

Research Article

Enhancing TOEFL Performance and Student Motivation through Integrated Flipped and Gamified Learning in Online Settings

Safnil Arsyad ,¹ Budi Waluyo ,² and Ira Maisarah ,¹

¹English Education Postgraduate Program, Education Faculty, Bengkulu University, Bengkulu, Indonesia ²Languages Department, School of Languages and General Education, Walailak University, Nakhon Si Thammarat, Thailand

Correspondence should be addressed to Budi Waluyo; budi.business.waluyo@gmail.com

Received 20 September 2023; Revised 20 December 2023; Accepted 19 January 2024; Published 31 January 2024

Academic Editor: Stephen Gbenga Fashoto

Copyright © 2024 Safnil Arsyad et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

In the evolving landscape of education, the integration of flipped and gamified learning into online English courses has remained a complex and underexplored terrain. To address this knowledge gap, our study designed and implemented an innovative hybrid pedagogical model, seamlessly blending flipped and gamified learning principles into the context of online TOEFL (Test of English as a Foreign Language) instruction. The study, conducted within a public university in Bengkulu Province, Indonesia, included 27 carefully selected research participants (11.1% male, 88.9% female) from a population of 80 third-year undergraduate English majors, employing purposive convenient sampling techniques to ensure diversity representation. Our comprehensive data collection encompassed pre- and post-TOEFL assessments, surveys, and reflective essays, with qualitative data subjected to thematic analysis and quantitative data analyzed through descriptive statistics, nonparametric Wilcoxon rank tests, and Spearman's correlation analysis. The results unveiled a multifaceted landscape, showing improvements in student enjoyment and motivation alongside increased anxiety. However, the intervention demonstrated significant enhancements in TOEFL listening, reading, and overall scores, although structure and written expression remained largely unchanged. Intriguingly, while heightened enjoyment correlated with increased motivation, emotional variables displayed no significant correlation with TOEFL posttest scores. These findings carry profound implications for TOEFL preparation, student motivation, and the management of classroom diversity in online learning settings.

1. Introduction

The 21st century has witnessed a surge in academic focus on flipped learning and gamified learning in university education, particularly in the realm of fully synchronous online English as a Foreign Language (EFL) courses [1]. Despite this growing interest, there remains a notable gap in research exploring a cohesive pedagogical framework that effectively merges these two approaches. Previous studies have affirmed the positive effects of both flipped and gamified learning in enhancing student engagement, motivation, and academic performance [2, 3]. However, these findings are not without contradictions and variations in pedagogical implementation [4]. For instance, Brewer and Movahedazarhouligh [5] identified a lack of comprehensive research and resources supporting a smooth transition to flipped learning, while Koivisto and Hamari [6] pointed out the limited evidence supporting the effectiveness of gamification. This inconsistency highlights the need for more rigorous research in these areas, particularly concerning online EFL courses, to elevate educational practices and facilitate transformative learning experiences in the dynamic landscape of higher education.

In Indonesian universities, the TOEFL ITP (Test of English as a Foreign Language Institutional Testing Program) is extensively used as an exit exam, reflecting its global stature under the management of the Educational Testing Service (ETS), USA. This test assesses EFL students across listening comprehension, structure and written expression, and reading comprehension, with scores spanning 337 to 677. Universities commonly set a minimum passing score of 450, even though scores below 459 only denote a basic level of English proficiency (A1) according to the Common European Framework of Reference (CEFR) for Languages. Empirical studies, however, indicate a worrying trend where only 5–15% of students typically meet this minimum score, with even lower success rates at higher thresholds [7–9]. The TOEFL score's increasing significance in job applications has further raised its importance, yet students often struggle to meet these standards due to various hindrances, including limited language skills and low self-confidence [10, 11]. Considering the widespread usage of TOEFL on a global scale, these situations may be shared with other universities in countries where English is not the first language.

Addressing this pervasive issue, this study proposes the development and implementation of a gamified TOEFL learning model to enhance student scores while simultaneously improving their enjoyment, anxiety, and motivation for studying TOEFL materials in online settings. Current pedagogical approaches predominantly involve traditional lecture methods and repetitive question exercises, which have been criticized for their lack of engagement and enjoyment [12, 13]. The proposed model leverages gamification, a strategy that applies gaming elements in educational contexts, to create a more interactive and engaging learning environment. This approach has shown promise in enhancing learning experiences, particularly for students with low proficiency levels and in test-oriented scenarios [14, 15]. Through gamified learning, featuring elements like online quizzes, leaderboards, memes, and rankings, this study is aimed at addressing key factors crucial to foreign language learning success: enjoyment, anxiety, and motivation [16-18]. Additionally, this study contributes to the limited empirical research on the impact of gamified learning in TOEFL preparation, with the potential to offer significant insights for both academic institutions and students facing high stakes in English proficiency assessments [19].

This study critically examines an innovative instructional model that blends flipped learning and gamified learning in an online TOEFL (Test of English as a Foreign Language) preparation course. Ekici's [20] systematic review shows that gamification improves motivation, participation, and learning performance in flipped classrooms. Due to insufficient evidence and the focus on Moodle and Kahoot!, these conclusions are not generalizable. Ng and Lo [21] also examined the effects of flipped classrooms and gamification on student performance and academic commitment at a Chinese institution, highlighting the role of learning culture and teacher dependability on student success and engagement. Yet, inadequate research exists concerning English proficiency test preparation courses such as TOEFL, particularly in online environments. Meanwhile, conventional TOEFL courses typically feature teacher-centered lectures and student interaction mostly through question exercises, with a tendency to render lectures tedious and unengaging [13]. Factors such as enjoyment, anxiety, and motivation, which have been shown to significantly impact student success in foreign language learning, should not be overlooked [18]. The TOEFL test has significant implications for academic and professional contexts, according to a survey by ETS (Educational Testing Service) of TOEFL users in Japan, Mexico, and Indonesia. Students may face high stakes, such as delayed graduation or job prospects, if they fail to achieve the minimum target score [7, 19, 22]. Consequently, students preparing for the TOEFL encounter considerable pressure, which can potentially contribute to heightened anxiety. Failures in the learning process can negatively impact motivation, while monotonous teaching methods can diminish the enjoyment of the learning process, ultimately resulting in students falling short of attaining the desired target score.

Considering these gaps, the present study seeks to develop and implement an integrated, flipped, and gamified online TOEFL learning approach. This approach is aimed at not only increasing students' TOEFL scores but also enhancing their overall learning experience by addressing factors such as enjoyment, anxiety, and motivation, which are crucial for the success in foreign language learning. Through this innovative model, the study is aimed at contributing to pedagogical development in the field of online EFL education, particularly in high-stake environments like TOEFL preparation. The following research questions are addressed:

- (1) How do students perceive their learning experiences in the flipped and gamified online TOEFL course in terms of learning enjoyment, anxiety, motivation, and outcomes?
- (2) How does the learning model intervention affect their TOEFL scores?
- (3) How do their learning experience perceptions correlate with their TOEFL scores?

2. Literature Review

2.1. Flipped Online Learning. Flipped learning implementation in online settings necessitates students' independent study prior to class, with instructors designing deliberate learning experiences through textbooks, videos, and audio files to engage students outside the classroom [5, 23]. In a study by Thai et al. [24], students are assigned exercises or tasks to assess their independent learning, followed by group discussions and immediate feedback during online synchronous meetings on a web-based lecture platform. Ahmad and Arifin [25] adopt a flipped classroom model where synchronous meetings via video conferencing (Zoom) focus on quiz explanations rather than covering all grammar points. These examples exemplify the utilization of flipped learning in online settings, akin to the traditional approach where students watch prerecorded videos before in-person practice and discussion. A specific variant of this, the Synchronous Online Flipped Learning Approach (SOFLA), introduced by [26], shares similarities with the methods employed in the present study, detailed comprehensively in Methods.

The effects of flipped learning can be observed through various studies conducted in different contexts. Haghighi et al. [27] found that Iranian EFL learners in a flipped conversation course outperformed their counterparts in a conventional course in the posttest, indicating higher engagement and learning outcomes. Similarly, Lee and Wallace [28] implemented a flipped approach in a South Korean university and discovered that students in the flipped classroom achieved higher scores on their final tasks compared to those in a traditional classroom, although statistical significance was only evident in the final exam mean score. Ahmad and Arifin [25] observed significant improvement in grammar course scores after one month of participation in an online flipped course, with students expressing positive opinions about the interactive nature of the flipped approach. On the topic of anxiety, Gok et al. [29] reported decreased anxiety levels in both general English learning and reading specifically, when utilizing online flipped classrooms. In contrast, Hosseini and Mahmoodi [30] found no significant difference in anxiety scores between the traditional and flipped groups in an Iranian EFL listening course, although the experimental group showed greater improvement in listening performance. In terms of motivation, Chen Hsieh et al. [31] investigated the advantages of a flipped classroom model for EFL learners in Taiwan. They found that the theory-based flipped instruction using online interaction enhanced participants' motivation and improved their idiomatic knowledge.

2.2. Gamified Online Learning. While gamified learning has been found to enhance English language learning by making it enjoyable, engaging, motivating, and fun [17, 32], the application of gamification in online learning is still a relatively new field [33]. There is a scarcity of studies specifically focusing on integrating gamification into online English preparation courses. Therefore, the present study is aimed at providing empirical findings not only in the context of online English learning but also in other relevant contexts, investigating the effects of gamified learning on enjoyment, anxiety, motivation, and learning outcomes. The integration of gamification in the context of online learning has been investigated across a range of platforms, including but not limited to learning management systems, social network games, web-based platforms, and online applications, resulting in a variety of results. In a study by Taşkın and Kılıç Cakmak [34], gamification's effects on students' behavioral and cognitive engagement were examined in an online learning environment. The quasiexperimental study involved an experimental group experiencing gamified learning and a control group studying in a nongamified environment for 10 weeks. The findings showed that gamification improved students' achievement by enhancing their interaction with the learning content, making it more interesting and comprehensible. The use of gamification in online learning is recommended besides its activity-based nature and students' active engagement [35, 36].

Hong et al. [37] found that gamifying questions reduced anxiety and enhanced enjoyment and pedagogical usefulness in English grammar learning. Similarly, Öden et al. [38] examined the effects of the gamified response system, Kahoot!, on attitudes, motivation, and exam anxiety. Although Kahoot! significantly increased attitudes towards the EFL course, the impact on motivation and exam anxiety was not statistically significant. Flow and emotional engagement in gamified learning had a highly significant impact on motivation, leading to improved academic success [39]. A study in South Korea by Park and Kim [40] indicated that gamification positively affected learner motivation and understanding of educational content. Castillo-Cuesta [41] demonstrated the effectiveness of gamification apps in enhancing EFL learners' reading and writing skills in Ecuador, resulting in improved scores and increased motivation.

In contrast, Can and Dursun [42] found no significant differences in academic achievement and motivation between gamified and nongamified learning groups. Cespón and Lage [43] revealed that the use of technologies and gamification may not be as appealing as expected, with factors like teacher-student relationships, rewards, and alienation influencing student participation. The low participation rate emphasized the importance of considering both participating and nonparticipating students. It was concluded that methodology alone is insufficient, as the performance and student-teacher relationship in online education are emotionally demanding. Students who had direct contact with the teacher during gamified experiences showed higher involvement levels.

2.3. Flipped and Gamified Online Learning. Very limited research on the integration of flipped and gamified learning in online English courses is available in the literature compared to those conducted in offline settings. This study, therefore, reviews empirical findings from both traditional and online settings, with an emphasis on the effects on learning enjoyment, anxiety, motivation, and learning outcomes. Ho [44] gamified and reversed an English course using digital drawing and active learning approaches in Hong Kong. The group-based game task was perceived to be more effective than group discussions at nurturing a positive classroom environment, reducing anxiety, and improving English language proficiency. Correspondingly, Singh and Harun [45] discovered that students relished flipped, gamified lessons with platforms such as Kahoot! and Quizlet, which encouraged them to engage with English grammar. Zou [46] investigated the perceptions of a flipped, gamified EFL classroom in Hong Kong and found increased motivation, engagement, learning skills, confidence, and performance. However, teacher-led preclass learning was essential for students' comprehension, and not all students held a positive view of this strategy, which was likely influenced by their understanding of the flipped classroom, English proficiency, self-regulated learning skills, and age.

Hung [47] implemented a gamified flipped classroom method in Taiwan, which decreased anxiety and increased motivation among English language learners. Similarly, Botmart [48] discovered that gamified flipped classroom applications significantly increased English vocabulary achievement in Thailand. The posttest results demonstrated a significant improvement over the pretest results. Students expressed favorable opinions, highlighting the enjoyment and convenience of this method for their education. Consistent with these findings, Liman-Kaban [49] found that gamified flipped classrooms in Turkey enhanced the vocabulary scores, engagement, and motivation of EFL students during gamified in-class activities. Students valued the incorporation of hands-on activities rather than relying merely on instruction in online synchronous classes. In addition, Fahandezh and Mohammadi [50] examined the impact of a gamified flipped classroom on Iranian EFL students' vocabulary acquisition and discovered a significant improvement compared to traditional classes.

Gündüz and Akkoyunlu [51] discovered that students who participated in a gamified flipped classroom in a non-English higher education course acquired higher scores in terms of interaction data, participation, and achievement than those who utilized the traditional learning mode. In terms of mathematics achievement and cognitive engagement, Lo and Hew [52] compared the outcomes of flipped learning with gamification versus traditional learning and online autonomous study. Students in the flipped-gamified class outperformed those in traditional classes, indicating that flipped learning with gamification promoted greater cognitive engagement. In support of these findings, Yu and Yu [53] conducted a meta-analysis and concluded that gamified flipped classrooms were more effective than traditional flipped learning in boosting secondary and university students' academic achievement, motivation, engagement, and satisfaction. These findings are consistent with Huang et al.'s [54] research. Collectively, these studies demonstrate that gamified flipped classrooms are superior to conventional approaches in terms of student achievement and engagement.

3. Methods

3.1. Research Design. This study employed a sequential explanatory mixed method research design, which encompassed qualitative data collection to elucidate and scrutinize the initial quantitative findings [55]. The research design was operationalized through a one-group pretest-posttest approach, wherein participants were assessed both prior to and after receiving the intervention, enabling an evaluation of changes in dependent variables [56]. Utilizing surveys and TOEFL results, the quantitative research design sought to investigate the impact of the online flipped and gamified learning model on students' learning enjoyment, anxiety, motivation, and outcomes. In contrast, the qualitative data originated from students' reflective essays pertaining to their experiences, shedding light on how the online learning model influenced their emotional states and learning outcomes. Figure 1 illustrates the research design.

3.2. Research Context and Participants. The research was carried out at a public university in Indonesia, with a sample size of 27 third-year undergraduate English major students (mean age = 20.52, standard deviation = 0.85), whose ages varied between 19 and 22 years. The sample was selected from a population of 80 third-year undergraduate students at the university. The sample was deemed representative as it constituted 34% of the entire population. According to the recommendation by Gay and Diehl [57], the ideal minimum sample size is 10-20% of the overall population. The study employed a purposive convenient sampling method, which is a nonprobability sampling strategy that integrates purposive sampling and convenience sampling. Purposive sampling involves the deliberate selection of participants by the researcher, taking into consideration their judgment and relevance to the research issue. On the other hand, convenience sampling involves the selection of participants based on their easy availability and accessibility [58]. Purposive convenient sampling is advantageous when the researcher aims to investigate a particular population that is challenging to access or identify, while also seeking to optimize time and resource utilization by selecting the most convenient data sources.

The participants, consisting of 11.1% males and 88.9% females, had previous experience in participating in fully synchronous online English learning. They used WhatsApp groups and the online conference program Zoom for this purpose. Their goal was to study for the paper-based Test of English as a Foreign Language (TOEFL), which is a mandatory requirement for their graduation. Their English language acquisition process extended for nearly 14 years, starting in elementary school and continuing through university. After finishing their bachelor's degrees, most participants expressed a desire to continue employment in English language teaching, while a few may have opted for different courses. For ethical considerations, the participants were provided with comprehensive information regarding the study's objectives, and their involvement was entirely voluntary. Written consent was obtained from the subjects, and their identities were meticulously safeguarded to ensure confidentiality. The study diligently adhered to ethical guidelines governing social science research.

3.3. Course Design: Flipped and Gamified TOEFL Learning Model. The present study implemented a flipped and gamified approach to TOEFL learning among undergraduate students, as illustrated in Figure 1. The primary objective was to investigate the efficacy of this learning model in enhancing students' TOEFL scores, while also examining its impact on learning enjoyment, anxiety, and motivation. The flipped and gamified learning model was constructed based on Landers and Landerss [59] and Brewer and Movahedazarhouligh [5], encompassing instructional design, game characteristics, behavioral and attitudinal aspects, and learning outcomes. To facilitate instructional design, the gamification apps Kahoot! and Quizizz were employed, which are widely recognized tools in gamified learning. These apps incorporated game features such as student rankings, points, live games, and review questions, aligning with the selected gamified learning approach. The course instruction involved three phases.

3.3.1. Phase 1: Pretest and Course Orientation. Following a brief introduction to the course materials and activities, students underwent a pre-TOEFL examination.

3.3.2. Phase 2: Learning Period. The TOEFL preparation course involved listening, structure and written expression, and reading materials, based on the paper-based test version. Weekly handbooks were provided, enabling students to engage in self-study. These handbooks encompassed materials corresponding to each week, including video and audio resources for independent exploration. Prior to the synchronous online sessions conducted via Zoom, students were instructed to review the handbook materials throughout



FIGURE 1: Illustration of the research design.

the week. The teacher developed these manuals in line with the flipped learning approach, integrating video and audio materials. All the materials were linked to pages of the teacher's WordPress blog. Within the WhatsApp group, students were encouraged to pose questions, and the teacher promptly responded to the queries. All the materials used were a mix of Indonesian and English, as requested by the students (Figure 2). Additionally, every three days, the teacher posted quizzes related to the learned materials in the WhatsApp group. The online application, Quizizz, was used to deliver the quiz questions, giving students the gamified learning experience during the flipped learning mode.

After a week of individual study, students and instructors convened for a two-hour synchronous Zoom meeting. During this online session, the instructor administered exercises aligned with the lessons covered in the previous week. These TOEFL practice questions were transformed into gamified online tests using the Kahoot! and Quizizz platforms. To ensure task variation, the instructor employed diverse approaches when utilizing these applications. Moreover, the instructor ensured comprehensive comprehension of the exercises within the gamified learning mode, promptly addressing challenging questions. Active learning strategies were employed during the gamified synchronous sessions, with students encouraged to share their thoughts, opinions, and solutions. From weeks one to five, these integrated learning activities encompassed listening, structuring, written expression, and reading materials, as illustrated in Figures 3 and 4.

3.3.3. Phase 3: Course Wrap-Up. A post-TOEFL test was administered to students on-site. Additionally, questionnaires measuring enjoyment, anxiety, and motivation with the learning experience were distributed using Google Form. To determine the learning outcomes, TOEFL scores were calculated and recorded. Students were also required to compose concise reflective essays, documenting their educational experiences and the impact of online learning on their learning emotions and outcomes.

3.4. Instrument and Measure

3.4.1. Pre- and Post-TOEFL Tests. TOEFL tests were administered before and after the course was finished. The test consisted of listening (50 questions), structure and written expression (40 questions), and reading (50 questions). All the questions were multiple-choice questions. The whole test lasted around 100 minutes. The highest converted score for listening was 68, 68 for structure and written expression, and 67 for reading. The highest total converted score was 667, obtained by summing up the whole scores divided by three then multiplied by 10. The descriptive statistics can be seen in Table 1.

3.4.2. Survey Questionnaire

(1) Learning Enjoyment. The foreign language enjoyment scale from Dewaele and Proietti Ergün [18] was administered to students upon the conclusion of the course, measuring both the social and private dimensions of foreign language enjoyment. The wording of the items was revised in the context of online learning. The options range from "1" to "5," where 1 means strongly disagree and 5 means strongly agree. The Cronbach's alpha was 0.823, reflecting high internal consistency among the items. The sample items included "I could laugh off embarrassing mistakes during the TOEFL preparation course."

(2) Learning Anxiety. The measure of learning anxiety was the foreign language classroom anxiety scale by Park [60]. The original version consisted of 33 items, but this study selectively used 10 items following the study's objectives, in



FIGURE 2: Flipped learning materials: handbook, video, and audio materials for self-study.

Scoreboard	4586 • 4554 • 4545 4043 3604	2nd 1st 3rd 2rd 0 0 0 Mr:Light
3 1 Adesti 4 3 Pedrosoo 66	4200 × 3800 ×	Look at the picture.
5 🚯 Mr. Light	3600 ×	
	2400 × 2400 ×	13 may be argued that gameire, the andy of hereidy and version, spakersem the mart gaid development of any taking and and any spakerse and any s
6 🚱 Mego 🚺	2400 ×	3
7 Hamba Allah	1800 × study	◆ underwent
7 (A) Talua	1800 ×	Science biological

FIGURE 3: Gamified learning: exercises on Kahoot! and Quizzes applications.

which the responses ranged from "1" to "5," indicating strongly disagree and strongly agree. The Cronbach's alpha was 0.57, considered acceptable due to the small sample size. One item was deleted to obtain this coefficient. The sample items were "I did not worry about making mistakes during the TOEFL preparation course" and "It frightened me when I did not understand what the teacher was saying in English."

(3) Learning Motivation. Students' learning motivation was measured using the English motivation questionnaire by

Wang [61]. The scale had 24 items, but only 10 were used in this study, worded accordingly, ranging from "1" as strongly disagree to "5" as strongly agree. The Cronbach's alpha was 0.73, showing high internal consistency. Sample items involved "the TOEFL preparation course has increased my TOEFL learning motivation" and "I persisted when facing difficulties in learning the TOEFL materials."

3.4.3. Reflective Essays. Students were asked to write short reflections of their learning experiences and the impacts of the learning model on their learning enjoyment, anxiety,



FIGURE 4: Teacher's explanation during the synchronous session on Zoom.

	Mean	Std. deviation	Skewness	Kurtosis
Listening pretest	49.52	6.83	-1.07	0.80
Listening posttest	53.07	7.34	-0.57	0.76
Structure pretest	45.52	6.09	-0.64	0.74
Structure posttest	46.59	7.54	-1.08	1.59
Reading pretest	41.41	6.16	0.003	-0.30
Reading posttest	44.33	6.16	0.44	-0.02
Overall TOEFL pretest score	455	56.05	-0.59	0.34
Overall TOEFL posttest score	480	63.1	-0.70	0.79

TABLE 1: Descriptive statistics of students' pre- and posttest scores.

motivation, and outcomes. They were coded with S1, S2, S3, etc. These served as qualitative data of this study to help understand the quantitative findings.

3.5. Data Analysis. For the quantitative data, deriving from surveys and TOEFL tests, descriptive statistics and Spearman's correlation were performed due to the small sample size, lower than 30. Then, the qualitative data were analyzed using thematic analysis following the procedures proposed by Clarke and Braun [62]. Thematic analysis encompasses essential procedures such as data familiarization, systematic coding, theme grouping, theme review and refinement, theme definition and labeling, theme mapping and interpretation, and findings reporting. Researchers thoroughly examine and analyze the data to gain a comprehensive understanding. They code text segments to capture specific ideas or themes, develop overarching themes, refine them when required, provide precise definitions and examples, analyze theme relationships and implications, and present the findings coherently. Transparency, rigor, and reflexivity are maintained to ensure the analysis's credibility and trustworthiness.

4. Results

4.1. Quantitative Findings

4.1.1. Descriptive Statistics. Table 2 describes the students' perceptions of their learning enjoyment, anxiety, and motivation during the online TOEFL preparation course. The mean score of 4 for enjoyment suggests a notable level of gratification experienced by the majority of students. The relatively low standard deviation of 0.40 indicates consistent perceptions of enjoyment with minimal variability. However, regarding anxiety, the mean perception score of 3.55 reflects a moderately heightened level of uneasiness reported by the students on average. The standard deviation of 0.42 suggests a relatively narrow range of anxiety perceptions, implying consistency in reported anxiety levels. In terms of motivation, the mean perception score of 3.79 indicates a moderately high level of drive and enthusiasm among students. The standard deviation of 0.47 suggests variability in motivation perceptions, indicating differences in reported motivation levels. Overall, the students reported high levels of enjoyment and motivation, highlighting the positive impact of the integrated flipped learning and gamified

TABLE 2: Descriptive statistics of students' perceptions.

	Mean	SD	Skewness	Kurtosis
Learning enjoyment	4	0.40	0.74	-0.26
Learning anxiety	3.55	0.42	0.49	0.26
Learning motivation	3.79	0.47	0.98	0.36

learning approach. However, a moderate level of anxiety was also reported, indicating that certain students experienced varying degrees of apprehension during the language learning process.

Table 1 presents the students' TOEFL scores across different sections, including listening, structure, reading, and the overall TOEFL score. For the listening section, the pretest mean score of 49.52 (SD = 6.83) indicates a moderately high average performance, which further improved in the posttest with a mean score of 53.07. The corresponding standard deviation of 7.343 suggests varying degrees of improvement among the students. Similarly, in the structure section, the pretest mean score of 45.52 (SD = 6.09) signifies a moderate performance level, showing a slight increase in the posttest mean score of 46.59. The larger standard deviation of 7.54 for the posttest scores implies greater variability in performance compared to the pretest. In the reading section, the pretest mean score of 41.41 (SD = 6.16) indicates a relatively lower average performance, which improved in the posttest with a mean score of 44.33. The standard deviation of 6.16 for the posttest scores suggests consistent performance differences among the students. As for the overall TOEFL scores, the pretest mean score of 454.78 (SD = 56.05) signifies a moderate average performance, which saw an improvement in the posttest with a mean score of 480. The larger standard deviation of 63.10 for the posttest scores indicates greater variability in the students' overall performance. In summary, the observed improvements in pre- and posttest scores accentuate the effectiveness of the intervention. However, the substantial variability in performance suggests varying levels of individual achievement, warranting attention in instructional strategies.

4.1.2. Wilcoxon Rank Tests. The Wilcoxon rank tests were performed to examine the differences between pretest and posttest scores. The results indicated that students demonstrated significant improvements in TOEFL listening (Z = 3.70, p < 0.0), reading (Z = 2.40, p = 0.02), and overall test scores (Z = 3.41, p = 0.001). However, there were no notable advancements observed in the structure and written expression sections (Z = 2.40, p = 0.34). This implies that while the students demonstrated progress in certain areas of the TOEFL examination, there was no corresponding advancement in their proficiency in structural and written expression.

4.1.3. Spearman's Correlations. Table 3 displays the results of Spearman's correlations among the variables of interest. First, among the three emotional variables, only learning enjoyment and motivation had a significantly positive correlation (r = 0.61, p = 0.001) with a medium effect size

(0.04), suggesting that higher levels of learning enjoyment are associated with higher motivation. Nevertheless, learning enjoyment and anxiety as well as learning anxiety and motivation had no significant correlations. Similarly, all these emotional variables had no significant correlations with the listening, structure, reading, and overall TOEFL posttest scores. In contrast, the overall TOEFL posttest scores exhibited significant positive correlations among themselves (listening, structure, and reading), indicating that performance in one section was closely related to performance in other sections.

4.2. Qualitative Findings

4.2.1. Students' Learning Experiences. Three themes emerged from the analysis of students' responses on their learning experiences with the online TOEFL preparation course as elaborated below.

(1) Theme 1: Positive Learning Experience and Appreciation for Teaching. The students expressed their gratitude and happiness for joining the TOEFL training, highlighting the kindness and support of their teacher. They found learning TOEFL through games to be enjoyable and noticed significant improvement in their skills. The positive experience was further enhanced by the camaraderie with their friends throughout the process. This theme emphasizes the students' appreciation for the teaching approach and the overall enjoyable learning atmosphere.

Overall, this TOEFL learning experience with our teacher has been enjoyable. I appreciate his teaching style, which involves daily quizzes and weekly progress checks for each skill. Additionally, receiving a handbook has been beneficial. (S6)

It was an amazing experience. After attending the class, I feel a sense of acquired knowledge. The teachers made the classroom fun. (S11)

(2) Theme 2: Improvement and Benefits of TOEFL Preparation. The students acknowledged the benefits they gained from the TOEFL preparation course. They mentioned improvement in various areas, such as structural skills and familiarity with the types of questions in the test. The evaluations provided by the teachers were highly valued and contributed to their mastery of the material. The abundance of questions and exercises enhanced their knowledge and preparedness for the TOEFL. This theme highlights the positive impact of the preparation course on the students' skills and readiness for the exam.

It has been an amazing journey so far, where I have become aware of my flaws. Sometimes, I tend to procrastinate in studying for the TOEFL, and I believe that this preparation has made it easier for me. It is crucial for everyone to have at least 30 days of preparation before taking the TOEFL test. Therefore, this TOEFL training has been immensely helpful in familiarizing us with the types of questions found in the test. (S3)

		Learning anxiety	Learning motivation	Listening posttest	Structure posttest	Reading posttest	Overall TOEFL posttest score
Learning enjoyment <i>r</i>	r	0.28	0.61**	0.21	0.36	0.35	0.31
	р	0.16	0.001	0.30	0.07	0.08	0.12
Learning anxiety <i>p</i>	r		0.32	-0.15	-0.16	-0.03	-0.07
	р		0.11	0.47	0.44	0.89	0.72
Learning motivation <i>r p</i>			0.18	0.13	0.16	0.11	
	р			0.38	0.52	0.44	0.59
Listening posttest p				0.64**	0.56**	0.77**	
	р				0	0.002	0
Structure posttest p					0.71**	0.90**	
	р					0	0
Reading posttest <i>p</i>	r						0.85**
	р						0

TABLE 3: Results of Spearman's correlations.

**Correlation is significant at the 0.01 level (2-tailed).

Participating in this TOEFL activity has been an amazing experience for me. It was my first time engaging in TOEFL training and doing it with a group of friends made it even more enjoyable. Everyone guided me throughout the entire process, from studying the handbook to completing quizzes, and it was fascinating to discover the aspects I needed to improve upon. The TOEFL training, overall, was a wonderful experience for me. (S9)

(3) Theme 3: Challenges and Suggestions for Improvement. While the students generally had a positive experience, they also identified challenges and areas for improvement. Some students struggled with vocabulary, particularly in the listening section. Additionally, the limited number of meetings and occasional missed quizzes were mentioned as potential areas for improvement. Students suggested structuring the course better and providing more motivation for future participants. This theme indicates the need for addressing challenges and making improvements to enhance the effectiveness and student engagement in the TOEFL preparation course.

After taking the TOEFL test, I realized that I found it challenging. I struggled with understanding the vocabulary that I had studied, particularly in the listening section. (S8)

It was fun to join this fast-paced course, as it provided me with valuable TOEFL experience that I had never tried before. Learning through games was enjoyable, and this course increased my knowledge and motivation for TOEFL. I felt happy when we had our online meetings and played games, although I occasionally missed the QOTD. This learning strategy is effective, but there is room for improvement. I hope the next course will be more structured and motivating for the students. (S17)

4.2.2. Influences on Students' Learning Enjoyment, Anxiety, Motivation, and Outcomes. Four themes emerged from the

analysis of students' responses on the influences of the online TOEFL preparation course on their learning enjoyment, anxiety, motivation, and outcomes, as detailed below.

(1) Theme 1: Enhanced Learning Enjoyment. Students expressed a high level of enjoyment throughout the learning process, finding the review sessions, explanations, and teaching methods engaging and enjoyable. The use of gamified learning techniques and informal learning approaches contributed to their positive experience. Interactions with a humble and friendly instructor further enhanced their enjoyment by reducing anxiety and allowing them to focus more on learning.

Indeed, I feel more confident and focused when working on the problems. Learning TOEFL has been incredibly fun and exciting. However, after completing the exercises, I sometimes worry about why my friends can achieve high scores while I often get stuck. Overall, this class has been exhilarating. (S5)

After completing this TOEFL preparation, my perspective on TOEFL preparation courses has been significantly impacted. The use of gamified quizzes has made the learning experience enjoyable. (S12)

(2) Theme 2: Alleviated Anxiety. Some students experienced a decrease in anxiety during and after participating in the TOEFL learning process. Learning TOEFL techniques, receiving helpful tips, and engaging in gamified learning helped alleviate their anxiety. The supportive learning environment, created through gamification and positive instructor interactions, played a significant role in reducing anxiety.

During and after participating in the TOEFL learning process, I did not feel anxious at all. Instead, I was motivated to actively practice more, especially after seeing my friends achieve high scores. (S4) (3) Theme 3: Increased Motivation. Students reported an increase in motivation to study and learn TOEFL. Factors such as achieving higher scores, observing friends' success, and encountering TOEFL tests motivated them to practice more diligently. Gamification techniques, including rankings and challenges, contributed to a boost in motivation and the belief that they could achieve similar success. The desire to attain a perfect score for future education also drove their motivation.

This learning experience has increased my motivation to practice my English skills consistently. (S21)

Yes, of course. After taking this TOEFL preparation course, I find myself enjoying it more because the handbook provides clear explanations, and the gamification methods are particularly engaging. It has reduced my anxiety when answering TOEFL tests and motivated me to become better at English and achieve higher scores in TOEFL. (S22)

(4) Theme 4: Positive Learning Outcomes. Students perceived positive outcomes in their learning journey. They expressed confidence in answering TOEFL questions and believed that their English skills had improved. Learning strategies, helpful tips, and increased familiarity with TOEFL questions enabled them to answer more quickly and effectively. The course also positively influenced their perspective on TOEFL preparation, and they anticipated better scores and improved prospects for higher education.

It has improved my motivation to learn and study more so that I can achieve a better score in the future when I need TOEFL for my next level of education. (S16)

I think by participating in this training, my motivation to study TOEFL has increased, and it has certainly helped me improve my English skills. (S17)

5. Discussion

This study was structured around the evaluation and investigation of flipped and gamified learning models within the context of an online TOEFL preparation course. The primary objective was to enhance students' TOEFL scores while also considering their emotional states, including enjoyment, anxiety levels, and motivation, as they interacted with TOEFL materials. Through the synthesis of both quantitative and qualitative data, this research allowed for a comprehensive examination of the following key areas.

5.1. Students' Learning Experiences. The integrated approach of flipped and gamified learning elicited high levels of enjoyment and motivation among students, as reported in previous studies conducted in Hong Kong [44] and Malaysia [45]. However, there was also a moderate level of anxiety

reported, suggesting that some students experienced apprehension during the language learning process. Despite this, the intervention led to improvements in overall and specific test skills, indicating its effectiveness. However, there was substantial variability in individual performance, emphasizing the need for targeted instructional strategies. Students expressed gratitude and happiness for participating in the TOEFL training, highlighting the positive impact of learning through games. These findings align with previous studies and highlight advantages such as increased motivation, engagement, learning skills, confidence, and improved outcomes [46]. While the study identified moderate anxiety levels, it partially supports the observations of reduced anxiety and increased motivation among English language learners in Taiwan [47]. The contrasting results between the study's findings and student reflections regarding anxiety warrant further investigation.

5.2. The Effects of the Learning Model Intervention. Significant improvements were observed in TOEFL listening, reading, and overall test scores between the pretest and posttest, although not in the structure and written expression sections. In qualitative data, students highlighted the benefits gained from the TOEFL preparation course, including improved skills, familiarity with test questions, confidence, and increased efficiency in answering. Their perspective on TOEFL preparation was positively influenced, leading to higher expectations for scores and future educational opportunities. However, this perception of improvement may not align with their test results in grammatical knowledge, contrasting with Ahmad and Arifin's [25] findings. Nonetheless, this study's overall results align with previous research in Thailand [48], Turkey [49], and Iran [50] that highlighted positive impacts on learning outcomes. While many studies confirm the positive effects of these approaches [27, 28], others indicate no significant differences in academic achievement and motivation between gamified and nongamified learning, emphasizing the importance of teacherstudent relationships and emotional factors in online teaching [42, 43].

5.3. Correlations between Learning Experiences and TOEFL Scores. A moderate correlation between students' learning enjoyment and motivation was confirmed, indicating that higher levels of enjoyment are associated with increased motivation. However, no significant correlations were found between learning enjoyment and anxiety, as well as between learning anxiety and motivation. Furthermore, none of these emotional variables showed significant correlations with the TOEFL posttest scores in listening, structure, reading, or overall performance. These results suggest that while learning enjoyment may have a motivational impact, it does not necessarily influence anxiety levels or overall performance on the TOEFL test. While previous studies have highlighted the benefits of integrating gamification and flipped learning in educational contexts [51, 52, 54], the findings of this study present a contrasting perspective. It is important to consider other factors that may contribute to anxiety and academic achievement, as the present study's results challenge the

notion that gamified and flipped learning alone can lead to improved outcomes. The research conducted by Yu and Yu [53] in the form of a meta-analysis supports the effectiveness of gamified flipped classrooms in enhancing academic achievement, motivation, engagement, and satisfaction among secondary and university students. However, the findings of the present study suggest that there may be other factors contributing to students' anxiety and academic achievement that were not captured by the emotional variables examined. It is important to consider additional variables and contextual factors that might influence students' experiences and outcomes in language learning. Further research is needed to explore the complex relationship between these emotional variables, language learning outcomes, and the potential role of gamification and flipped learning in language education.

5.4. Implications of the Findings. The findings of this study have several implications for the development of TOEFL preparation courses in higher education and the practice of English language learning in Thailand. By integrating flipped and gamified learning strategies, TOEFL courses can create engaging and motivating learning experiences for students, while also addressing individual variations in language skills through targeted instructional strategies. Furthermore, the identification of moderate anxiety levels highlights the importance of implementing supportive measures to create a positive learning environment. English language educators in Thailand can adopt these approaches to enhance student engagement, personalize instruction, and explore innovative teaching practices that leverage technology. Ultimately, these implications can lead to improved outcomes in TOEFL preparation, enhance students' motivation and enthusiasm for learning English, and better cater to the diverse language learning profiles in the classroom.

5.5. Recommendations for Future Studies. Multiple suggestions for further investigations arise from the discourse surrounding the research outcomes. To begin with, further investigation is warranted into the learning experiences of students who are exposed to integrated, flexible, and gamified learning models. In addition to uncovering moderate levels of anxiety, this research revealed high levels of enjoyment and motivation. It is necessary to conduct additional research to comprehend the causes and effects of this anxiety, in addition to potential support methods. Indeed, the considerable disparity in personal achievement indicates that it is critical to customize teaching approaches to address the varied requirements of students. Moreover, research into the impacts of learning model interventions should be sustained. Significant gains in TOEFL scores were observed in this study, specifically in the listening and reading sections. However, no such improvements were observed in the structure or written expression sections. Further inquiry into the causes of these discrepancies and potential strategies to improve performance across all sections of the TOEFL could be the subject of future research.

Furthermore, it is imperative that scholars persist in investigating the associations between practical learning

experiences and TOEFL scores. While a moderate correlation was identified between enjoyment of learning and motivation in this study, no significant correlations were discovered between anxiety or motivation or between enjoyment and anxiety. This indicates that although experiencebased learning may increase motivation, it may not have a direct effect on TOEFL performance or anxiety reduction. Further research is warranted to investigate the intricacies of the associations between anxiety and academic achievement, which may involve an examination of supplementary variables. Contextual factors that may impact the language learning experiences and outcomes of students should be considered in future research. Insisting on the importance of considering other variables that may influence outcomes, the study's results refute the claim that gamified and flipped learning can solely result in enhanced tests. Overall, the results of this research provide significant contributions and ramifications for the advancement of TOEFL preparation programs and strategies for acquiring proficiency in the English language. Subsequent investigations may expand upon these discoveries through an examination of the intricacies inherent in educational strategies, learning model interventions, and the nuances of learning experiences. The aforementioned endeavors will enhance the collective comprehension of efficacious language education methodologies and their influence on the linguistic proficiency and affective states of students.

6. Conclusion and Limitation

This study has revealed that the integrated approach of flipped and gamified learning can create an engaging and motivating learning environment, leading to improvements in overall test skills. However, it also identified moderate levels of anxiety among students, highlighting the need for further strategies to address this aspect of language learning. While the intervention showed positive outcomes, it had varying effects on different language skills, indicating the importance of targeted instructional strategies. The study contributes to the existing literature by providing insights into the potential benefits and considerations of incorporating flipped and gamified learning in online TOEFL preparation courses in higher education.

Despite the valuable insights gained from this study, several limitations should be acknowledged. Firstly, the study was conducted in a specific context with a limited sample size, which may limit the generalizability of the findings. Further research with larger and more diverse samples is needed to validate and extend these results. Secondly, the study focused on a specific language proficiency test (TOEFL) and may not capture the full range of language learning outcomes. Future studies could explore the applicability of flipped and gamified learning in other language assessments or proficiency domains.

Data Availability

Data are available upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

The authors would like to thank the Head of Research and Community Services Unit of the University of Bengkulu for funding the present research. This study was supported by the 2023 Annual Competitive Grant from the University of Bengkulu (Contract of Research Number 2078/UN30. 15/PP/2023).

References

- B. Waluyo, F. Min, and V. V. Castillo, "Teaching English online in higher education: understanding the social climate of online academic English courses," *Australasian Journal of Educational Technology*, vol. 38, no. 6, pp. 91–106, 2022.
- [2] G. Akçayır and M. Akçayır, "The flipped classroom: a review of its advantages and challenges," *Computers & Education*, vol. 126, no. 1, pp. 334–345, 2018.
- [3] A. Manzano-León, P. Camacho-Lazarraga, M. A. Guerrero et al., "Between level up and game over: a systematic literature review of gamification in education," *Sustainability*, vol. 13, no. 4, pp. 2214–2247, 2021.
- [4] B. Panmei and B. Waluyo, "The pedagogical use of gamification in English vocabulary training and learning in higher education," *Education Sciences*, vol. 13, no. 1, pp. 1–22, 2023.
- [5] R. Brewer and S. Movahedazarhouligh, "Successful stories and conflicts: a literature review on the effectiveness of flipped learning in higher education," *Journal of Computer Assisted Learning*, vol. 34, no. 4, pp. 409–416, 2018.
- [6] J. Koivisto and J. Hamari, "The rise of motivational information systems: a review of gamification research," *International Journal of Information Management*, vol. 45, pp. 191–210, 2019.
- [7] A. L. Aziz, "The implementation of minimum TOEFL scoreobtaining as a graduation requirement in higher education: students' perspective," *International Journal of Management* and Administrative Sciences, vol. 4, no. 3, pp. 76–87, 2016, https://www.ijmas.org/4-3/IJMAS-4309-2016.pdf.
- [8] T. M. Silviyanti, R. Ramadhani, and I. A. Samad, "EFL students' strategies in answering the listening section of the Longman TOEFL," *Studies in English Language and Education*, vol. 7, no. 1, pp. 237–246, 2020.
- [9] M. Yoestara and Z. Putri, "University students' self-efficacy: a contributing factor in TOEFL performance," *Studies in English Language and Education*, vol. 6, no. 1, pp. 117–130, 2019.
- [10] S. Akmal, M. N. A. Rasyid, Y. Masna, and C. N. Soraya, "EFL learners' difficulties in the structure and written expression section of TOEFL test in an Indonesian university," *Englisia: Journal of Language, Education, and Humanities*, vol. 7, no. 2, pp. 156–180, 2020.
- [11] T. Azhari, K. Sari, and R. Rasyimah, "TOEFL requirement: Students' and lecturers' perspectives," *International Journal* of Language Studies, vol. 14, no. 3, pp. 67–84, 2020.
- [12] B. Waluyo and A. Apridayani, "Teachers' beliefs and classroom practices on the use of video in English language teaching," *Studies in English Language and Education*, vol. 8, no. 2, pp. 726–744, 2021.

- [13] Y. Wang, "The impact of TOEFL on instructors' course content and teaching methods," *TESL-EJ*, vol. 23, no. 3, pp. 1– 18, 2019, https://files.eric.ed.gov/fulltext/EJ1234792.pdf.
- [14] B. Waluyo and J. L. Bucol, "The impact of gamified vocabulary learning using Quizlet on low-proficiency students," *Computer-Assisted Language Learning*, vol. 22, no. 1, pp. 158– 179, 2021.
- [15] D. R. Sanchez, M. Langer, and R. Kaur, "Gamification in the classroom: Examining the impact of gamified quizzes on student learning," *Computers & Education*, vol. 144, p. 103666, 2020.
- [16] A. Apridayani and B. Waluyo, "Antecedents and effects of students' enjoyment and boredom in synchronous online English courses," *Journal of Multilingual and Multicultural Development*, pp. 1–16, 2022.
- [17] H. Dehghanzadeh, H. Fardanesh, J. Hatami, E. Talaee, and O. Noroozi, "Using gamification to support learning English as a second language: a systematic review," *Computer Assisted Language Learning*, vol. 34, no. 7, pp. 934–957, 2021.
- [18] J. M. Dewaele and A. L. Proietti Ergün, "How different are the relations between enjoyment, anxiety, attitudes/motivation and course marks in pupils' Italian and English as foreign languages?," *Journal of the European Second Language Association*, vol. 4, no. 1, pp. 45–57, 2020.
- [19] J. Golubovich, F. Tolentino, and S. Papageorgiou, "Examining the applications and opinions of theTOEFL ITP® assessment series test scores in three countries," *ETS Research Report Series*, vol. 2018, no. 1, pp. 1–30, 2018.
- [20] M. Ekici, "A systematic review of the use of gamification in flipped learning," *Education and Information Technologies*, vol. 26, no. 3, pp. 3327–3346, 2021.
- [21] L. K. Ng and C. K. Lo, "Flipped classroom and gamification approach: its impact on performance and academic commitment on sustainable learning in education," *Sustainability*, vol. 14, no. 9, p. 5428, 2022.
- [22] D. I. Pratiwi and B. Waluyo, "Integrating task and game-based learning into an online TOEFL preparatory course during the COVID-19 outbreak at two Indonesian higher education institutions," *Malaysian Journal of Learning and Instruction* (*MJLI*), vol. 19, no. 2, pp. 37–67, 2022.
- [23] N. L. Rofiah, M. Y. M. A. Sha'ar, and B. Waluyo, "Digital divide and factors affecting English synchronous learning during Covid-19 in Thailand," *International Journal of Instruction*, vol. 15, no. 1, pp. 633–652, 2022.
- [24] N. T. T. Thai, B. De Wever, and M. Valcke, "Face-to-face, blended, flipped, or online learning environment? Impact on learning performance and student cognitions," *Journal of Computer Assisted Learning*, vol. 36, no. 3, pp. 397–411, 2020.
- [25] D. Ahmad and M. A. Arifin, "Exploring student achievement and perceptions in an online flipped grammar course," *Indonesian Journal of Applied Linguistics*, vol. 10, no. 3, pp. 639– 655, 2021.
- [26] H. W. Marshall and I. Kostka, "Fostering teaching presence through the synchronous online flipped learning approach," *Tesl-Ej*, vol. 24, no. 2, pp. 1–14, 2020, https://files.eric.ed.gov/ fulltext/EJ1268565.pdf.
- [27] H. Haghighi, M. Jafarigohar, H. Khoshsima, and F. Vahdany, "Impact of flipped classroom on EFL learners' appropriate use of refusal: achievement, participation, perception," *Computer Assisted Language Learning*, vol. 32, no. 3, pp. 261–293, 2019.

- [28] G. Lee and A. Wallace, "Flipped learning in the English as a foreign language classroom: outcomes and perceptions," *TESOL Quarterly*, vol. 52, no. 1, pp. 62–84, 2018.
- [29] D. Gok, H. Bozoglan, and B. Bozoglan, "Effects of online flipped classroom on foreign language classroom anxiety and reading anxiety," *Computer Assisted Language Learning*, vol. 36, no. 4, pp. 840–860, 2023.
- [30] S. A. Hosseini and K. Mahmoodi, "Flipped classroom model and its impact on Iranian EFL Learners' classroom anxiety and listening performance," *Computer-Assisted Language Learning*, vol. 22, no. 3, pp. 1–16, 2021, http://callej.org/ journal/22-3/Hosseini-Rajabi-Mahmoodi2021.pdf.
- [31] J. S. Chen Hsieh, W. C. V. Wu, and M. W. Marek, "Using the flipped classroom to enhance EFL learning," *Computer Assisted Language Learning*, vol. 30, no. 1-2, pp. 1–21, 2017.
- [32] B. Waluyo and R. Bakoko, "Vocabulary list learning supported by gamification: classroom action research using Quizlet," *Journal of Asia TEFL*, vol. 18, no. 1, pp. 289–299, 2021.
- [33] A. Antonaci, R. Klemke, and M. Specht, "The effects of gamification in online learning environments: a systematic literature review," *Informatics*, vol. 6, no. 3, pp. 22–32, 2019.
- [34] N. Taşkın and E. Kılıç Çakmak, "Effects of gamification on behavioral and cognitive engagement of students in the online learning environment," *International Journal of Human-Computer Interaction*, vol. 39, no. 17, pp. 3334–3345, 2022.
- [35] B. Waluyo, "Thai EFL learners' WTC in English: effects of ICT support, learning orientation, and cultural perception," *Humanities, Arts and Social Sciences Studies (Former name: Silpakorn University Journal of Social Sciences, Humanities, and Arts*), vol. 20, no. 2, pp. 477–514, 2020.
- [36] Z. Yu, "Sustaining student roles, digital literacy, learning achievements, and motivation in online learning environments during the COVID-19 pandemic," *Sustainability*, vol. 14, no. 8, p. 4388, 2022.
- [37] J. C. Hong, M. Y. Hwang, Y. H. Liu, and K. H. Tai, "Effects of gamifying questions on English grammar learning mediated by epistemic curiosity and language anxiety," *Computer Assisted Language Learning*, vol. 35, no. 7, pp. 1458–1482, 2022.
- [38] M. S. Öden, Y. İ. Bolat, and İ. Goksu, "Kahoot! As a gamification tool in vocational education: more positive attitude, motivation and less anxiety in EFL," *Journal of Computer and Education Research*, vol. 9, no. 18, pp. 682–701, 2021.
- [39] Ş. Ç. Özhan and S. A. Kocadere, "The effects of flow, emotional engagement, and motivation on success in a gamified online learning environment," *Journal of Educational Computing Research*, vol. 57, no. 8, pp. 2006–2031, 2020.
- [40] S. Park and S. Kim, "Is sustainable online learning possible with gamification? The effect of gamified online learning on student learning," *Sustainability*, vol. 13, no. 8, p. 4267, 2021.
- [41] L. Castillo-Cuesta, "Using genially games for enhancing EFL reading and writing skills in online education," *International Journal of Learning, Teaching and Educational Research*, vol. 21, no. 1, pp. 340–354, 2022.
- [42] M. E. S. E. Can and O. O. Dursun, "Effectiveness of gamification elements in blended learning environments," *Turkish Online Journal of Distance Education*, vol. 20, no. 3, pp. 119– 142, 2019, https://dergipark.org.tr/en/download/article-file/ 779459.
- [43] M. T. Cespón and J. M. D. Lage, "Gamification, online learning and motivation: a quantitative and qualitative analysis in

higher education. Contemporary," *Educational Technology*, vol. 14, no. 4, pp. 1–18, 2022.

- [44] J. Ho, "Gamifying the flipped classroom: how to motivate Chinese ESL learners?," *Innovation in Language Learning and Teaching*, vol. 14, no. 5, pp. 421–435, 2020.
- [45] A. K. J. Singh and R. N. S. R. Harun, "Students' experiences and challenges of learning English grammar through flipped classroom and gamification," *Proceedings of EEIC*, vol. 1, no. 2, pp. 146–152, 2016.
- [46] D. Zou, "Gamified flipped EFL classroom for primary education: student and teacher perceptions," *Journal of Computers in Education*, vol. 7, no. 2, pp. 213–228, 2020.
- [47] H. T. Hung, "Gamifying the flipped classroom using gamebased learning materials," *ELT Journal*, vol. 72, no. 3, pp. 296–308, 2018.
- [48] V. Botmart, The effects of gamified flipped classroom application on learning English vocabulary for Thai university students in EFL context, [Ph.D. thesis], School of Foreign Languages Institute of Social Technology Suranaree University of Technology, 2019, http://sutir.sut.ac.th:8080/jspui/bitstream/ 123456789/8421/2/Fulltext.pdf.
- [49] A. Liman-Kaban, "The effect of gamified flipped classroom on vocabulary learning of primary school students in a private school in turkey: students and teachers' experiences," in *In Shaping the Digital Transformation of the Education Ecosystem in Europe: 31st EDEN Annual Conference 2022, Tallinn, Estonia, June 20–22, 2022, Proceedings*, pp. 83–97, Springer International Publishing, 2022.
- [50] F. Fahandezh and A. Mohammadi, "The effect of gamified flipped classroom on the improvement of vocabulary learning of iranian pre-intermediate EFL learners," *Vision: Journal for Language and Foreign Language Learning*, vol. 10, no. 2, pp. 83–98, 2021.
- [51] A. Y. Gündüz and B. Akkoyunlu, "Effectiveness of gamification in flipped learning," SAGE Open, vol. 10, no. 4, article 215824402097983, 2020.
- [52] C. K. Lo and K. F. Hew, "A comparison of flipped learning with gamification, traditional learning, and online independent study: the effects on students' mathematics achievement and cognitive engagement," *Interactive Learning Environments*, vol. 28, no. 4, pp. 464–481, 2020.
- [53] Q. Yu and K. Yu, "The effects of gamified flipped classroom on student learning: evidence from a meta-analysis," *Interactive Learning Environments*, 2023.
- [54] B. Huang, K. F. Hew, and C. K. Lo, "Investigating the effects of gamification-enhanced flipped learning on undergraduate students' behavioral and cognitive engagement," *Interactive Learning Environments*, vol. 27, no. 8, pp. 1106–1126, 2019.
- [55] J. W. Creswell and J. D. Creswell, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, Sage publications, 2017.
- [56] G. J. Privitera and L. Ahlgrim-Delzell, *Research Methods for Education*, Sage Publications, 2018.
- [57] L. R. Gay and P. L. Diehl, Research Methods for Business and Management, Macmillan Publishing Company, 1992.
- [58] I. Etikan, S. A. Musa, and R. S. Alkassim, "Comparison of convenience sampling and purposive sampling," *American Journal* of Theoretical and Applied Statistics, vol. 5, no. 1, pp. 1–4, 2016.
- [59] R. N. Landers and A. K. Landers, "Developing a theory of gamified learning: Linking serious games and gamification of learning," *Simulation & Gaming*, vol. 45, no. 6, pp. 752–768, 2014.

- [60] G. P. Park, "Factor analysis of the foreign language classroom anxiety scale in Korean learners of English as a foreign language," *Psychological Reports*, vol. 115, no. 1, pp. 261–275, 2014.
- [61] F. Wang, "Motivation and English achievement: An exploratory and confirmatory factor analysis of a new measure for Chinese students of English learning," *North American Journal* of Psychology, vol. 10, no. 3, pp. 633–646, 2008.
- [62] V. Clarke and V. Braun, "Thematic analysis," *The Journal of Positive Psychology*, vol. 12, no. 3, pp. 297-298, 2017.