student engagement, support language learning, and provide positive learning experiences, although the effects may vary depending on the gamification apps used (Korkealehto & Siklander, 2018).

Research consistently indicates that making English grammar lessons both enjoyable and engaging alleviates student anxiety and fosters motivation. A study by Hong et al. (2022) in Taiwan revealed that gamified questions in English grammar lessons reduced learning anxiety, which in turn increased motivation and curiosity, enhancing overall content mastery. Kyung-Mi's (2022) study in South Korea corroborated these findings; students using gamified online quizzes reported not only reduced stress but also increased opportunities for self-assessment and resource utilization. Similarly, Redjeki and Muhajir (2021) conducted action research in Indonesia using the gamification app Duolingo and observed an increase in students' interest, commitment, and motivation for regular English practice, particularly in grammar. These studies

collectively suggest that gamification contributes to a less stressful, more engaging learning environment, which significantly boosts students' motivation and facilitates self-directed learning.

As enjoyable and engaging grammar lessons with minimal stress levels enhance students' motivation to learn, their learning performance improves. Sourav et al. (2021), in their study conducted in Indonesia, validated that an enjoyable and engaging grammar lesson with minimal stress levels, incorporating smart multimedia and gamification, elevates students' motivation and performance and fosters a competitive mindset. Within a cooperative learning group using these innovative approaches, students exhibit higher commitment to learning and express enjoyment, particularly in the gamification component. The implementation of gamified assessments further enhances group performance and comprehension of the learning material. Moreover, the students enthusiastically embrace this new approach as a superior alternative to traditional methods. Similarly, in a study involving EFL Turkish students focusing on English morphology, Eryigit et al. (2021) revealed that the students perceived the proposed approach positively and found it effective in their learning journey. This approach effectively addresses the gap in grammar exercises for learning morphologically complex languages.

However, little is known about the interaction between the variables arising from students' gamified grammar learning and the impact on learning outcomes, which the current study aims to address. Besides, a comprehensive review conducted by Dehganzadeh and Dehganzadeh (2020) highlights the challenges faced in implementing gamified grammar learning, encompassing both technological hurdles such as the Internet connectivity issues and limited access to mobile devices, as well as pedagogical obstacles including unproductive use of time, lack of scaffolding opportunities, absence of customized learning, reliance on decontextualized grammar translation exercises and audiolingual drills, and insufficient inclusion of communicative tasks. Moreover, Thi Van Pham and Minh Pham (2022), in their examination of teachers' perspectives on integrating gamification into grammar instruction for non-English major students, discovered that while teachers generally recognized the pedagogical value of gamification in English grammar teaching, approximately 30% did not actively incorporate a wide range of games into their grammar lessons. Therefore, it is recommended to allocate dedicated time for gamification activities and carefully select games that align with different aspects of grammar, emphasizing the need for greater attention to these aspects.

### Learning Outcomes of Gamified Grammar Learning

Research into the effects of gamified grammar instruction has been conducted using both two-group and single-group designs. In a two-group study, Pham (2023) analyzed the impact of Quizizz-gamified learning on the grammatical achievement of 63 Vietnamese students majoring in English. During a 10-week intervention, one group of 33 students utilized Quizizz, while another group of 30 engaged with traditional paper-based quizzes. Although both groups showed improvement from pre-test to post-test, Quizizz group exhibited significantly higher scores. Similarly, in Ecuador, Tamayo et al. (2023) reported that students exposed to gamified methods outperformed those receiving conventional instruction in both grammar and vocabulary. Lin et al. (2020) also observed that a game-based context enhanced English grammar understanding among Taiwanese EFL students, with the experimental group making fewer contextual errors than their counterparts. However, there is a limited number of studies directly comparing gamified to traditional grammar instruction, and this research aims to fill that gap.

In studies using a single-group design, Hashim et al. (2019) applied gamification tools such as Kahoot!, PowerPoint Challenge Game, and Socrative to enhance the grammatical proficiency of Malaysian English as a second language (ESL) learners. Over a three-week period, this quasi-experimental study found a significant rise in the students' grammar scores. Idris et al. (2020) reported similar results after four weeks of gamified grammar instruction, with notable post-test score improvements. Central to these outcomes was gamification's ability to engage students, reducing their anxieties during grammar lessons and thus increasing their motivation to learn. Hong et al. (2022) identified a positive link between student performance and their engagement in interactive and game-based activities. Moreover, positive perceptions of gamification correlated with students' grammar progress and inversely with their apprehensions about learning English (Pratiwi & Waluyo, 2022).

In summary, various studies have explored the effectiveness of gamified grammar instruction, employing both two-group and single-group research designs. Two-group studies have consistently found that students

engaged in gamified learning environments show superior performance in grammar and vocabulary compared to those in traditional settings. Single-group studies also indicate that the introduction of gamification tools leads to significant improvements in grammar scores over a short period. These gains are often attributed to the engaging nature of gamified methods, which reduce student anxiety and boost motivation. Despite these promising findings, there remains a paucity of research directly comparing gamified and non-gamified instructional methods, highlighting an area for future study.

## The Study

The present study designs and implements gamified and non-gamified grammar learning instructions for 12 weeks at a university in Thailand. This study seeks to address the research gaps on the interrelations among the variables emerging from students' gamified learning experiences and the comparative outcomes between gamified and conventional instructions in online English courses. The examinations of gamified grammar learning in a fully synchronous online English courses are still underexplored. Thus far, preceding research has shown that students are technologically well-prepared for online-based gamification and hold positive attitudes towards gamified learning, but online gamification is being mainly used to assist vocabulary learning (Phuong, 2020). Taskin and Kilic Cakmak (2022) conducted a study to determine the effect of gamification on the cognitive and behavioral engagement of students in an online learning environment. The findings indicated that gamification positively affected student achievement by enhancing their interaction with the learning content, thereby rendering it more engaging and comprehensible. Yu (2022) suggests incorporating gamification into online learning because of its activity-based nature and the active participation it encourages among students.

In South Korea, Park and Kim (2021) conducted a study indicating that gamification improved learner motivation and comprehension of educational material. Also, Castillo-Cuesta (2022) demonstrated the efficacy of gamification applications in improving the reading and writing skills of EFL learners in Ecuador, resulting in higher test scores and greater motivation. Nonetheless, Can and Dursun (2019) discovered no significant differences between groups exposed to gamified and non-gamified learning in terms of academic achievement and motivation. Cespón and Lage (2022) demonstrated that the use of technologies and gamification may not be as appealing as anticipated, with teacher-student relationships, rewards, and alienation influencing student participation. Students who had direct contact with the teacher during gamified experiences exhibited greater levels of engagement.

There is still little known about the effectiveness of gamified grammar learning in online English courses at universities in Thailand. Considering these, this study addresses the following research questions:

1. How do students perceive their gamified online English grammar learning in terms of performance, motivation, enjoyment, anxiety, and classroom dynamics and engagement?
2. How does gamified grammar learning compare to conventional learning in terms of student learning outcomes?
3. How do students' perceptions of their gamified grammar learning experiences relate to their English grammar learning outcomes in an online environment?

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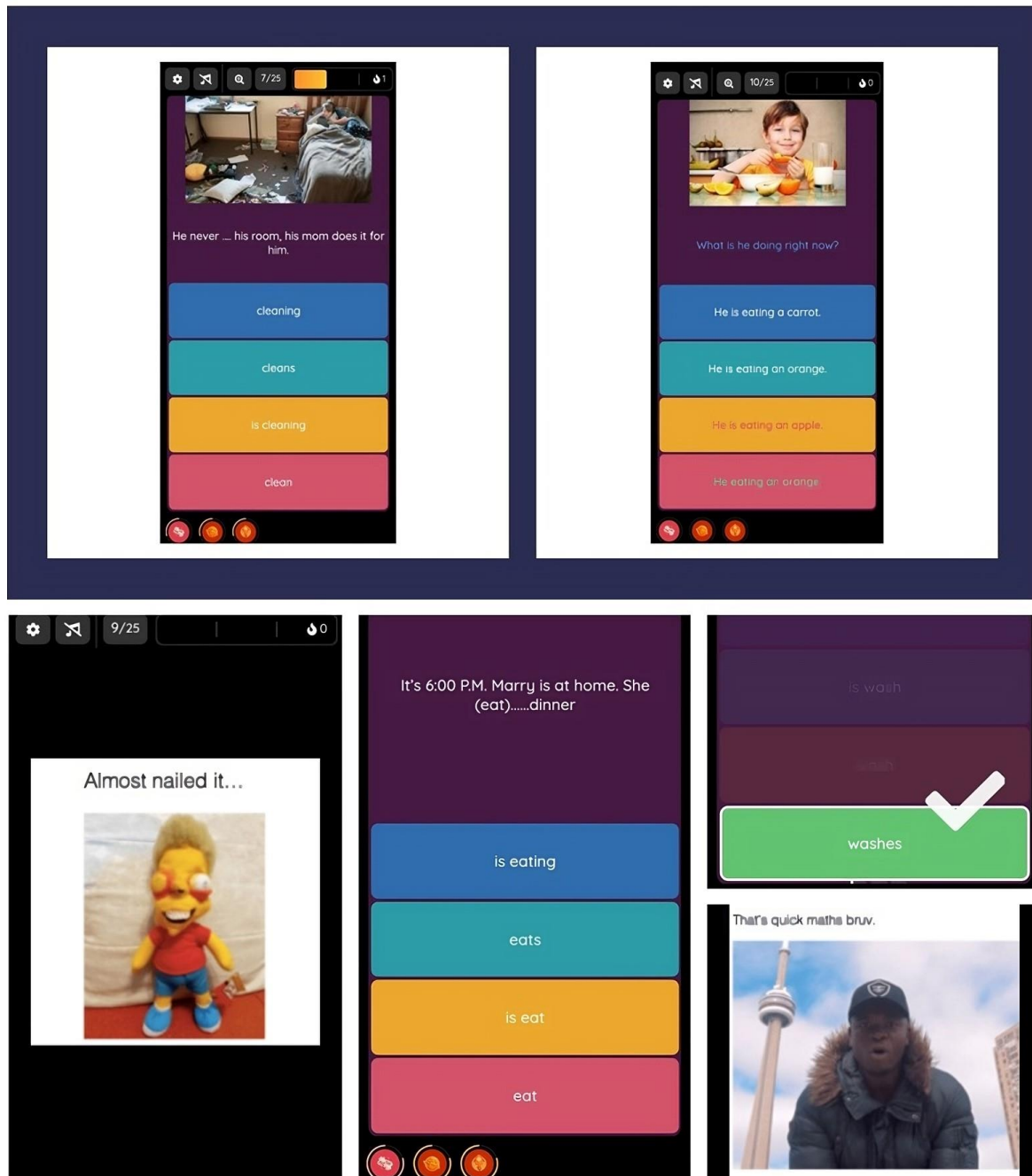
## METHODS

### Research Design

This study utilized a research design that incorporated elements of quasi-experimental and sequential explanatory approaches to examine the efficacy of gamified grammar learning versus traditional learning. It was intended to evaluate the effect of gamified learning on learning performance, motivation, enjoyment, anxiety, classroom dynamics, and student engagement. Using a quasi-experimental design, the researchers were able to compare the learning outcomes of an experimental group and a control group (Reichardt, 2009). In addition, the study utilized a sequential mixed-methods explanatory design, which permitted the sequential analysis of quantitative and qualitative data. This methodology allowed the researchers to present empirical findings based on statistical findings and supplement them with qualitative insights to explain the reasons behind the quantitative results (Subedi, 2016).





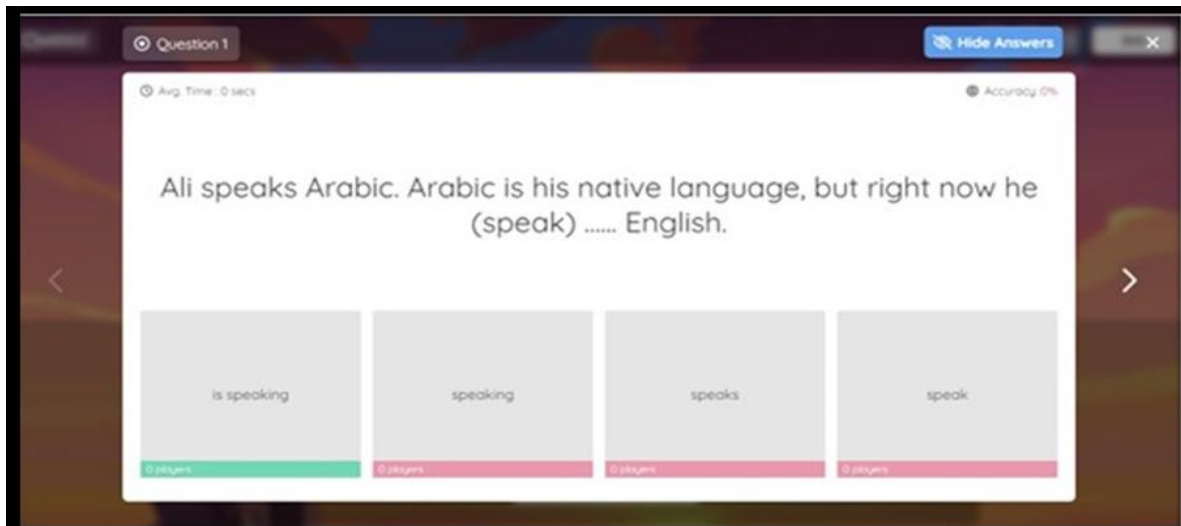


**Figure 2.** Grammar exercises given on *Quizizz* (Source: Authors' own elaboration, using Microsoft PowerPoint program)

app likely incorporated game-like elements and interactive quizzes to enhance engagement and motivation. On the other hand, the control group students were informed that their grammar learning would involve traditional paper-based methods. This distinction in learning approaches between the experimental and control groups aimed to compare the effectiveness of gamified learning versus traditional paper-based learning in the context of grammar instruction.

### **Stage 2: Learning period**

The course employed an integrated-skill approach, encompassing the development of listening, reading, writing, and speaking skills simultaneously. However, this study concentrated on the grammar component of the course. During the study, the experimental group engaged in a combination of lectures and gamified grammar exercises focused on various grammar lessons, including the present simple tense, English articles,



**Figure 3.** Grammar question review given on *Quizizz* (Source: Authors' own elaboration, using Microsoft PowerPoint program)

present continuous tense, simple future tense, past simple tense, comparison of adjectives, and modal verbs. In contrast, the control group received lectures and completed paper-based grammar exercises (**Figure 2**).

Both groups underwent grammar quizzes and a final exam, with the aim of assessing learning outcomes. The incorporation of gamified grammar exercises in the experimental group aimed to enhance interactivity and engagement, while the control group followed traditional methods. These activities served to investigate the effectiveness of gamified grammar learning in comparison to conventional learning approaches. The detailed implementation can be seen in **Figure 2**.

### **Stage 3: Course wrap-up**

Upon reaching the end of the course, the students were administered a final exam specifically focused on grammar (**Figure 3**). Furthermore, to gather additional insights, a survey questionnaire was distributed to the students through Google Forms. This questionnaire aimed to capture their perceptions and feedback regarding the learning experience, including any challenges or difficulties they encountered. Additionally, as part of their assessment, the students were tasked with composing concise reflective essays. These essays served as a platform for the students to document and articulate their personal reflections on the learning process, highlighting their experiences, struggles, and any noteworthy observations. The combination of the final exam, survey questionnaire, and reflective essays provided a comprehensive means of assessing the students' progress, perceptions, and overall engagement with the course.

## **Instruments & Measures**

### **Survey questionnaire**

Using Wang and Tahir's (2020) literature review as a guide, this study employed a survey questionnaire to collect students' perceptions of the implemented gamified grammar learning in their online English classes, with a particular focus on learning performance, learning motivation, learning enjoyment, learning anxiety, and classroom dynamics and engagement. Participants indicated their level of agreement on a scale ranging from strongly disagree (1) to strongly agree (5) for each construct using a five-item questionnaire. Upon completion of the course, the questionnaire was disseminated solely to students in the experimental group. After data collection, the internal reliability of the questionnaire was determined using Cronbach's alpha, with a minimum acceptable threshold of 0.70 for item reliability. The results demonstrated a high level of internal consistency between the questionnaire items, as summarized in **Table 1**.

### **Learning outcomes**

As depicted in **Figure 1**, the students were administered two formative grammar assessments in week 5 and week 9, followed by a summative grammar assessment in week 10. Each test is comprised of 10 multiple-

**Table 1.** Constructs & internal reliability results

Constructs & sample statements	$\alpha$
1. Learning performance, e.g., learning through <i>Quizizz</i> helps me check my understanding of grammar lesson in class.	.940
2. Learning motivation, e.g., I feel motivated when going to English class every week because I know I will play <i>Quizizz</i> in class.	.930
3. Learning enjoyment, e.g., learning through <i>Quizizz</i> makes me enjoy learning English grammar in class.	.940
4. Learning anxiety, e.g., I feel less anxious in learning English in class now because teacher gives <i>Quizizz</i> grammar in class.	.793
5. Classroom dynamics & engagement, e.g., my English class has become more dynamic with gamified learning.	.840

choice questions. The three assessments were administered to participants in both the experimental and control groups during the synchronous virtual gathering on Zoom platform. The students' scores were collected at the end of the course. The sample test questions are given, as follows:

1. Mary usually ..... to school in the morning.
  - a. go
  - b. gos
  - c. goes
  - d. does goes
2. Last March she ..... to Krabi.
  - a. goes
  - b. went
  - c. is going
  - d. will go
3. I think she ..... her presentation tomorrow, but I am not sure.
  - a. will give
  - b. does give
  - c. is going to give
  - d. giving
4. My sister is ..... than me.
  - a. oldest
  - b. old
  - c. older
  - d. the oldest

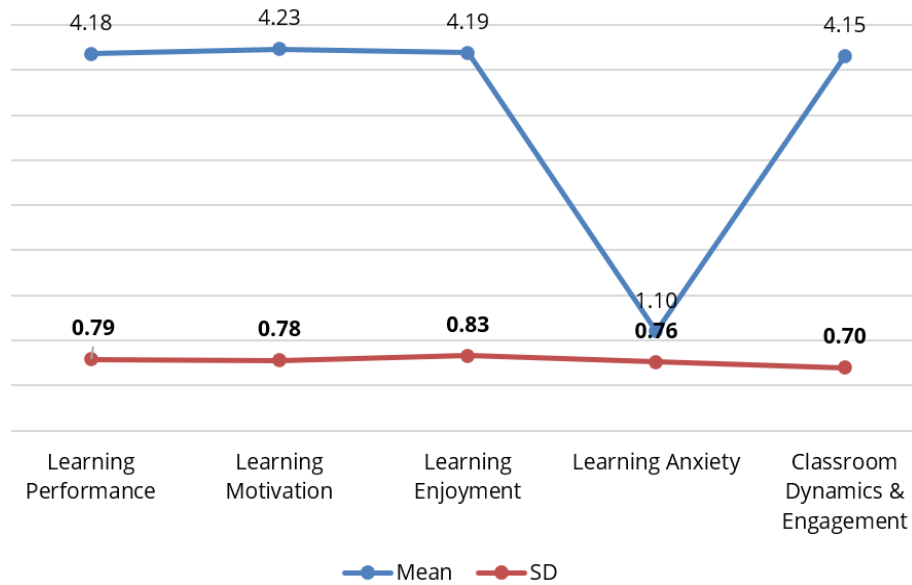
### Written reflections

Following the course, students in the experimental group were given the opportunity to participate in reflective exercises in which they were encouraged to reflect on their learning experiences and identify any challenges or difficulties encountered during the gamified grammar learning process. To collect the necessary data, each student's reflection was anonymized by assigning codes such as S1, S2, S3, and so on. This protected their privacy while allowing for a thorough examination of the material gathered. The students were given the option of expressing their thoughts in Thai or English, with a recommended length of 50-100 words for written comments.

### Data Analysis

The analysis of the data commenced with quantitative analyses applied to the survey responses, formative assessments, and final grammar tests. Descriptive statistics were employed to examine various aspects of students' learning experiences, including learning performance, motivation, enjoyment, anxiety, classroom dynamics, and engagement in gamified grammar learning. Additionally, independent t-tests were conducted





**Figure 4.** Mean & standard deviations (Source: Authors' own elaboration, using Microsoft PowerPoint program)

to compare learning outcomes between the experimental and control groups. Lastly, Spearman's correlations were utilized to explore the relationships between students' perceived learning experiences and their actual learning outcomes.

The qualitative data was subjected to a comprehensive thematic analysis in accordance with the prescribed protocols of Braun and Clarke (2006) and Braun et al. (2015). The methodology employed in this study entailed a thorough immersion in the data, followed by the generation of preliminary codes, the identification of emergent themes, iterative refinement and definition of these themes, and the provision of corroborating quotes. The rigorous methodology employed facilitated a thorough investigation of the various patterns, meanings, and insights inherent in the data, culminating in a more profound comprehension of the research phenomenon.

## RESULTS

The novel feature of this study lies in its in-depth focus on gamified versus non-gamified grammar learning within real-time online English courses at the university level. This section presents quantitative results that include descriptive statistics, independent t-tests, and bivariate correlations to explore the multifaceted impacts of gamified grammar learning. Qualitative findings regarding students' experiences with gamified learning and the challenges encountered are also included. The comparative analysis occurs based on the learning outcomes, as reported below.

### Quantitative Findings

#### Descriptive statistics

**Figure 4** displays that the experimental group students had positive perceptions of their learning experiences with gamified grammar learning. On average, students reported high levels of learning performance (mean [M]=4.18, standard deviation [SD]=.79) and motivation (M=4.23, SD=.78), indicating a successful implementation of the gamified approach. They also reported finding the learning experience enjoyable (M=4.19, SD=.83) and experiencing minimal anxiety (M=1.10, SD=.76). Additionally, the students perceived a positive classroom environment with high levels of engagement (M=4.15, SD=.70).

#### Independent t-tests

**Table 2** reveals that the experimental group students demonstrated superior performance compared to the control group students across all three assessments. Specifically, they achieved higher scores on grammar

**Table 2.** Independent t-test results

	Group	Mean	SD	SEM	t	p	MD	SED
English grammar quiz 1	Experimental	6.85	2.10	.33	2.05	.04	1	.49
	Control	5.85	2.26	.36				
English grammar quiz 2	Experimental	8.50	1.32	.21	4.35	.00	1.83	.42
	Control	6.68	2.30	.36				
Final exam	Experimental	7.65	1.96	.31	2.41	.02	1.05	.44
	Control	6.60	1.95	.31				

Note. SD: Standard deviation; SEM: Standard error mean; MD: mean difference; & SED: Standard error difference

**Table 3.** Correlation analysis results

		LM	LE	LA	CD	GQ1	GQ2	Final exam
Learning performance (LP)	r	.94**	.97**	-.91**	.91**	.15	.37*	-.26
	p	.00	.00	.00	.00	.34	.02	.10
Learning motivation (LM)	r		.93**	.85**	.93**	.08	.28	-.29
	p		.00	.00	.00	.64	.08	.07
Learning enjoyment (LE)	r			.83**	.89**	.12	.34*	-.25
	p			.00	.00	.46	.03	.13
Learning anxiety (LA)	r				.85**	.26	.35*	-.27
	p				.00	.11	.03	.09
Classroom dynamics & engagement	r					.06	.26	-.31*
	p					.73	.11	.05
Grammar quiz 1 (GQ1)	r						.35**	.53**
	p						.001	.00
Grammar quiz 2 (GQ2)	r							.32**
	p							.004

Note. \*\*Correlation is significant at 0.01 level (2-tailed) & \*Correlation is significant at 0.05 level (2-tailed)

quiz 1 ( $t=2.05$ ,  $p=.04$ ) with a small effect size (Cohen's  $d=[5.85-6.85]/2.181467=0.458407$ ), grammar quiz 2 ( $t=4.35$ ,  $p<.001$ ) with a large effect size (Cohen's  $d=[6.68-8.50]/1.875153=0.970587$ ), and final exam ( $t=2.41$ ,  $p=.02$ ) with a medium effect size (Cohen's  $d=[6.60-7.65]/1.955006=0.537083$ ).

### Bivariate correlations

**Table 3** demonstrates that learning performance exhibited robust positive correlations with learning motivation ( $r=.94$ ,  $p<.001$ ), learning enjoyment ( $r=.97$ ,  $p<.001$ ), and classroom dynamics and engagement ( $r=.91$ ,  $p<.001$ ). A substantial correlation also emerged between learning performance and learning anxiety ( $r=-.91$ ,  $p<.001$ ), indicating that heightened anxiety is linked to decreased performance. However, the association between learning performance and grammar quiz 2 was relatively weak ( $r=.37$ ,  $p=.02$ ) and nonsignificant with grammar quiz 1 and final exam, raising the possibility of additional variables influencing quiz and final exam performances.

Furthermore, learning motivation and learning enjoyment demonstrated a strong positive correlation ( $r=.93$ ,  $p<.001$ ), suggesting that students who possess high levels of motivation also tend to derive enjoyment from the learning process. Similarly, a robust positive correlation was observed between learning enjoyment and classroom dynamics and engagement ( $r=.89$ ,  $p<.001$ ), implying that students who find the learning experience enjoyable are more likely to perceive an engaging classroom environment. Additionally, moderate positive correlations were identified between learning anxiety and learning enjoyment ( $r=.83$ ,  $p<.001$ ), learning anxiety and classroom dynamics and engagement ( $r=.85$ ,  $p<.001$ ), and learning anxiety and grammar quiz 1 ( $r=.35$ ,  $p=.03$ ).

More importantly, learning performance, motivation, enjoyment, and anxiety had no significant correlations with the final exam. Classroom dynamics and engagement had a weakly negative correlation with the final exam, but it should be approached cautiously.

## Qualitative Findings

### *Students' experiences*

The thematic analysis disclosed three themes illustrating students' learning experiences in gamified grammar learning: effectiveness and enjoyability of the learning experience, practicality and applicability in daily life, and personal growth and confidence. The details are elaborated on below.

**Theme 1: Effectiveness & enjoyability of learning experience:** The students' responses indicate a unanimous agreement on the effectiveness and enjoyability of the gamified grammar learning approach. They described it as good, easy to learn, and quite effective. The quizzes provided them with a variety of problems to solve, allowing them to assess their knowledge and determine which areas they needed to focus on. The immediate feedback and interactive nature of the approach made learning enjoyable and engaging. The students expressed excitement and described it as a test of their knowledge and a way to challenge themselves. This positive perception suggests that the gamified approach effectively facilitated their learning process. Sample excerpts:

It is easy to understand, making learning enjoyable and fostering a stronger desire to study and concentrate. It is not boring, and it keeps me excited all the time while increasing my knowledge (S12).

It was a good experience, and I liked it very much. It is challenging to take the exam through a game-like approach, but it would be great if there were rewards for the winners as well (S15).

I gained valuable knowledge. Usually, I'm not fond of English, so I lacked a strong foundation. However, studying with this approach was enjoyable and made me eager to learn even more (S16).

**Theme 2: Practicality & applicability in daily life:** The students recognized the practicality and applicability of the gamified grammar learning approach in their daily lives. They mentioned that it was helpful for exams and provided techniques and principles that could be applied beyond the classroom. They appreciated its relevance to real-life communication and its ability to enhance their study efficiency. The approach helped them understand grammar concepts, memorize words, and improve their English communication skills. They also noted that the content of the study material aligned well with the exam, striking a balance between difficulty and comprehensibility. This practical aspect of the approach contributed to the students' positive perception and their belief that it was a valuable tool for language learning. Sample excerpts:

It helps me understand and learn grammar effectively, improving my study efficiency. It is also easy to understand and helps me memorize words for everyday use, making English communication easier (S21).

It is considered better than ever before. I acquire knowledge about different grammar concepts, and it provides a simple way to review knowledge through well-designed tests (S23).

It is very good. Using English to teach has helped me, someone who had limited knowledge of English, understand some English words (S24).

**Theme 3: Personal growth & confidence:** The students' responses revealed the positive impact of the gamified grammar learning approach on their personal growth and confidence. They reported increased knowledge, expanded vocabulary, and improved understanding of grammar concepts. The approach transformed their attitude towards English, sparking their interest in the language and making them more enthusiastic about learning. They felt happier, more determined, and more alert during the learning process. The gamified nature of the approach, with its challenges and self-assessment components, helped them develop their potential and boost their confidence. They noticed improvements in their listening skills and felt more knowledgeable during practice sessions and exams. This personal growth and enhanced confidence further reinforced their positive perception of the gamified approach. Sample excerpts:

In the past, I had limited knowledge of grammar. The use of Quizizz has moderately improved my understanding of grammar and made me more enthusiastic about learning. I now listen more attentively and enjoy learning (S27).

I feel that learning grammar using Quizizz allows me to utilize my thinking skills to analyze and memorize grammar. I can sense a significant improvement in my grammar usage compared to before, and most importantly, I can apply grammar principles correctly (S34).

I have gained a substantial amount of knowledge and have challenged myself. Competing with friends and against time helps us grasp the content more effectively and tap into our potential. We encounter more examples and principles of use, making English less difficult (S37).

In summary, the students' responses paint a picture of the gamified grammar learning approach as highly effective and enjoyable. It not only facilitated their learning process but also had practical applications in their daily lives. The approach contributed to their personal growth, sparked their interest in English, and instilled confidence in their language skills. The positive perceptions and experiences of the students highlight the potential of gamification to enhance language learning outcomes.

### **Challenges & obstacles**

The thematic analysis unveiled various challenges and obstacles the students encountered during their gamified grammar learning experiences. Firstly, technical difficulties emerged as a recurring issue, with students reporting problems with the system and the Internet connectivity. These obstacles hindered their ability to fully engage with the learning activities and disrupted the flow of their learning experience. It is crucial for educators and developers to address these technical issues to ensure a seamless and uninterrupted learning environment. Sample excerpts:

There can be issues with the Internet signal, which leads to less time to complete it (S32).

The problem is the Internet. Sometimes it is very slow or does not work at all. I also encounter problems with computers and my phone hangs frequently (S39).

Secondly, understanding and retaining grammar concepts posed another significant challenge for the students. Many students expressed the need to revisit the material and read it multiple times in order to grasp the content fully. Language proficiency limitations were also apparent, as some students indicated that they struggled with English vocabulary and comprehension. These challenges highlight the importance of providing additional support and resources for students who may require extra assistance in understanding grammar rules and concepts. Tailoring the learning materials to different proficiency levels can help address these obstacles and enhance the overall learning experience. Sample excerpts:

There are some difficulties in certain matters, but I had to go back and reread in order to better understand what I have learned (S7).

I have difficulty understanding certain words, sentences, and their interpretations, which makes it hard for me to grasp the meaning of some sentences (S23).

Thirdly, time constraints and the pressure of timed quizzes emerged as additional challenges for the students. The limited time allotted for completing quizzes and tasks induced anxiety and tension among some students. This pressure to perform within a set time frame may have affected their ability to fully absorb and apply their knowledge effectively. It is important to strike a balance between challenging students and providing them with sufficient time to process and respond to the learning materials. By considering these time-related challenges and implementing appropriate strategies, educators can create a more supportive and conducive learning environment for students engaged in gamified grammar learning. Sample excerpts:

The problem is that I tend to think and respond slowly, and the time constraints make me quite tense and rush a lot (S18).

As Quizizz is a time-consuming and stressful exam, I think it would be good to use it to stimulate interest in studying. However, if points are collected, it can create pressure for those who cannot keep up (S37).

## DISCUSSION

This study examined the implementation of gamified grammar learning in an online English course at a Thai university. It involved students with low English proficiency levels. The quantitative and qualitative findings were triangulated. The findings are discussed in four points.

### Point 1: Students' Learning Experiences are Encouraging

Descriptive statistics demonstrate the effectiveness of gamified grammar learning in enhancing achievement, motivation, enjoyment, and engagement while reducing anxiety, highlighting its potential benefits in enriching students' learning experiences. The students' written reflections further elaborate on the effectiveness and enjoyment of this approach. Their unanimous agreement on the efficacy and enjoyment of gamified grammar learning reinforces previous research conducted in Indonesia (Ardi & Rianita, 2022; Sourav et al., 2021), Iran (Ahmed et al., 2022), Malaysia (Singh & Harun, 2016), Taiwan (Hong et al., 2022), and Turkey (Eryigit et al., 2021). They valued the diverse problem-solving opportunities provided by the assessments, which facilitated self-evaluation and the identification of areas needing improvement. Similar findings were reported by Kyung-Mi (2022) in South Korea, where students also highlighted increased self-assessment, resource access, and review opportunities through gamified grammar learning experiences. The interactive nature and immediate feedback of the gamification approach contributed to enjoyable and engaging learning. The students exhibited enthusiasm, viewing it as both a knowledge examination and a personal challenge, aligning with the findings of Redjeki and Muhajir (2021) in Indonesia.

### Point 2: Gamification of Grammar Instruction Enhances Learning Outcomes More Than Traditional Methods

The independent t-test yielded significant results, showcasing the greater performance of the experimental group students across all three assessments, with effect sizes ranging from small to large. These findings align with similar studies conducted in Ecuador (Tamayo et al., 2023), Taiwan (Lin et al., 2020), Thailand (Panmei & Waluyo, 2022), and Vietnam (Pham, 2023), which compare gamified and non-gamified grammar learning. While most gamification studies adopt a single group design and confirm the positive effects on students' grammar learning progress (Hashim et al., 2019; Hong et al., 2022; Idris et al., 2020), these findings further substantiate that the gamified grammar learning approach yields positive outcomes, even without comparative measures. Subsequently, students in the experimental group highly valued the practicality and applicability of this approach in their daily lives, recognizing its utility for exams and its provision of techniques and principles beyond the traditional classroom setting. They commended its relevance to real-world communication and its capacity to enhance study efficiency by facilitating their grasp of grammar concepts. Moreover, they emphasized the compatibility between the study material and exam requirements, establishing a balance between difficulty and readability. This practical aspect significantly influenced the students' positive perception, reinforcing their conviction that it serves as an indispensable tool for language acquisition.

### Point 3: Learning Experiences & Learning Outcomes of Students Are Unrelated

The Spearman's correlations demonstrate strong positive correlations between learning performance and learning motivation, learning enjoyment, and classroom dynamics and engagement, as well as a negative correlation with learning anxiety, while specific assessments show weak or nonsignificant relationships, indicating the presence of other influencing variables. Reviews of gamification research show mixed results, with some studies highlighting its effectiveness in creating enjoyable and engaging learning experiences (Dehghanzadeh et al., 2021; Pinto et al., 2021), while others fail to establish a clear link to improved learning outcomes (Boudadi & Gutiérrez-Colón, 2020). Students' reflections highlight the profound impact of gamified grammar learning on personal development and self-assurance, fostering knowledge growth, vocabulary expansion, and deeper comprehension. However, the discrepancy between perceived experiences and

learning outcomes in the statistical analysis suggests caution in interpreting subjective feelings as indicators of achieved learning outcomes.

#### **Point 4: Challenges & Obstacles**

Student reflections revealed recurring technical difficulties, including system and the Internet connectivity issues, hindering full engagement, and disrupting the learning experience. Additionally, students encountered challenges in understanding and retaining grammar concepts, while time constraints and the pressure of timed quizzes posed further obstacles. Limited time caused anxiety and impacted knowledge absorption and application. These challenges align with findings by Dehganzadeh and Dehganzadeh (2020) and Thi Van Pham and Minh Pham (2022). Addressing technical difficulties requires clear instructions, troubleshooting guidance, and support. Clear explanations, examples, interactive activities, and ample practice are crucial for addressing grammar challenges. Flexible schedules, self-pacing, and clear expectations help manage time constraints. Resolving these challenges improves the effectiveness of gamified grammar instructions and enhances the learning experience for students.

#### **Implications of the Findings**

The findings have significant implications for universities, English instructors teaching entirely synchronous online courses, and future research. First, universities are encouraged to develop policies to facilitate the incorporation of gamification strategies into the curriculum. This may involve providing training and resources to English lecturers so that they can incorporate gamified elements into their online courses effectively. To maximize the efficacy of gamified learning experiences, universities should also resolve technical issues and provide dependable internet connectivity. Then, English lecturers should consider incorporating gamified elements into their instructional strategies to increase student motivation and engagement. To make the learning process more interactive and stimulating, they can include game-based activities, assessments, challenges, and self-assessment components. However, lecturers must be aware of potential obstacles such as technical difficulties and time constraints and provide students with explicit instructions and assistance (Rofiah et al., 2022). Lastly, future research should investigate the effect of various gamification strategies on student motivation, engagement, and academic performance. In addition, research can investigate the efficacy of game-based activities and elements in promoting language acquisition and proficiency. Additionally, it is essential to investigate the long-term effects of gamified learning on the language skills and attitudes of students. This research can contribute to the creation of evidence-based guidelines for the incorporation of gamification in online language education.

## **CONCLUSIONS**

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This study provides a seminal contribution to the field by uniquely focusing on the effects of gamified grammar learning in fully synchronous online English courses at the university level. By directly comparing gamified and traditional, non-gamified approaches to English grammar instruction, it adds a valuable layer of complexity to existing research. Our findings clearly indicate the positive impact of gamified learning on student experiences, motivation, and engagement, while also shedding light on enhanced learning outcomes as compared to traditional methods. Nonetheless, we recognize the importance of treating subjective experiences cautiously as indicators of actual learning outcomes. Furthermore, the study brings to attention practical challenges like technical difficulties, comprehension of grammar concepts, and time constraints that warrant further investigation. These nuanced insights not only enrich our understanding of the pedagogical potential of gamification in higher education settings but also provide a foundation for educators and academic institutions to refine and evolve their language learning programs and strategies.

It has some limitations to be acknowledged. It focused on a narrow set of students with low English proficiency at a single Thai university, limiting its generalizability. To improve external validity, future studies should use a more diversified sample. The study also relied on self-reported thoughts and judgements, which may be biased. Objective measurements like standardized assessments can improve the evaluation of learning outcomes. The study also did not examine the long-term impact of gamified grammar learning on students' English abilities and attitudes. Future studies should examine the long-term sustainability of the



identified advantages. Despite these limitations, this study adds to the body of knowledge on gamified grammar learning and provides significant insights for language educators and academics.

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**Data availability:** Data generated or analyzed during this study are available from the authors on request.

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