



Exploring the Transformative Effects of Gamified Learning on Writing and Metacognition in an EFL University Context: An Account of Blended Learning Landscape

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ABSTRACT

This study investigates the effects of a Gamified Learning Model (GLM) on the writing skills and metacognitive awareness of Thai EFL university students within a blended learning environment. Employing a quasi-experimental one-group pretest-posttest design alongside a Concurrent Embedded mixed-methods approach, the research scrutinizes the efficacy of GLM in enhancing English language writing skills and metacognitive awareness. Quantitative findings, obtained from the paired *t*-test, revealed significant improvements in students' writing skills post-intervention, with average scores escalating from 11.97 to 19.92 ($p < 0.01$), alongside a notable enhancement in metacognitive awareness, as evidenced by increased mean scores in metacognitive awareness questionnaire items. Qualitative feedback, gained from semi-structured interviews and reflective journals, further illuminated students' positive perceptions towards the GLM, highlighting its role in fostering engagement and facilitating a deeper understanding of writing tasks and

	strategies. The study underscores the transformative potential of gamified learning in EFL contexts, advocating for its integration as a dynamic component of language education pedagogy. Implications for future research include exploring varied gamified learning approaches across diverse educational settings to validate and extend these findings. Keywords: gamified learning, gamification, writing skills, metacognition, blended learning
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Introduction

The engagement levels of Thai EFL (English as a Foreign Language) university students in writing classes have been observed to be significantly low, a trend that poses a substantial challenge to language acquisition and academic success (Bowen et al., 2023; Kawinkoonlasate, 2019). This issue is particularly pronounced in environments where traditional teaching methodologies and materials, which often lack contextual relevance and interactive elements, predominate. Despite the recognized importance of fostering engaging and dynamic learning experiences, many educational settings continue to rely on conventional approaches that fail to stimulate student interest or motivation in writing tasks (Aljuaid, 2024; Hang, 2021). This situation underscores a critical gap in the pedagogical strategies employed in Thai university EFL programs, necessitating a comprehensive investigation into the effects of these traditional practices on student engagement. Furthermore, it highlights the urgent need for pedagogical innovation that incorporates more engaging, relevant, and interactive materials and methods tailored to the preferences and needs of today's learners.

In the ever-evolving landscape of education, the integration of technology has become pivotal in enhancing learning experiences (Aubrey-Smith & Twining, 2023). This research delves into the uncharted territory of gamified learning models, investigating their profound impact on writing skills and metacognitive awareness within the context of a blended learning environment. As the digital era reshapes traditional pedagogies, understanding how gamification can be harnessed as a powerful tool for language acquisition is of paramount importance. Recent studies have shown that gamified learning environments can significantly improve student engagement and learning outcomes (Siripipatthanakul & Siripipattanakul, 2023; Vathanalaoha, 2022). This study specifically targets Thai English as a Foreign Language (EFL) university students, providing insights into the applicability and efficacy of gamified approaches in diverse linguistic settings.

In recent years, gamification has emerged as a captivating strategy to engage learners, transcending the boundaries of conventional education (Camacho-Sánchez et al., 2023). The fascination of games lies in their ability to foster intrinsic motivation, active participation, and a sense of achievement. Applying gamified learning models to language teaching and learning introduces an innovative dimension, potentially addressing challenges associated with traditional teaching methods. By immersing students in interactive and goal-oriented tasks, this research seeks to explore the nuanced ways in which gamification can enhance writing skills among Thai EFL university students. Moreover, the choice of a blended learning environment further enriches the complexity of this investigation. Blending traditional face-to-face instruction with digital platforms offers a holistic learning experience that accommodates diverse learning styles (Johnson et al., 2023). Through the incorporation of gamified elements, this study aims to uncover the cooperation between the physical and virtual realms of education, assessing how the combination can foster metacognitive awareness in the process of language learning.

Statement of the problem

It is inarguable to state that the evolving landscape of the English Language Teaching (ELT) context calls for innovative approaches to writing instruction, emphasizing the need for effective teaching strategies to transform traditional assignments into engaging experiences (Ra et al., 2019). Specifically, where English as a Foreign Language (EFL) students face challenges in acquiring written literacy, the limited English input exacerbates difficulties in academic writing (Pongpuehee et al., 2022). Despite the essential role of English in academic learning, insufficient learning materials, particularly those aligned with students' interests, contribute to boredom and low engagement, hindering the development of writing skills (Chamcharatsri, 2010; Franco & Roach, 2018).

Moreover, it is stated in various research studies that teaching writing to EFL students, such as in Thailand, poses challenges, requiring information searches, argumentation, and metacognitive awareness (Graham et al., 2015; Teng, 2020). Notably, students' low metacognitive awareness, influenced by traditional teaching methods, further complicates the situation (Akkakoson, 2012; Chumworatayee, 2012; Chutichaiwirath & Sitthitikul, 2017). As English language teaching undergoes changes, necessitating the integration of digital tools, the traditional "chalk and talk" method becomes ineffective (Baker & Jarunthawatchai, 2017; Cho et al., 2021). Also, the shift to digital disruption requires ELT practitioners to develop materials that enhance students' participation and independent learning skills.

In addition, previous studies in Thailand focused on metacognitive awareness in reading skills. There is a significant gap in understanding metacognitive awareness in writing skills (Akkakoson, 2012; Chumworatayee, 2012; Chutichaiwirath & Sitthitikul, 2017; Nath, 2021). The incorporation of writing skills in gamification studies, despite its potential to stimulate motivation and learning, remains underexplored, especially in Thailand (Alabbasi, 2018; Ra et al., 2021; Roohani & Heidari Vincheh 2021; Zhihao & Zhonggen, 2022). Although gamified learning has shown promise in enhancing metacognitive awareness, the principles guiding its success in a blended learning environment lack clarity (Castronovo et al., 2022; Sitzmann, 2011).

In the rapidly shifting terrain of English Language Teaching (ELT), the call for fresh pedagogical strategies in writing education is loud and clear. This is particularly true in contexts where learners are navigating the complexities of English as a Foreign Language (EFL), grappling with the dual challenges of limited language exposure and the monotonous nature of conventional assignments. Regarding the specificity of the Thai educational environment, with its entrenched reliance on dated teaching methodologies, further exacerbates these issues. This is compounded by a noticeable gap in research focused on enhancing metacognitive awareness in writing, a gap that remains largely unaddressed despite its recognized importance in the acquisition of language skills (Akkakoson, 2012; Chumworatayee, 2012; Chutichaiwirath & Sitthitikul, 2017; Matyakhan et al., 2024).

Last but foremost, the integration of digital innovations in teaching and learning heralds new opportunities for overcoming these educational hurdles. Yet, the transition from traditional to digital-centric teaching models in ELT poses its own set of challenges, necessitating a reevaluation of content creation to foster greater student engagement and autonomy (Baker & Jarunthawatchai, 2017; Cho et al., 2021). Moreover, the potential of gamification in enriching the learning experience through enhanced engagement and metacognitive development remains largely untapped and poorly understood within the context of EFL writing instruction in Thailand (Alabbasi, 2018; Ho 2019; Roohani & Heidari Vincheh 2021; Ruiz et al., 2021).

Addressing the above-mentioned gaps, this mixed-methods study aims to investigate the role of a gamified learning model in enhancing Thai EFL university students' writing skills and metacognitive awareness. By delving into the mechanics of gamification within a blended educational framework, this research endeavors to illuminate effective strategies for cultivating a more dynamic and reflective learning experience in the realm of EFL writing instruction.

Research Questions

This current investigative study is designed to answer the below questions.

1. Does the developed Gamified Learning Model enhance the writing skills of Thai EFL university students?
2. Does the developed Gamified Learning Model enhance the metacognitive awareness of Thai EFL university students?
3. What are the students' opinions toward the developed Gamified Learning Model in a blended learning environment?

Literature Review

In the 21st century, new teaching tactics have emerged, focusing on the needs and competencies of the digital native, or millennial, learner (Prensky, 2001). These learners, who live in a digital age, use technology and digital tools to process information. Gamification is an innovative instructional strategy that can be used in this digital-age classroom context (Mongan-Rallis, 2009). It allows English Language Teaching practitioners to gamify instruction in specific literacy abilities, incorporating gaming aspects and reward mechanisms to motivate and engage students (Figuerola, 2015; Jhamb & Shukla, 2020; Kingsley & Grabner-Hagen, 2015; Sailer et al., 2013; Vassileva, 2008;). Gamified learning makes learning tough and enjoyable, providing a more engaging and effective learning experience. Understanding the components of gamification is crucial for a comprehensive understanding of this concept (see Table 1).

Table 1

Concept of Gamification

Concept	Definition
Game	Implies the following situational components: a goal, which has to be achieved; limiting rules which determine how to reach the goal; a feedback system which provides information about progress towards the goal; and the fact that participation is voluntary.
Element	It helps distinguish the concept of Gamification from serious games.
Design	It refers to the use of game design instead of game-based technologies or practices of the wider game ecology.
Non-game contexts	Refers to the area of application, which is not limited to certain context.

Game Elements and Components

According to Sailer et al. (2013), video games follow a design pattern that incorporates specific aspects or components. This is critical for creating a game and is important for achieving the fundamental goal of gamification, which is motivation. Points, badges, leaderboards, progress bars/progression, performance graphs, missions, levels, avatars, social elements, and a rewards/rewards system are just a few of the components.

The following is a list of their definitions:

1. Points: Numeric accumulation based on certain activities.
2. Badges: Visual representation of achievements for the use is shown online.
3. Leader boards: How the players are ranked based on success.
4. Progress bards/Progression: Shows the status of a player.
5. Quests: Some of the tasks have to be fulfilled in a game.
6. Levels: A section or parts of the game.
7. Avatars: Visual representation of a player or alter ego.
8. Social elements: Relationships with other users through the game.
9. Rewards/rewards system: System to motivate players that accomplish a quest.

All these components have diverse objectives and can be used in virtually any job, commercial, or educational setting. Every game, according to Dickey (2005), has three essential components: meta-centered actions, rewards, and progression. In this present study, the researcher employed the three essential components to frame the gamified learning instruction of this study as presented in the PPE framework (Braad et al., 2019).

Gamification in Education

Gamified learning, described by Braad et al. (2019) and Kapp (2012), integrates game components and design principles into non-game contexts. The rationale behind adopting gamified learning lies in the belief that the three essential game components: meta-centered actions, rewards, and progression can significantly enhance productivity and creativity. The efficacy of gamified learning is not confined to traditional educational settings; it extends to non-traditional environments like flipped and blended learning, where positive outcomes have been demonstrated (Botmart, 2019). This adaptability underscores the versatility of gamified learning, positioning it as a valuable tool for the researcher aiming to engage participants innovatively and achieve educational objectives.

Essentially, gamified learning acts as a conduit between the captivating dynamics of games and the educational domain. The researcher

leveraged this approach to craft dynamic and interactive learning experiences, capturing participants' attention while fostering heightened productivity and creativity. As the integration of gamified learning gains momentum, it introduces fresh possibilities for educators and teachers, offering a contemporary and effective approach to teaching across diverse educational contexts. Below is the PPE framework adapted from Braad et al. (2019). This framework is suitable for the selected game called "Classcraft" as its functions allow the researcher to follow the PPE framework. Figure 1 presents how the researcher designed the gamified learning regarding the PPE framework.

Figure 1

Self-Regulated Learning Cycle of Planning, Performance, and Evaluation (PPE Framework) in the Form of Quest and Mission (Braad et al., 2019)



Note. Adapted from the PPE framework by Braad et al. (2019) showing how the researcher designed the gamified learning regarding the PPE framework.

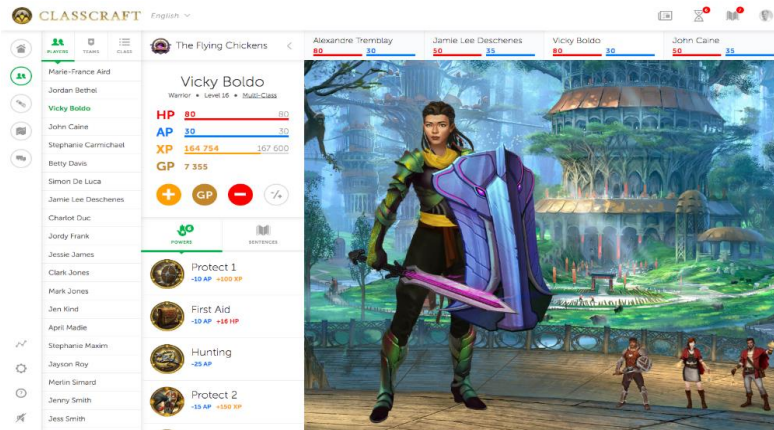
Classcraft

Classcraft is an online tool designed to assist instructors in gamifying their classrooms in order to improve student engagement, cooperation, and classroom culture (Botmart, 2019; Dawood et al., 2022; Ho, 2020). Student can design a character in class and collaborate with their classmates to complete the task. They can earn and employ special "powers" to help their teammates and support their own academic achievement. The reason why the Classcraft application was chosen to be used in this study is simply because the Classcraft's game features allow the researcher to be able to adapt the

three phases of the PPE framework. See Figure 3 to Figure 6, the Classcraft game features are suitable for the PPE in all three phases including the planning phase, performing phase, and evaluating phase.

Figure 2

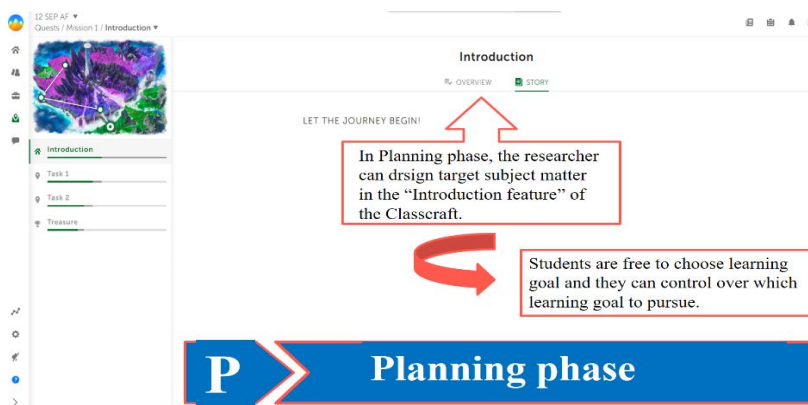
Classcraft Interphase



Note. This figure shows Classcraft game interface, where student can design a character in class and collaborate with their classmates to complete the task.

Figure 3

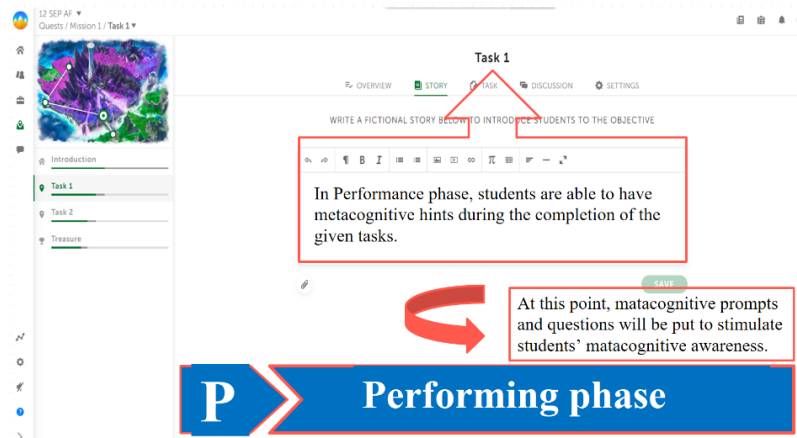
Classcraft Feature for the Planning Phase



Note. This figure shows an interface where researcher can design target subject matter for students, and students can control over which learning goal they want to pursue.

Figure 4

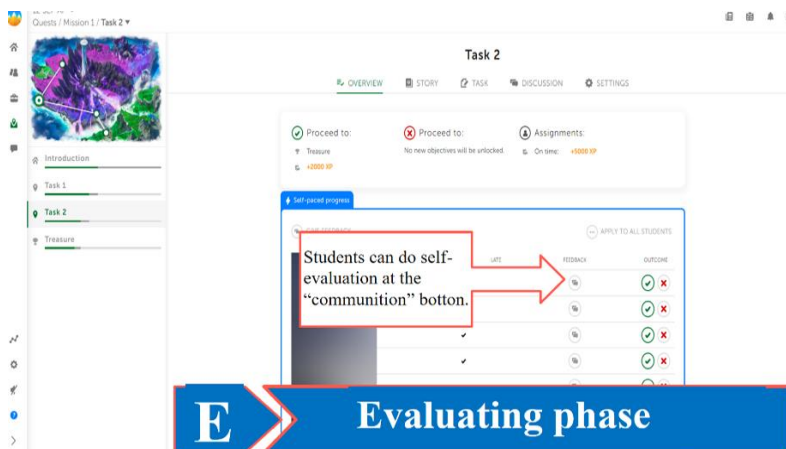
Classcraft Feature for the Performing Phase



Note. In this phase, metacognitive prompts and questions was put to stimulate students' metacognitive awareness.

Figure 5

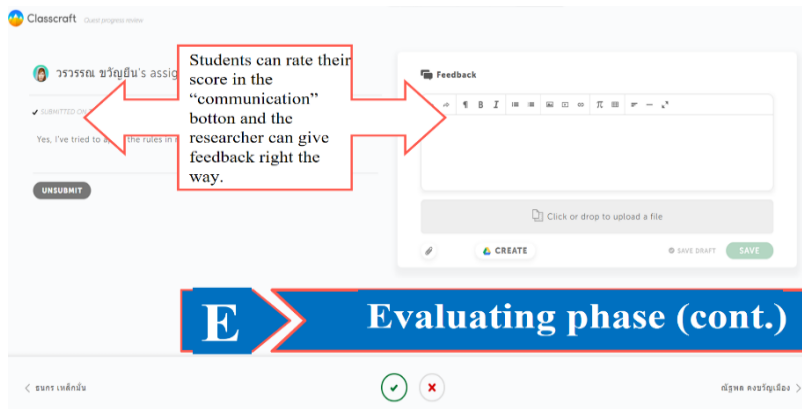
Classcraft Feature for the Evaluation Phase



Note. This figure shows an interface where students can do self-evaluation by clicking on communication button.

Figure 6

Classcraft Feature for the Evaluation Phase (cont.)

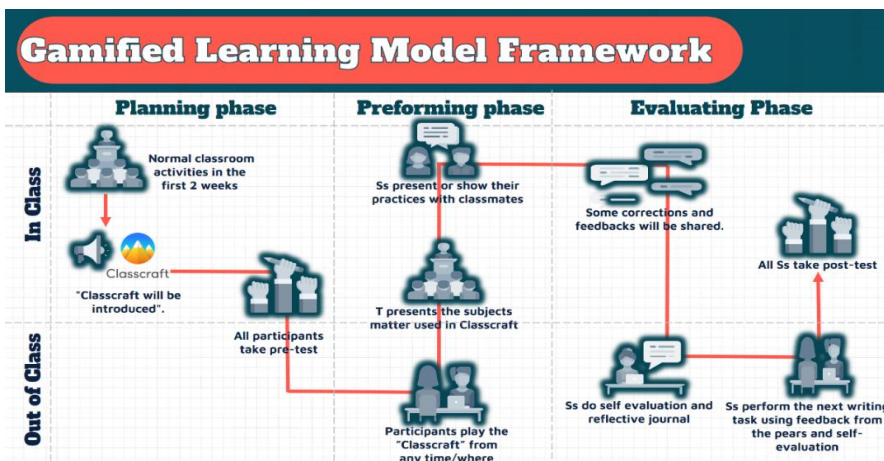


Note. This figure shows the interface after students do self-evaluation; the researcher can give feedback to students afterward.

To encourage the transfer of metacognitive awareness while playing to applying it in real-world learning, the researcher generated different metacognitive prompts and questions that can be posed during the three different phases of the game. For example, the question may suggest that a task has been completed, but the assessment of whether that is correct is left to the learners, thus simulating a metacognitive judgment of learning. Another example is when the question asks the learners what could be done differently next time to perform better – thus simulating a learner reflecting on learning activities and outcomes.

Figure 7

Gamified Learning Model in Blended Learning Environment



Note. This figure shows the details of how Gamified Blended Learning Application (GBLA) was constructed to make learning activities more engaging.

Metacognition

The literature on metacognitive knowledge in the context of L2 writing is reviewed in this section. It begins by critically examining prior studies on language learning techniques before introducing metacognition (including metacognitive knowledge) as a potentially bigger paradigm to assess learner tactics. Following that, past research on metacognitive knowledge as it relates to L2 writing is evaluated in terms of its study goals, as well as its definitions and measurements of metacognitive knowledge. A brief discussion of concerns related to the conceptualization and assessment of metacognitive knowledge in L2 writing concludes the literature of this section.

Fundamental Concept and Background

Metacognition is the act of thinking about thinking. "A higher-order executive process that monitors and organizes other cognitive processes engaged during learning, such as recall, rehearsal, or problem-solving," is a more sophisticated definition that incorporates the intricacies of metacognition in the context of learning (Tobias & Everson, 2009). However, over the years, there has been controversy about what constitutes this abstract construct, and other frequently used words referring to comparable notions (e.g., self-regulation, self-direction, executive control) have added to the uncertainty (Livingston, 2003). Different words emphasize different aspects of metacognition, and different disciplines of study prefer specific terms over others. Self-regulation, for example, is commonly used in cognitive

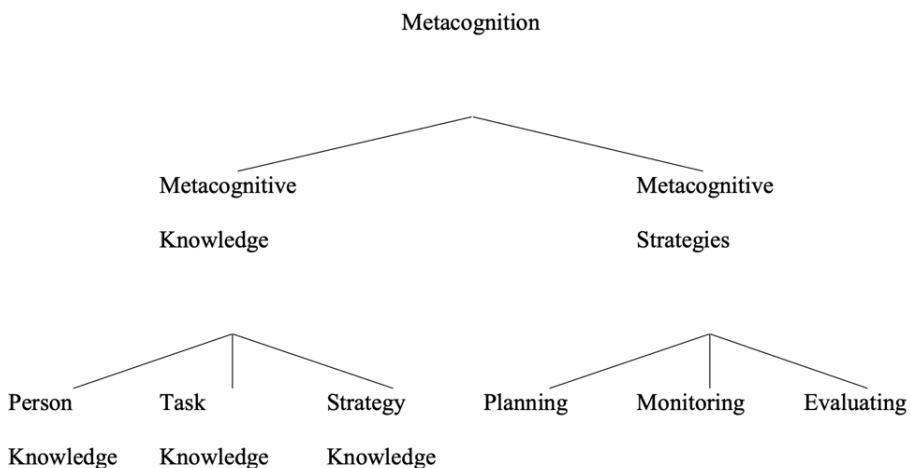
psychology, but self-direction is more widely used in adult education or learner autonomy in foreign/second language learning (Wenden, 1998).

Flavell's (1979) model of cognitive monitoring has been one of the most prominent metacognitive frameworks to date. Metacognitive knowledge, metacognitive experiences, goals (or tasks), and actions are all part of Flavell's concept of metacognition (or strategies). Flavell claimed that the interplay between these components is responsible for the monitoring of distinct human cognitive events. Metacognitive knowledge is the fundamental component that anchors Flavell's overall cognitive monitoring system among the other components in his model. "That section of your...stored world information that has to do with humans as cognitive entities and their different cognitive tasks, aspirations, behaviors, and experiences," according to Flavell (p. 906). He went on to say that it is largely made up of "knowledge or opinions about what elements or variables act and how they act."

Metacognitive knowledge differs from metacognitive strategies in that metacognitive knowledge refers to information about cognitive processes, whereas metacognitive strategies refer to the actual skills (e.g., planning, monitoring, and evaluating) used to control, oversee, and regulate cognitive activities. Thus, metacognitive information and metacognitive strategies are two separate components of the broader notion of metacognition, and self-regulation is the process of obtaining metacognitive knowledge to employ metacognitive strategies.

Figure 8

Metacognition



Note. Adapted from *Metacognitive knowledge in second language writing*, by S. H. Kim, 2013, Doctoral dissertation, Michigan State University.

Metacognitive Awareness and Gamified Blended Learning: The Relation to Writing Skills

By identifying key features that characterize proficient language learners, the researcher hopes to capture the essence of effective language learning practices and impart that knowledge on how students learn by themselves from outside the classroom. Meanwhile, a more theory-driven impetus behind this strand of research was to explore the ways that learner internal factors, as opposed to external factors (e.g., amount of language instruction), affect language learning, and how these factors may lead to differential learning outcomes (Rivera-Mills & Plonsky, 2007). In the past few decades, language learner characteristics such as learner motivation, language learning aptitude, learning strategies, and learning styles have appeared as topics of research in numerous studies (Dörnyei & Skehan, 2003; Ellis, 2004).

Recently, several types of individual differences that play a central role in learner autonomy and metacognitive awareness have come into the spotlight due to a renewed interest in autonomous language learning. The development of technology and its application to language learning is increasingly taking place outside formal instruction contexts; for example, in the form of blended/distance learning, and computer/mobile language learning. Along with this trend, understanding individual differences that are closely linked to learner autonomy and metacognitive awareness (e.g., learner strategies), and also how these individual differences operate within a learner's self-regulatory system has become as important as ever. In regard to learning strategy, learners' metacognitive awareness is one such individual difference that is crucial to the development of independent learning and is the focus of this study. Whereas many studies in the field of Second Language Acquisition (SLA) have attempted to describe and measure L2 learners' metacognitive strategy use, this study focuses on the metacognitive awareness that learners have, and access in order to plan, monitor, and evaluate their L2 writing.

While learners have varying levels of metacognitive awareness, different learning situations also vary in their potential to induce language learners' access to their own metacognitive awareness. Flavell (1979) suggested that the situations in which metacognitive experiences are likely to occur clearly resonate with descriptions of the process of writing: writing is with no doubt a process that calls for a great amount of deliberate and conscious thinking. Students who are writing in formal education contexts are also frequently assigned academic writing tasks, for which they need to plan for and evaluate writing. Therefore, their decisions during the writing

process are important as they determine the quality of their final product, and ultimately, whether they successfully meet the goals of the writing task. Finally, writing is not without factors that inhibit reflective thinking (e.g., writing anxiety, a lack of vocabulary or grammar knowledge), compared to speaking or listening which are language skills that have greater time constraints and often require real-time interaction with interlocutors. Also, writing presents a situation in which reflective thinking and the activation of metacognitive awareness; and more importantly, writing pursues independent decision-making (Raleiras et al., 2020).

As mentioned above, writing practice requires independent decision-making, and this is in line with the concept of gamified learning model in language teaching and learning. To be more specific, the gamified learning model is the application of game elements to non-game environments to promote learners' engagement, action, learning, and problem-solving skills. The growing interest in this strategy has encouraged the researcher to study the real benefits of gamified learning model in educational contexts, especially with writing skills (Kizilcec et al., 2017). In this study, the researcher will conduct mixed-methods research to uncover the underlying notions of a gamified blended learning model concerning EFL students' writing skills and metacognitive awareness.

Related Studies

The trajectory of metacognitive knowledge exploration in L2 writing has evolved from early descriptive studies to integrated models. Recent research emphasizes the potential of digital gaming for L2 writing, yet understanding the intricate relationship between metacognitive knowledge, language proficiency, and digital gaming poses an ongoing challenge, warranting further investigation and pedagogical consideration.

The exploration of metacognitive awareness in second language (L2) writing has significantly evolved, originally stemming from studies on process writing and strategy use (Manchón, 2008; Wonglakorn & Deerajviset, 2023). Subsequently, this field has moved towards a deeper understanding of metacognitive knowledge and its crucial impact on writing proficiency, as highlighted by a variety of research efforts (Hu, 2022). Moreover, Pongpuehee et al. (2022) pinpointed a direct connection between metacognitive knowledge and writing effectiveness, a notion that further studies reinforced by emphasizing the role of metacognitive awareness in promoting autonomous writing skills and its correlation with linguistic knowledge.

Additionally, Negretti and Kuteeva (2011) introduced the concept of “metaknowledge” within a model of expository writing, though they also

highlighted the need for more detailed assessment methods. With the advent of digital gaming in language learning, a new dimension was added, showcasing the potential of gaming to enhance L2 learning. This development emphasized the importance of integrating gaming experiences into educational contexts. Despite facing challenges, recent studies have demonstrated gaming's benefits for informal learning and vocabulary acquisition, with gaming paratexts providing valuable literacy experiences (Pongpuehee et al., 2022; Usman et al., 2022; Vathanalaotha, 2022).

In conclusion, the trajectory from descriptive studies to integrated models in the exploration of metacognitive knowledge in L2 writing reflects a significant shift. Recent research underscores the promising role of digital gaming in L2 writing education. However, the intricate relationship between metacognitive knowledge, language proficiency, and digital gaming environments remains a complex puzzle, warranting further investigation and pedagogical innovation.

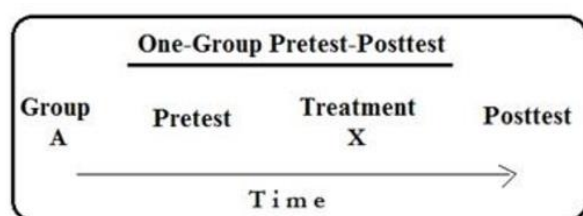
Methodology

Research Design

The research adopted a quasi-experimental one-group pretest-posttest design, measuring the outcome of interest before and after exposing participants to an intervention. This design, suitable for the study, allowed an effective comparison of pre-test and post-test scores, ensuring a causal relationship inference between the two tests. This design also leveraged each participant as their control, monitoring treatment stability across administrations (Creswell & Creswell, 2017).

Figure 10

One-Group Pretest-Posttest Design



Note. Adapted from *Research design: Qualitative, quantitative, and mixed methods approach*, by J. W. Creswell & J. D. Creswell, 2017, Sage publications.

Additionally, the study employed the Concurrent Embedded mixed-methods procedure, combining quantitative and qualitative methodologies. This design aimed to collect both types of data simultaneously, with one approach guiding reliable findings while the other played a supplementary role (Creswell & Creswell, 2017). The figure below illustrates the Embedded Experimental Model (Creswell & Zhang, 2009).

The Concurrent Embedded design was chosen due to the impracticality of true random sampling in the research setting, where participants were students grouped into distinct sections. This design allowed a comprehensive exploration of the research issue, particularly examining the effects of the Gamified Blended Learning Application (GBLA) on students' writing skills and metacognitive awareness.

By incorporating both quantitative and qualitative research approaches, the study attempted breadth and in-depth insights into the role of gamified blended learning in enhancing Thai EFL university students' writing and metacognitive awareness skills. Emphasizing quantitative data while complementing it with qualitative data aimed to triangulate research results for enhanced reliability (Creswell & Creswell, 2017).

Research Context

The study is set in a public university's Faculty of Interdisciplinary Studies, which emerged from the merger of four faculties and an administrative unit, now comprising six academic departments. The research will focus on the Department of Liberal Arts and Education, particularly within the context of English Language Teaching (ELT) programs, including Bachelor's and Master's degrees in related fields. The faculty's classrooms are well-equipped for both electronic and manual instruction, accommodating courses like LA 201216 Basic English Writing, which emphasizes practice in writing skills through a blend of lectures and activities. With 24 full-time lecturers, the department offers a conducive environment for the proposed study, targeting students enrolled in the Teaching English as a Foreign Language (TEFL) program. The program, adhering to a "New Paradigm Teaching" policy, promotes student-centered learning and formative assessments, aligning with the research's aim to explore teaching strategies within a well-resourced yet challenging educational framework. This setting, with its specific academic programs, student demographics, and instructional approaches, provides a comprehensive backdrop for investigating effective ELT practices, guided by considerations of students' language proficiency, course duration, and curricular integration.

Participants

This study focused on Thai EFL University students enrolled in the LA 201216 Basic English Writing course at a public university in northeast Thailand. There were thirty students participated in this study. A purposive sampling technique, guided by specific criteria, was employed to select participants who are first-time enrollees in the TEFL program's Basic English Writing course, have completed prerequisite grammar courses, and have not previously taken intensive writing courses. The participants' English proficiency, as per self-reports, ranges from 9 to 15 years of study, with varying experiences in standardized English tests and minimal exposure to formal writing instruction. Despite a minimum expected English proficiency level of B1 according to the CEFR, the study acknowledges a wide proficiency gap among students, attributing it to factors like limited authentic English use, socioeconomic challenges, and differing educational backgrounds. This diversity underscores the need for course content that is accessible to lower proficiency students while still offering sufficient challenge to higher achievers, aiming to cater to the varied learning needs within the TEFL program.

Instrumentation

The research employed six distinct research instruments to investigate the influence of a Gamified Blended Learning Application (GBLA), named "Classcraft," on students' writing skills and metacognitive awareness. In alignment with Braad et al.'s (2019) Planning, Performing, and Evaluating (PPE) principles, the GBLA was meticulously designed to integrate role-playing game elements, fostering a collaborative learning environment with the overarching goal of enhancing both writing skills and metacognitive awareness through the implementation of a PPE framework. To ensure the robustness and effectiveness of the GBLA, a multi-step validation process was meticulously followed. Initially, a survey was conducted to assess participants' device accessibility and internet connectivity. Subsequently, the course curriculum was scrutinized to inform content and lesson design, laying the groundwork for the GBLA prototype. The prototype underwent a pilot study, and subsequent modifications were made based on valuable participant feedback. Following these iterative steps, the GBLA was finalized for implementation in the main experiment.

The evaluation of writing skills was conducted through a Pre-Posttest, adapted from Kim (2013), which featured two writing tasks - a 200-250-word paragraph in response to the provided prompts emphasizing narrative reasoning based on a parallel of the subject matter in the "LA201216 Basic

English Writing” course. The assessment utilized an analytic rubric (O’Malley & Pierce, 1996), and scoring reliability was enhanced by engaging two inter-raters, one of whom was a native English speaker.

Simultaneously, a questionnaire, adapted from Kim (2013) and Abu Dawood et al. (2019), was employed to collect participants’ opinions on the incorporation of GBLA. To ensure comprehension among low-English proficiency participants, the questionnaire was translated into Thai. Complementary insights were derived from semi-structured interviews, guided by Kim (2013) and Dawood et al. (2019), providing a deeper exploration of participants’ experiences. The questionnaire Cronbach’s Alpha reliability was .954. As suggested in several research studies (Archibald, 2016; Creswell, 2017; Kinn & Curzio, 2005), a Cronbach’s Alpha of .954 far surpasses the standard benchmarks for reliable internal cohesion, suggesting that the questionnaire items used in this present study are not just related but are also precisely focused on the same underlying attributes. Such a score typically signifies that the questionnaire is a highly effective tool for capturing the nuances of the concept it aims to measure.

Further triangulation of data was achieved through students’ reflective journals, composed in Thai, focusing on metacognitive awareness and the integration of GBLA. Some guided metacognitive feedback questions were posted to guide how the participants observed their learning during the completion of each writing task. Such information was used to supplement the data gained from the questionnaire and semi-structured interview. Moreover, rigorous validation procedures, encompassing content and construct validity consultations, an iterative process of content adaptation (IOC), and translation backchecks, were implemented to fortify the validity of the instruments. A pilot study, conducted with a similar demographic of students, served to enhance the reliability of the research.

Embracing the triangulation approach, which involves leveraging multiple data sources and methodologies, the study aimed to fortify both the validity and reliability of the research (Creswell & Creswell, 2017). The comprehensive validation procedures, including expert consultations, reliability checks, and triangulation, collectively contributed to a robust investigation into the impact of GBLA on students’ writing skills and metacognitive awareness.

Data Collection Procedure

The research study employed a quasi-experimental design, specifically utilizing a one-group pre-and post-test approach to measure outcomes before and after participants were exposed to a Gamified Blended Learning Application (GBLA) known as “Classcraft.” Despite a limited participant

number, this design facilitated effective comparison, establishing a causal relationship (Creswell & Creswell, 2017).

Over the course of sixteen weeks, the study alternated between providing participants with the GBLA and PowerPoint slides. This alternating approach aimed to enhance reliability, particularly as participants within the same section were selected. The data collection process unfolded in several steps, starting with a classroom activity, followed by the administration of a pre-test, the introduction of the GBLA, and subsequent data collection throughout the experimental period. This comprehensive approach included post-tests, questionnaires, semi-structured interviews, and reflective journals with participants offering metacognitive feedback during the semester. Triangulation of results from diverse research instruments was a key strategy, ensuring the reliability of the study.

In adopting a mixed-methods approach, qualitative data were gathered through open-ended interviews and metacognitive feedback analysis. Simultaneously, quantitative data, including t-test scores and a closed-ended questionnaire, underwent analysis using SPSS. This combined methodology sought to enhance the study's breadth and depth, providing a more comprehensive understanding while compensating for individual method weaknesses (Dörnyei, 2003; Kinn & Curzio, 2005). Triangulation, a crucial advantage of mixed methods, facilitated the precise identification of aspects through multiple data sources and methods (Archibald, 2016).

The study was careful to acknowledge potential biases and limitations associated with qualitative and quantitative research alone. It emphasized the advantages of the combined approach, as mixed methods enabled effective contextual elucidation, overcoming the limitations of each approach individually. This inclusive strategy also allowed for the creation of more context-specific instruments, addressing the construct validity concerns in quantitative research (Hall & Howard, 2008).

Data Analysis

Quantitative Data Analysis

The examination of test scores involved a t-test to discern statistical disparities between pre-test and post-test results. To bolster the reliability of these scores, an analytic scoring rubric was employed for grading, enhancing the consistency of evaluation. Originating from prior studies in an English as a Foreign Language (EFL) context (O'Malley & Pierce, 1996), this rubric aligned with the study's objectives. Two independent raters evaluated each test, including a native English speaker and a Thai English lecturer with over five years of English writing teaching experience. Their combined

assessments contributed to a more reliable interpretation of the pre-posttest scores. Additionally, the questionnaire data were undergone analysis using mean ($\bar{x}$) and standard deviation (S.D.) in the SPSS program. Renowned for its quantitative data analysis capabilities, SPSS provides diverse statistical methods and visual aids, enhancing result clarity. Graphs and charts generated by SPSS facilitated comprehension, particularly for individuals less versed in statistical nuances.

Qualitative Data Analysis

Qualitative insights from semi-structured interviews and participants' reflective journals were undergone inductive coding (Saldaña, 2014). This involved multiple readings of transcripts to identify recurring themes related to participants' views on the Gamified Blended Learning Application (GBLA), particularly its impact on writing and metacognitive skills. The coding process comprised open coding, where sentences are color-coded based on relevance. Subsequently, axial coding grouped these sentences by the research question, and selective coding consolidated them into overarching themes. To validate these themes, inter-coder comparisons, revisions, and modifications were conducted, adhering to established procedures (Creswell, 2017).

Results

This study investigates the statistical reliability of questionnaires designed to explore various aspects of educational perspectives, specifically focusing on the effectiveness of the developed gamified learning model and its impact on metacognitive awareness and writing skills among Thai EFL university students. The core findings reveal exceptionally high Cronbach's Alpha scores across different questionnaire sections: .954 for all the 50-item general questionnaire, .940 for the 33 items addressing metacognitive awareness, and .935 for the 17 items evaluating the Gamified Learning Model "Classcraft" in a blended learning environment. These scores indicate a robust internal consistency and reliability of the questionnaires, suggesting that the items within each section are closely aligned and effectively measure the intended concepts.

To achieve the study purposes stated above, and to provide essential knowledge about the issues as described before, several research questions are posed. This current investigative study is designed to answer the below questions.

RQ1: Does the developed Gamified Learning Model enhance the writing skills of Thai EFL university students?

Table 5 presents the average pre-test score was 11.97 (S.D.=1.03; Min=9.00, Max=18.33) and the average post-test score was 19.92 (S.D.=1.00; Min=13.33; Max=22.00). As you can see, the results of the paired sample T-test revealed that students' scores significantly increased from pre-test to post-test ($P<0.01$), showing the effectiveness of the Gamified Learning Model on Thai EFL university students' writing skills.

Table 5

Pre-test and Post-test Scores

	$\bar{x}$	S.D.	Min	Max
Pre-test	11.97	1.03	9.00	13.33
Post-test	19.92	1.00	18.33	22.00

**Note: The average scores from 3 raters were used in the calculation*

Regarding the results from Table 5, participants initially underwent a diagnostic pre-test, revealing a baseline average of 11.97, indicative of their initial writing proficiency. This phase not only gauged their starting point but also laid the groundwork for assessing the tangible progress resulting from the Gamified Learning Model. The dispersion in scores, ranging from 9.00 to 18.33, reflected the diverse skill levels within the participant cohort.

After the intervention, the post-test scores exhibited a remarkable leap, reaching an average of 19.92, surpassing both the baseline and anticipated outcomes. The tight standard deviation (S.D.=1.00) suggested a consistent and impactful elevation in participants' writing skills. The fact that the scores clustered between 13.33 and 22.00 underscored the model's efficacy across the entire participant spectrum.

To rigorously evaluate the intervention's impact, a paired sample t-test was employed, revealing a robust t-value of -37.956, with a significant p-value of < 0.001 . This statistical rigor not only bolstered the internal validity of the study but also emphasized the practical significance of the findings (see Table 6).

The negative mean difference of -7.96667, within the T-test framework, signified a positive shift, indicating a considerable enhancement in writing skills. Also, the narrow 95% confidence interval [-8.39594, -

7.53739] affirmed the precision of this estimation, instilling confidence in the reliability of the reported improvement as shown in Table 6.

Table 6

Paired Samples Test

Paired Samples Test										
		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Pre Test – Post Test	-7.96667	1.14961	.20989	-8.39594	-7.53739	-37.956	29	<.001	<.001

Moving beyond statistical significance, these results carry profound implications for language education. ELT practitioners can draw inspiration from these outcomes, recognizing that integrating game components into pedagogical approaches can yield measurable advancements in writing skills. The dynamic and interactive nature of gamified learning aligns with the evolving needs of contemporary classrooms, fostering engagement and skill development. Presented below are some qualitative data to support statistical results:

Before this course, I found structuring my paragraphs and adding creativity into my writing very difficult. The Classcraft transformed that. It introduced a variety of writing tasks as “missions,” which made me approach writing with a strategy, similar to planning my moves in a game. This not only improved my organizational skills but also made me more creative, as I began to see writing as a form of play rather than a normal task. (S24)

Initially, the prospect of writing assignments filled me with worry, mainly due to my lack of confidence in my writing

abilities because I do not like writing in English. The gradual progression of challenges in various quests in the Classcraft allowed me to build my skills step by step. It felt like leveling up in a game, where each level tackled different aspects of writing, from grammar to storytelling. This approach helped explain the writing process for me and turned it into a series of achievable challenges. (S04)

In conclusion, these results affirm the potential of the Gamified Learning Model in enhancing the writing skills of Thai EFL university students. Beyond being a statistical triumph, this study contributes to the broader discourse on innovative pedagogical methodologies. As educators navigate the complexities of contemporary classrooms, gamified learning emerges as a promising avenue, fostering not only academic growth but also a renewed enthusiasm for language acquisition.

RQ 2: Does the developed Gamified Learning Model enhance the metacognitive awareness of Thai EFL university students?

There were 33 items in the questionnaire inquiring about the metacognitive awareness of Thai EFL university students (items 12.1-12.33). The results of the metacognitive awareness of Thai EFL university students are presented in Table 7.

Table 7

The Metacognitive Awareness of Thai EFL University Students

No.	Metacognitive Awareness Questions	mean ($\bar{x}$)	S.D.
12.1	When writing in Classcraft practices, I think about what I should do to make them correct and	3.57	0.50
12.2	Before I start a writing task, I try to determine what the writing prompt requires.	3.67**	0.48
12.3	Before I start writing a writing task, I try to predict which parts will be easy and which parts will be	3.43	0.57
12.4	When I have to write, I plan what I am going to do so I can use my time well.	3.43	0.57
12.5	Before I begin a writing assignment, I think about whether I know enough English grammar or	3.43	0.63

No.	Metacognitive Awareness Questions	mean ($\bar{x}$)	S.D.
12.6	When writing a writing task, I carefully think of the things I want to write about on the topic.	3.60	0.50
12.7	I am aware of the need to plan my course of action when writing in English.	3.47	0.57
12.8	When writing a writing task, I think about how to select and organize relevant information to answer	3.43	0.63
12.9	Before writing a writing task, I ask myself how the writing prompt relates to what I already know.	3.60**	0.50
12.10	Before I start to write a writing task, I think about the order in which I will put my ideas.	3.47	0.63
12.11	When writing in English, I try to understand the purpose of the writing task.	3.63**	0.49
12.12	I am aware of effective ways to use available online sources when writing in English.	3.47	0.51
12.13	I am aware of aspects of my English writing that need improvement.	3.53	0.57
12.14	I am aware of English writing strategies that are effective strategies.	3.47	0.51
12.15	I think about whether the organization of my writing task is effective for the particular type of	3.47	0.51
12.16	I am aware of the function of connectors such as “furthermore”, “besides”, “moreover”, etc.	3.47	0.51
12.17	I periodically check my writing task while writing it.	3.40	0.62
12.18	I am aware of the differences between spoken and written English.	3.37	0.49
12.19	I am not sure what to do when I am writing a writing task and I can’t find the right word.	2.93*	0.87
12.20	I check my accuracy as I progress through writing.	3.33	0.55
12.21	I think about the roles that words like but and however play in the organization of a writing task.	3.33	0.48

No.	Metacognitive Awareness Questions	mean ($\bar{x}$)	S.D.
12.22	I am aware of alternative ways (such as word choice) of saying what I mean when I have	3.20*	0.55
12.23	I am aware of which thinking technique or strategy to use when writing in English.	3.27	0.64
12.24	Before I hand in my writing task, I recheck my work.	3.57	0.63
12.25	I try to learn from the mistakes I make in English writing.	3.53	0.51
12.26	I am aware of my own thinking when writing in English.	3.43	0.63
12.27	I think about whether I am making progress in learning how to write in English.	3.50	0.57
12.28	After writing a writing task, I think about effective ways to incorporate my teacher's feedback into my	3.57	0.57
12.29	I do not give much thought to the evaluation criteria when working on an English writing task.	2.43*	0.94
12.30	I am aware of which type of feedback (teacher, peer, self) is most effective for improving my	3.50	0.57
12.31	I think about ways to improve my English writing proficiency on my own.	3.40	0.56
12.32	After I finish a writing task, I think about how I can do better the next time.	3.47	0.57
12.33	I set goals for myself in English writing.	3.40	0.56
Average		3.42	0.57

Note: * = lowest average scores ** = highest average scores

The investigation sought to ascertain the influence of the Gamified Learning Model, specifically employing the “Classcraft” application, on the metacognitive awareness of Thai EFL university students. The results, encapsulated in the mean score of 3.42 (S.D.=0.57) on the Metacognitive Awareness Questions, indicate a substantial improvement in the participants’ ability to engage in metacognitive processes. This positive outcome is further underscored by the exceptional Cronbach’s Alpha value of .940, affirming the

high internal consistency and reliability of the metacognitive awareness questionnaire.

Delving into the itemized analysis, specific facets of metacognitive awareness influenced by the Gamified Learning Model emerge. Notably, students, under the gamified approach, actively consider the relevance of writing prompts to their existing knowledge (Item 12.9, $\bar{x}$ =3.60, S.D.=0.50). This suggests a deeper level of cognitive engagement before initiating a writing task. Additionally, the heightened score on Item 12.11 ($\bar{x}$ =3.63, S.D.=0.49) signifies that students perceive a purposeful approach when engaging in English writing tasks, showcasing a more intentional and goal-oriented mindset fostered by the gamified environment.

Conversely, certain areas warrant attention, as evidenced by the lowest satisfaction scores. For instance, on Item 12.29 ($\bar{x}$ =2.43, S.D.=0.94), students indicate a tendency not to give ample thought to evaluation criteria during English writing tasks. This highlights an aspect where additional support or intervention may be beneficial. Similarly, Item 12.19 ($\bar{x}$ =2.93, S.D.=0.87) suggests that students feel uncertain about strategies when faced with lexical challenges during writing tasks, indicating an opportunity for further development.

In contrast, the study sheds light on positive aspects, such as Item 12.12 ($\bar{x}$ =3.47, S.D.=0.51), where students exhibit awareness of effective ways to use online sources when writing in English. This signals the successful integration of technological tools into their writing processes under the gamified paradigm. As shown below, the excerpts from the semi-structured interviews supported that the gamified learning enhanced participants' metacognitive awareness:

Playing Classcraft, I learned habit of reflecting on my grammar and vocabulary before I start writing. I now assess my strengths and weaknesses and adjust my writing strategy accordingly. This level of self-reflection was something I had not practiced before. (S08)

I got used to predicting the challenging aspects of writing tasks, allowing me to focus my efforts more effectively. This predictive analysis makes me feel more in control of my writing, similar to anticipating an opponent's moves in a game. (S12)

In conclusion, the study's outcomes underscore the effectiveness of the Gamified Learning Model in augmenting the metacognitive awareness of Thai EFL university students. These findings contribute valuable insights into the potential of gamification to not only positively influence cognitive processes but also introduce technological dimensions to writing strategies.

RQ 3: What are the students' opinions toward the developed Gamified Learning Model in a blended learning environment?

There were 17 items in the questionnaire inquiring students' opinions toward the developed Gamified Learning Model in a blended learning environment (items 11.1-11.17). The results of the students' opinions toward the developed Gamified Learning Model in a blended learning environment are presented in Table 8.

Table 8

Students' Opinions toward the Developed Gamified Learning Model in a Blended Learning Environment

No.	Gamified Blended Learning Experience Questions	mean ($\bar{x}$)	S.D.
11.1	I like being able to check my progress in Classcraft.	3.10	0.55
11.2	I like teacher to provide clear rubrics.	3.63**	0.56
11.3	I like teachers to provide a gamified learning application (Classcraft).	2.97	0.76
11.4	I like teacher to give us guidance/directions when we are doing activities in the blended classroom (in-class and online activities).	3.40**	0.56
11.5	I like learning the knowledge and skills provided in Classcraft that are directly related to the subject matter of the course.	3.13	0.63
11.6	I like getting feedback on my performances from the teacher via Classcraft platform.	2.87*	0.73
11.7	I like interactive activities such as "Formative review", "Quick review", "Random events", "Random picker", etc. in the blended classroom (in class and online activities).	3.23	0.73
11.8	I like teacher to use interactive technology (Classcraft) in in the blended classroom (in-class and online activities).	3.53**	0.51

No.	Gamified Blended Learning Experience Questions	mean ($\bar{x}$)	S.D.
11.9	I like collaborating with my classmates such as building personal connections, working in group, reviewing the chapter, etc. by playing Classcraft.	3.30	0.75
11.10	I like trying new things in Classcraft elements.	3.23	0.73
11.11	I like challenges from the features of Classcraft such as “Avatar”, “Quick review”, “Random events”, “Random picker”, etc.	2.93*	0.87
11.12	I like building personal connections with my teacher and classmates by playing Classcraft.	3.10	0.71
11.13	I like the teacher’s attention in class such as giving feedback, preparing questions in the game, facilitating group activities, correcting exercises, etc.	3.30	0.60
11.14	I like reviewing content covered in class by playing Classcraft.	2.90*	0.71
11.15	I am self-motivated after spending my time on the Classcraft.	3.00	0.74
11.16	I know how to write better (such as organizing a paragraph, choosing formal/informal language, using conjunctions, relating ideas, etc.) by learning from the metacognitive prompts in Classcraft.	3.00	0.74
11.17	Outside the face-to-face classroom, I practice writing by myself more via Classcraft.	3.00	0.74
Average		3.15	0.68

Note: * = lowest average scores ** = highest average scores

The empirical exploration into students’ attitudes toward the implemented Gamified Learning Model within a blended learning paradigm has produced different and valuable insights. The intricacies of their experiences with the Classcraft application, elucidated in Table 8, offer a profound understanding of the multifaceted dimensions of gamified learning.

The students, in their responses, demonstrated a predominantly positive disposition, evident in the commendable average score of 3.15 (S.D.=0.68) for the Gamified Blended Learning Experience Questions. This positive sentiment is further bolstered by the robust Cronbach’s Alpha reliability coefficient of .935, attesting to the high internal consistency within the administered questionnaire.

As the results present, certain facets emerged as particularly gratifying for the student cohort. A notable proclivity for explicit guidance from educators during both in-class and online activities (Item 11.4, $\bar{x}=3.40$, S.D.=0.56) underscored the significance of instructional clarity in optimizing the blended learning experience. The emphasis on interactive technology, specifically the integration of Classcraft, garnered substantial satisfaction scores (Item 11.8, $\bar{x}=3.53$, S.D.=0.51), suggesting a positive reception toward the infusion of gamified elements within the pedagogical framework.

Moreover, the establishment of personal connections through gameplay also surfaced as a noteworthy positive aspect (Item 11.12, $\bar{x}=3.10$, S.D.=0.71), shedding light on the potential of gamified learning not only for knowledge dissemination but also for fostering interpersonal relationships among students and with their instructor. While the overall satisfaction levels resonated positively, certain dimensions called for deliberate consideration. Feedback mechanisms, particularly those facilitated through the Classcraft platform (Item 11.6, $\bar{x}=2.87$, S.D.=0.73), and the integration of challenges within gamified features (Item 11.11, $\bar{x}=2.93$, S.D.=0.87), attracted comparatively lower satisfaction scores. These nuanced findings offer valuable insights into potential areas for refinement, urging a reevaluation of feedback strategies and challenges to align more closely with the intended learning objectives. Similarly, content review through the Classcraft platform (Item 11.14, $\bar{x}=2.90$, S.D.=0.71) also exhibited room for improvement in terms of student satisfaction, prompting a thoughtful reconsideration of its effectiveness in enhancing engagement during content review sessions.

Beyond the surface-level satisfaction analysis, the dataset unraveled deeper insights into student engagement dynamics and skill development. The discernible positive correlation between students reporting heightened motivation (Item 11.15, $\bar{x}=3.00$, S.D.=0.74) and engaging in independent writing practices via Classcraft (Item 11.17, $\bar{x}=3.00$, S.D.=0.74) suggests the potential of gamified learning to stimulate self-directed learning behaviors. Furthermore, the recognition that metacognitive prompts within Classcraft contribute significantly to improved writing skills (Item 11.16, $\bar{x}=3.00$, S.D.=0.74) underscores the platform's capacity not only to enhance content knowledge but also to foster the development of higher-order cognitive skills. Additionally, the qualitative data from participants' reflective journals affirmed the effectiveness of gamified learning incorporated in the research context:

The Classcraft platform introduced me to a new way of learning that was both engaging and challenging. However, there were moments when the game mechanics felt more distracting than learning. (S24)

Using Classcraft in our blended classroom made learning writing more interactive and fun. It was not just another tool, but it was a door to a more engaging learning experience. (S10)

In conclusion, the extensive analysis of the dataset paints a comprehensive and positive portrait of the Gamified Blended Learning Model's reception among students. While judiciously acknowledging areas warranting refinement, particularly in feedback mechanisms and challenge integration, the overarching satisfaction levels and depth of engagement underscore the transformative potential of gamified learning to enrich and elevate the blended learning experience.

Discussion

Theoretical Implications of Gamification in EFL

The findings from this study enrich the theoretical discourse on gamification in language learning. The marked improvement in students' writing skills and metacognitive awareness underscores the role of gamification in facilitating deeper cognitive processes and language acquisition. This aligns with Vygotsky's (2007) sociocultural theory, which emphasizes the importance of interactive and socially rich contexts for learning. The gamified learning environment created a zone of proximal development where students could extend their skills beyond their current capabilities, guided by the game's structure and peer interactions.

Gamification as a Catalyst for Engagement and Motivation

The Gamified Learning Model's success in boosting student engagement and motivation can be analyzed through the lens of Deci et al.'s (1985) Self-Determination Theory. The theory posits that intrinsic motivation is driven by the needs for autonomy, competence, and relatedness, all of which are catered to by the gamified environment. The autonomy in choosing tasks, the competence developed through progressive challenges, and the relatedness fostered by collaborative elements likely contributed to the heightened engagement and improved writing skills observed.

Pedagogical Implementation

Structuring the Gamified Learning Environment

To implement the Gamified Learning Model effectively in a blended learning setting, educators need to focus on structuring the environment to support various learning styles and levels. This involves:

Creating Diverse and Scaffolded Challenges: Design tasks with varying levels of difficulty to cater to students with different proficiency levels. Incorporating scaffolding techniques can help lower-level learners to gradually build up their skills.

Balancing Digital and Face-to-Face Interactions: Integrate Classcraft with traditional classroom activities. Ensure that the digital platform complements, rather than replaces, face-to-face teaching to maintain the benefits of direct instructor-student interaction.

Incorporating Reflective Practices: Use the game's narrative and missions to encourage students to reflect on their learning strategies and outcomes. This could be facilitated through in-game journals or discussion forums.

Enhancing Teacher's Role in Gamified Learning

Teachers should not only facilitate the use of gamification tools but also actively engage in the learning process. This includes:

Guiding Students Through Challenges: Provide timely and constructive feedback on students' game-related tasks. Use these tasks as opportunities to address individual language learning needs.

Monitoring and Adjusting the Game Elements: Continuously assess the effectiveness of game elements and be prepared to make adjustments based on student feedback and performance.

Fostering a Collaborative Classroom Culture: Encourage teamwork and peer learning within the gamified environment. Design tasks that require students to collaborate, thus enhancing communication and social interaction skills.

Conclusion

This study embarked on a journey to explore the transformative potential of gamified learning in the context of English as a Foreign Language (EFL) education among Thai university students. Through a meticulously designed Gamified Learning Model, this research investigated its effectiveness on three critical aspects: writing skills, metacognitive awareness, and students' opinions in a blended learning environment. The findings of this study have far-reaching implications for both pedagogical practice and future research.

The findings of this investigation unequivocally demonstrate that the Gamified Learning Model has a significant and positive effect on the writing skills of Thai EFL university students. The pre-test and post-test scores

revealed a remarkable leap in students' writing proficiency, with statistically significant improvements noted across the entire participant spectrum. The structured gamified environment provided opportunities for students to engage in meaningful writing tasks, prompting them to think critically, plan, and organize their ideas effectively. This aligns with educational theories emphasizing the importance of interactive and socially rich contexts for learning. Gamification, in this sense, created a zone of proximal development, enabling students to extend their writing skills beyond their current capabilities. The study also shed light on the enhancement of metacognitive awareness among Thai EFL university students through the Gamified Learning Model. The questionnaire responses indicated a substantial improvement in students' ability to engage in metacognitive processes. Specifically, students displayed a deeper level of cognitive engagement before initiating writing tasks, pondering the relevance of writing prompts to their existing knowledge. They also exhibited a more intentional and goal-oriented mindset when engaging in English writing tasks. These findings resonate with educational theories emphasizing the importance of nurturing intrinsic motivation and students' independent learning.

The comprehensive analysis of students' opinions toward the Gamified Learning Model in a blended learning environment revealed a predominantly positive disposition. Students appreciated the clarity of guidance provided by teachers during both in-class and online activities. The integration of interactive technology garnered substantial satisfaction scores, suggesting a positive reception toward gamified elements. Moreover, the establishment of personal connections through gameplay highlighted the potential of gamified learning not only for knowledge dissemination but also for fostering interpersonal relationships among students and with their instructor. While certain dimensions called for refinement, such as feedback mechanisms and challenge integration, the overall satisfaction levels and depth of engagement underscored the transformative potential of gamified learning to enrich and elevate the blended learning experience.

In light of the foregoing, this study affirms the potential of the Gamified Learning Model in enhancing the writing skills and metacognitive awareness of Thai EFL university students. Beyond statistical triumph, it contributes to the broader discourse on innovative pedagogical methodologies. Gamified learning emerges as a promising avenue, fostering not only academic growth but also a renewed enthusiasm for language acquisition. As educators navigate the complexities of contemporary classrooms, gamified learning stands as a beacon of transformation, offering an engaging and effective approach to language education. Future research should continue this trajectory, exploring nuanced variations of gamified approaches and their impact in diverse educational landscapes.

Recommendations for Future Research

This research opens up several exciting avenues for future studies. Firstly, exploring the effects of gamified learning across diverse educational landscapes and among a broader spectrum of learners is essential. Investigating different cultural, linguistic, and environmental factors will provide insights into the universal applicability and adaptability of gamified learning models. Secondly, longitudinal studies tracking the enduring effects of gamified learning on writing abilities and metacognitive skills will deepen our understanding of the sustained impact of gamification on language proficiency and learner autonomy. Thirdly, the integration of advanced technologies within gamified educational frameworks should be explored for their potential to redefine engagement and interactivity in language learning. Lastly, understanding educators' perspectives and experiences in implementing gamified learning in EFL contexts is crucial for fine-tuning gamified learning models to align with teaching realities and pedagogical goals.

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