

Enhancing Online English Self-Regulated Learning through Gamification and Active Learning in Higher Education

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Budi Waluyo

Walailak University, Thailand
budi.business.waluyo@gmail.com

Kritsadee Songkhai

Walailak University, Thailand
xiaolingfacai@gmail.com

Jiali Li

Huaqiao University, China
867334629@qq.com

Abstract

Despite the increased adoption of online learning in higher education, there was limited knowledge about how the combination of online English synchronous learning with gamified applications and active learning impacted student self-regulation. This study used a sequential explanatory research design to investigate this integration in an English for Academic Communication course at a southern Thai university over a 12-week period. Data, including a Self-Regulated Learning (SRL) strategy survey, reflective essays, and course grades, were analyzed using descriptive statistics for quantitative data and thematic analysis for qualitative data. The findings showed that students heavily utilized SRL strategies, especially in Time Management and Environment Structuring, but there were differences in Goal Setting between the quantitative and qualitative results. Although there were strong positive correlations among SRL constructs, none of them were statistically significant in relation to course grades. Students expressed their desire for feedback, interactive learning, and a balanced workload in their ideal online English learning experience. This study provided insights into the integration of online English synchronous learning with gamification and active learning in higher education.

Keywords: Self-regulated learning strategies, Time management, Environment structuring, Online English learning

In today's rapidly evolving higher education environment, combining online English classes with gamified applications and active learning strategies has become an exciting area of

research. This study explores how students use self-regulated learning (SRL) strategies in these innovative settings. SRL strategies have long been known to significantly impact academic performance and personal development (Zimmerman, 1990; Anthonysamy et al., 2020). Their importance has grown even more in online learning environments, where less direct instructor involvement means students need to be more autonomous and actively engaged (Wang et al., 2013). The challenge of learning independently in these settings requires students to effectively manage their time and plan strategically (Pratiwi & Waluyo, 2023; Serdyukov & Hill, 2013), making SRL not just helpful but crucial in online education (Adam et al., 2017; Wong et al., 2019).

The global shift towards online education, driven by the COVID-19 pandemic, has made it crucial to understand self-regulated learning (SRL) strategies in online English classes, which have been significantly transformed by the pandemic (Crawford et al., 2020; Zhao & Watterston, 2021). Moreover, although prior research has explored various online learning modalities, such as Massive Open Online Courses (MOOCs), Learning Management Systems (LMS), and computer-mediated environments (Araka et al., 2021; Broadbent et al., 2020; Martinez-Lopez et al., 2017) and multimedia writing (Teng, & Qin, 2024; Teng & Zhang, 2024), there remains a notable deficiency in our grasp of how SRL strategies are specifically applied in online English courses. This is especially true for courses that use gamified applications and active learning in higher education. Understanding this better is key to improving educational strategies in our ever-evolving learning environments.

Literature Review

Online English Learning, Gamification, and Active Learning

The field of online English education is currently undergoing a profound transformation, primarily driven by technological innovations, and evolving pedagogical approaches (Cheung, 2021). Contemporary research highlights a growing preference for synchronous and interactive learning environments, lauded for their ability to enhance engagement and offer immediate feedback (Feubli et al., 2023; Moorhouse, et al., 2023; Waluyo & Rofiah, 2021). However, this enthusiasm is counterbalanced by criticisms articulated by Waluyo and Wangdi (2023), who raise significant concerns such as digital fatigue and accessibility barriers. They advocate for a more discerning and thoughtful application of these online modalities. This dichotomy points out the complexities involved in transitioning to online formats within the realm of English education, necessitating a judicious balance between harnessing their potential and acknowledging their inherent limitations.

In parallel, gamification – the infusion of game mechanics into educational contexts – is being hailed as a revolutionary engagement strategy in online learning. Research evidences its efficacy in amplifying student motivation and participation through elements like points and leaderboards (Huang et al., 2020; Li et al., 2022; Sun & Hsieh, 2018). However, it is imperative to consider a critical perspective as articulated by Boudadi and Gutiérrez-Colón (2020), who caution against an undue emphasis on extrinsic rewards that may overshadow the intrinsic value of learning, potentially fostering a more superficial level of engagement. This comparison underlines the nuanced and multifaceted nature of the gamification debate within the realm of online education. This suggests that although gamification can be an influential tool, its application requires a sophisticated understanding of its impact on learning outcomes (Dehghanzadeh etc., 2023; Panmei & Waluyo, 2022).

Furthermore, the adoption of active learning strategies in online English education offers both challenges and opportunities. These methods, exemplified by collaborative projects and interactive discussions, have demonstrated potential for enhancing academic performance and student satisfaction (Hung, 2015). Nonetheless, critics such as Rofiah et al. (2022) highlight obstacles like the digital divide and varied digital literacy levels, which can impede the effectiveness of these methods. Hence, while active learning is promising in online settings, its success depends on educators' awareness and mitigation of these barriers to ensure equitable and effective learning experiences (El Shaban, 2017).

Hence, the convergence of gamified applications and active learning strategies within the domain of online English education forges a multifaceted yet promising educational paradigm. Studies such as Rincon-Flores and Santos-Guevara (2021) have demonstrated their potential to amplify engagement levels and enhance language proficiency. However, a cautionary perspective is offered by Jodoi et al. (2021), who advocate against a one-size-fits-all approach and instead emphasize the importance of tailoring the application of these methods to accommodate diverse learner profiles, cultural contexts, and varying levels of digital literacy. This collective body of research stresses the imperative of ongoing exploration to discern the most efficacious means of amalgamating these innovative approaches, with the aim of meeting the diverse needs of learners within the realm of higher education.

Online Self-Regulated Learning

Self-Regulated Learning (SRL) can be described as a dynamic and purposeful cognitive process in which learners proactively establish objectives for their learning endeavors and subsequently engage in monitoring, regulating, and managing their cognitive processes, motivational factors, and behavioral actions (Pintrich, 2000). These self-regulatory activities are influenced and bounded by the learners' goals as well as the contextual characteristics within their learning environment. The self-determined objectives established by learners serve as the benchmark against which the process of monitoring and regulatory judgments is enacted (Zimmerman, 2000). Within the context of online learning, SRL assumes an even greater significance, as the heightened demand for autonomous cognitive and behavioral engagement necessitates students to exercise greater self-directed agency in the absence of regular external support typically provided by classroom instructors (Jansen et al., 2020) and the attainment of successful online learning outcomes hinges upon students' capacity to assume active control over the learning process, both during and after synchronous online sessions (Wang et al., 2013).

Nonetheless, the relationship between self-regulated learning (SRL) and academic achievements remains a topic of empirical inquiry, yielding a range of findings in online environments. Existing research, such as Adam et al. (2017) and Cazan (2014), has largely affirmed the positive impact of SRL on enhancing learners' knowledge and learning outcomes. A comprehensive meta-analysis conducted in Turkey by Ergen and Kanadli (2017) during the period of 2005 to 2014 revealed a substantial effect of SRL on academic achievement, irrespective of factors such as self-regulated learning strategy, course type, study design, or school level. Furthermore, Zhu et al. (2016) examined the influence of self-control and self-regulated learning in a blended learning setting, finding that both factors predicted participants' course outcomes, with self-control exerting its impact through mediated pathways of self-regulated learning and course participation. In addition to its positive effects on academic performance, SRL also influences students' attitudes towards online courses (Ejubovic &

Puska, 2019). However, critical reviews by Broadbent and Poon (2015) and Rivers et al. (2022) indicate that while traditional face-to-face contributors to achievement may apply to online contexts, the effects are comparatively weaker, suggesting the need to explore other factors of importance. Broadbent and Fuller-Tyszkiewicz (2018) argue that differences in academic success are associated with learners' capacity for motivational regulation and implementation of SRL strategies.

Several cross-national empirical studies have delineated six distinct sub-scales encompassing students' self-regulated learning (SRL) strategies in online environments, namely Goal Setting (establishing clear objectives), Environment Structuring (creating a conducive study environment), Task Strategies (employing effective task techniques), Time Management (organizing time efficiently), Help Seeking (seeking assistance), and Self-Evaluation (critically assessing one's progress and understanding) (Jansen et al., 2017; Martinez-Lopez et al., 2017; Zalli et al., 2020). However, there remains an unresolved discord among previous research regarding the influential sub-scales on students' online learning outcomes. While Goal Setting has shown predictive validity for personal course goals, Task Strategies and Self-Evaluation have not yielded comparable results (Kizilcec et al., 2017). Similarly, Lawanto et al. (2014), who investigated task value, self-regulated learning, and performance in a web-intensive engineering course, found a positive correlation between Goal Setting and students' performances, but no significant relationship between other sub-scales (task strategies, help seeking, and self-evaluation) and student performance. Furthermore, Chase et al. (2013) revealed that Goal Setting, when accompanied by values training, significantly improved students' GPAs in subsequent semesters, while Goal Setting alone had no discernible impact. Conversely, Task Strategies, Self-Evaluation, Environmental Structure, Time Management, and Help-Seeking exhibited negative associations with learners' perceived inefficacy of online learning, potentially exerting indirect effects on students' learning outcomes (Hong et al., 2021). Implementing a time management enabling system facilitated consistent study habits and enhanced students' efficacy in time management, thereby influencing their performance (Khat, 2022).

The existing body of research has extensively investigated self-regulated learning (SRL) strategies; however, a critical examination of the literature reveals a significant gap concerning fully synchronous online English learning. Specifically, there is limited research on the alignment between students' self-reported SRL strategies in surveys and their qualitative reflective essays, as well as their expectations for enhancing their online English learning experiences. This gap provides the impetus for the present study to address this underexplored area. Previous investigations have primarily focused on SRL strategies in online writing courses for English as a Foreign Language (EFL) students. These studies have found that high-proficiency students demonstrated distinctive self-regulation processes in personal, behavioral, and environmental aspects compared to their low-proficiency peers (Abdelhalim, 2022). Furthermore, a four-factor model encompassing cognition, metacognition, social behavior, and motivational regulation offers a more comprehensive framework for understanding advanced EFL learners' self-regulated writing strategies compared to a model treating such strategies as a single convergent factor (Wang et al., 2023). Additional studies have indicated that students moderately employed SRL strategies in their writing tasks, with goal setting being frequently utilized and time management strategies employed occasionally (Abadikhah et al., 2018; Inan-Karagul & Seker, 2021; Tran, 2021). The focus on SRL in this research is thus justified by the need to fill these gaps, particularly in understanding how these strategies can be optimized to

enhance learning experiences and outcomes in fully synchronous online English courses. By addressing these gaps, this study aims to provide valuable insights into the effective application of SRL strategies, ultimately contributing to the development of more robust and supportive online learning environments.

The Study

The following questions guide this research:

1. How do university students self-regulate their learning in integrated online English classes featuring gamification and active learning?
2. What are the relationships between their self-regulated learning strategies and their outcomes in these gamified and actively engaged online English learning environments?
3. From the students' perspective, what improvements are necessary to enhance their experiences in these innovative online English classes?

Methods

Research Procedures

This research study implemented a comprehensive online course in English for Academic Communication over a duration of 12 weeks, comprising four hours of instruction divided into two sessions per week, conducted via the ZOOM platform. The curriculum encompassed a broad spectrum of academic communication skills, encompassing both written and oral modalities. The initial week was dedicated to an orientation phase, where the course objectives and structure were delineated, followed by an intensive instructional period spanning from the second to the eleventh week. The curriculum was meticulously designed to cover a range of critical topics, including strategies for avoiding plagiarism (with an emphasis on paraphrasing and summarizing), reading comprehension, article summarization and review, argumentation techniques (focusing on agreement and disagreement), and technical communication skills.

Incorporating innovative educational strategies, each week of the course featured a blend of gamified applications and active learning methodologies to enhance the synchronous English sessions. The gamification elements were integrated using various digital platforms: *Socrative.com* facilitated vocabulary and grammar tests, *Quizizz.com* was employed for grammar exercises, *Kahoot* was utilized for reading comprehension activities, and *Quizlet.com* was used for vocabulary learning and reinforcement. These gamified elements aimed to augment student engagement and reinforce key language concepts. Additionally, the traditional lecture component was consciously limited to 30 minutes per session to allow ample time for active learning activities. These activities were diverse and interactive, involving students in tasks such as sourcing and sharing texts from online resources, engaging in discussions on controversial topics with a focus on argumentative skills, participating in paired summary tasks, presenting group projects, and conducting individual article reporting. This approach ensured that students were not only recipients of knowledge but also active participants in their learning process, fostering deeper engagement and understanding of the course content. The following figures 1, 2, 3, and 4 show some of the activities implemented on the course.

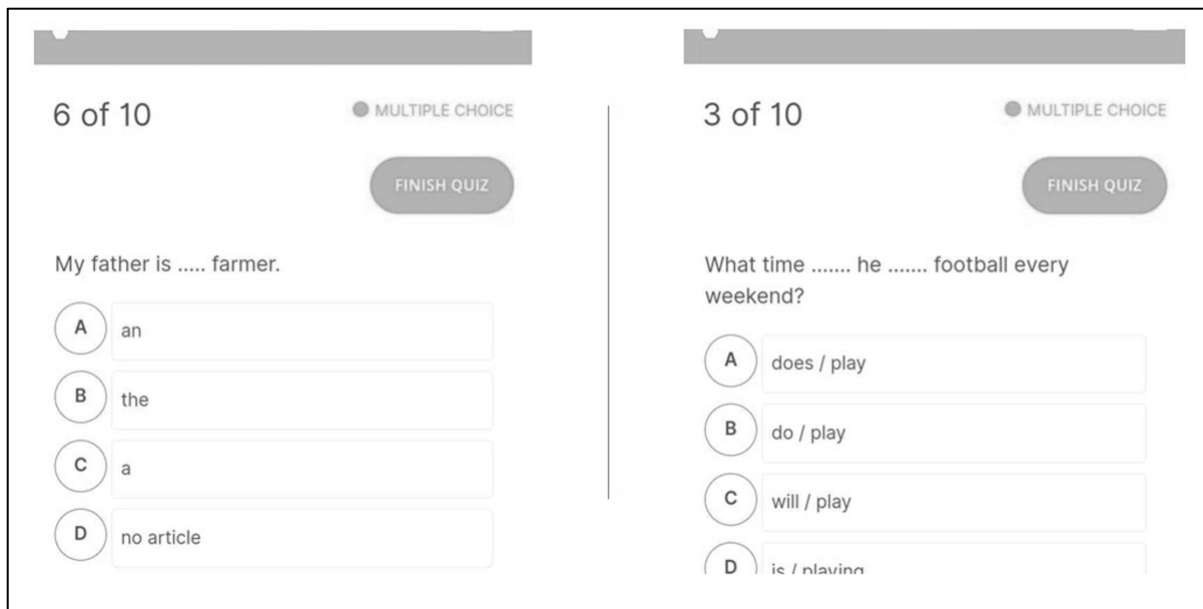


Figure 1. Activities done using Socrative.com

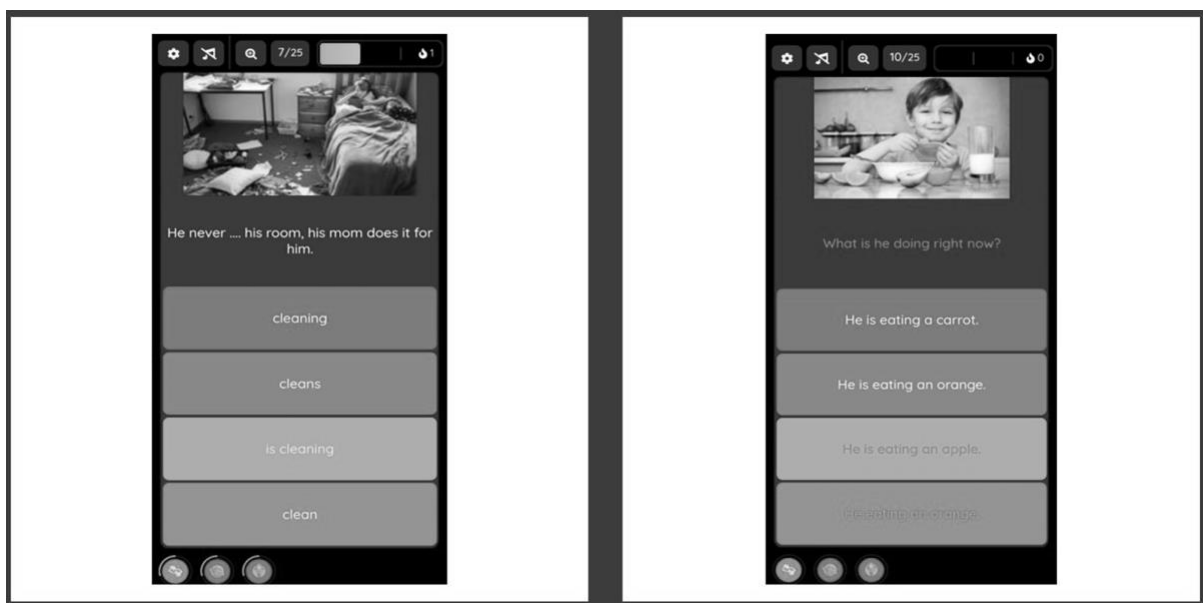


Figure 2. Activities done using Quizizz.com

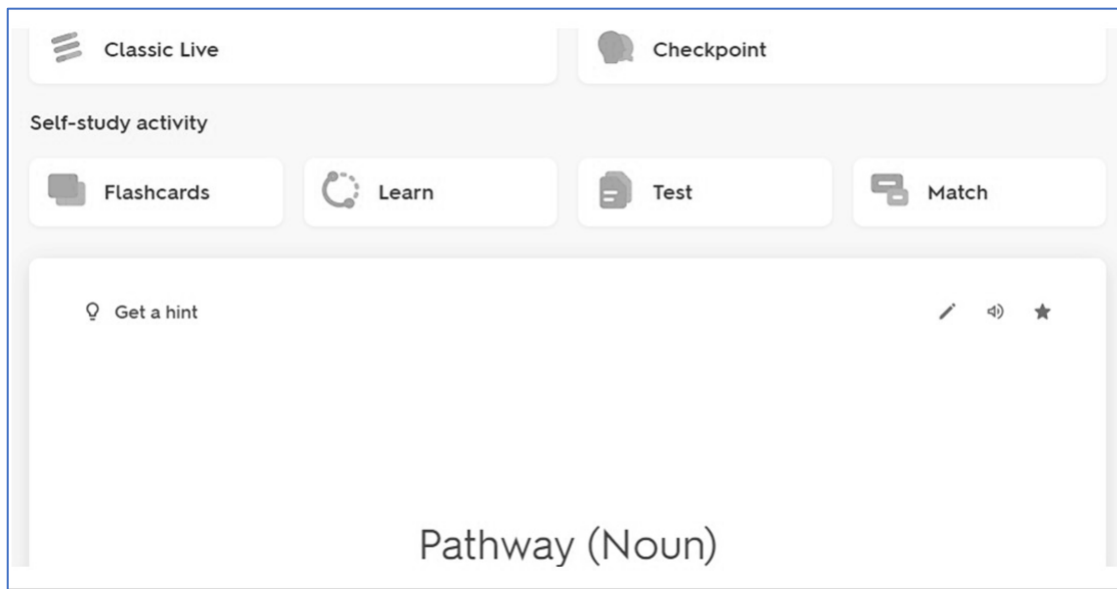


Figure 3. Activities done using Quizlet.com

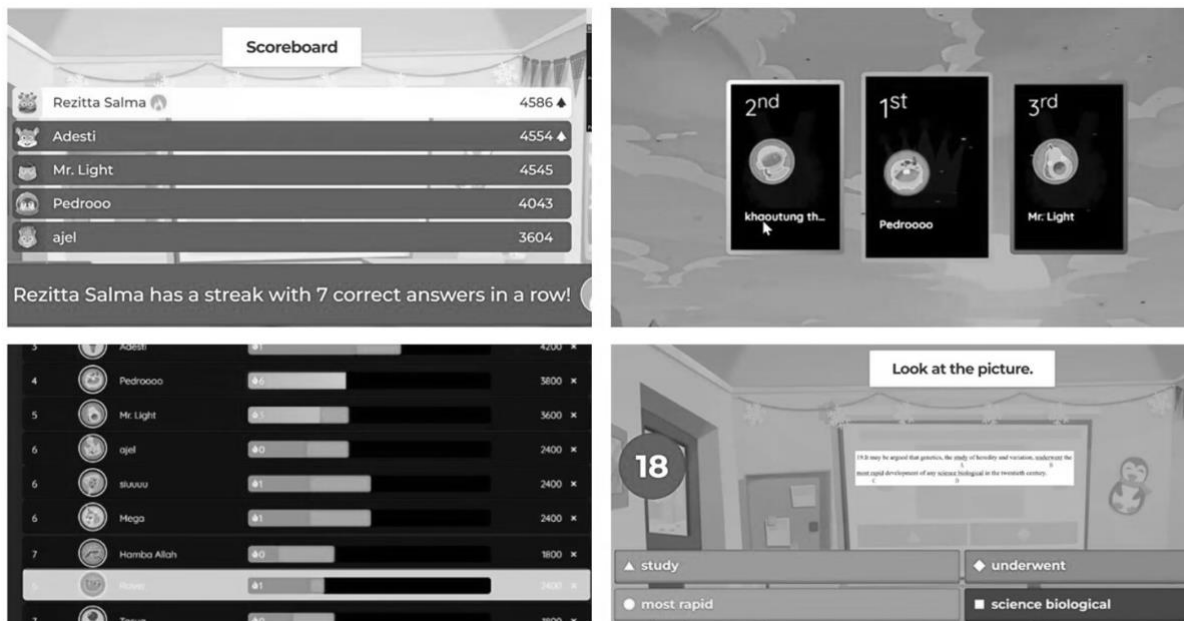


Figure 4. Activities involving Kahoot and Quizizz.com

Research Design

The present research explored the integration of online English synchronous learning with gamified applications and active learning in higher education, employing a mixed methods approach with a sequential explanatory design. This design included both quantitative and qualitative phases: the quantitative phase focused on numerical data from survey responses and course grades, while the qualitative phase captured individual experiences through reflective essays. Following Creswell's (2013) recommendation, qualitative findings were used to provide context and a deeper understanding of the quantitative data. The study aimed to elucidate the Self-Regulated Learning (SRL) strategies employed by Thai EFL students in online English classes and their impact on learning outcomes. To achieve this, a narrative

inquiry methodology was adopted, allowing for a thorough exploration of students' experiences and the dynamics of SRL in online English education. Narrative inquiry, as described by Clandinin and Caine (2013), views people's experiences as phenomena and uses storytelling to investigate these experiences in-depth, considering context and temporal changes. Researchers focus on aspects of place, time, and social interactions within a three-dimensional narrative space, encompassing both researchers' and participants' life stories (Connelly & Clandinin, 1990). This method situates individual stories within broader cultural, social, and institutional narratives, characterized by a strong relational engagement between researchers and participants. Narrative inquiry is used across various disciplines and professional fields, each contributing unique perspectives and contexts, enriching the understanding and interpretation of experiences through dialogue and participation in the ongoing lives of research participants (Barrett & Stauffer, 2009). This study employed qualitative reflection essays written by students to capture the narrative aspects of their learning experiences.

Research Context and Participants

The research was conducted at a prestigious mid-size university in southern Thailand, recognized in the Times Higher Education's World Rankings. With over 20 foreign English lecturers certified by Advance Higher Education, UK, the institution is renowned for its comprehensive English courses and adherence to international teaching standards. A specific English communication course was taught over 12 weeks, following task-based language learning principles. Convenience sampling resulted in the participation of 21 second-year undergraduate students from the School of Allied Health Sciences, predominantly female (85.7%) with an average age of 19.86. The selected students exhibited commendable academic performance, evident from their average GPAs exceeding 3.5. Furthermore, their English proficiency levels were assessed using the Common European Framework of Reference (CEFR), ranging from A2 to B1, indicating a range of intermediate to upper-intermediate language proficiency levels.

Aware of its limited sample size, this study adopted a mixed-method design to thoroughly investigate the research topic by incorporating both quantitative and qualitative data. This approach aimed to strengthen the study's findings through triangulation, providing a more robust and in-depth understanding. To mitigate the limitations of the small sample size, non-parametric tests were used, as they are well-suited for research with fewer participants. By taking these steps, the study aimed to ensure the validity and reliability of its results despite the constraints.

Research Instruments

Survey Questionnaire. An online self-regulated learning questionnaire with 24 items validated by Martinez-Lopez et al. (2017) was utilized in this study. It consisted of six subscales: Goal Setting (5 items), Environment Structuring (4 items), Task Strategies (4 items), Time Management (3 items), Help Seeking (4 items), and Self-Evaluation (4 items). The options ranged from Strongly Disagree (1) to Strongly Agree (5). The reliability analysis results showed all the items had satisfactory and high internal consistency among the items, as seen in Table 1.

Table 1. SRL questionnaire

Scale and Sub-Scales	Sample Items	Cronbach's Alpha (α)
Overall SRL Strategies		.95
Goal Setting	I set standards for my assignments in online courses I keep a high standard for my learning in my online courses	.70
Environment Structuring	I choose the location where I study to avoid too much distraction. I find a comfortable place to study	.81
Task Strategies	I read aloud instructional materials posted online to fight against distractions. I prepare my questions before joining in the chat room and discussion.	.91
Time Management	I allocate extra studying time for my online courses because I know it is time demanding. I try to schedule the same time every day or every week to study for my online courses, and I observe the schedule	.87
Help Seeking	I find someone who is knowledgeable in course content so that I can consult with him or her when I need help If needed, I try to meet my classmates face-to-face.	.69
Self-Evaluation	I summarize my learning in online courses to examine my understanding of what I have learned. I ask myself a lot of questions about the course material when studying for an online course.	.80

Course Grades. To evaluate the students' learning outcomes, course grades were collected upon completion of the course, utilizing a grading scale ranging from 0 to 100. The assessment structure of the course encompassed various components, including Vocabulary (10%), Speaking (10%), Listening (10%), Writing (10%), Reading (10%), Independent Learning (10%), Final Projects (20%), Take Home Exam (5%), and Online Final Exam (15%). The statistical outcomes demonstrated that the lowest grade attained was 75, while the highest reached 82, resulting in an average grade of 78.38 with a standard deviation of 2.16. The distribution of grades followed a normal distribution pattern, as indicated by skewness and kurtosis values falling within the acceptable range of less than -2 or 2. However, it is important to note that the standard deviation value suggested the presence of some students who received exceptionally high or low grades, indicating a certain degree of variability among the students' performance.

Collecting course grades is essential for this research as it provides quantifiable data on student outcomes in online English classes that use gamification and active learning. These grades directly address the second research question by showing the impact of self-regulated learning (SRL) strategies on academic performance. Analyzing this data helps validate the effectiveness of SRL and highlights variations in student success, offering insights into which strategies are most beneficial. This, in turn, informs potential improvements to enhance the learning experience, aligning with the third research question. Overall, course grades are crucial for assessing the role of SRL in these innovative educational settings.

Reflective Essays. At the end of the course, students were asked to write a reflective essay about their experiences and strategies in managing their English language learning, as well as their suggestions for improving their online English learning experiences. To ensure they could express their thoughts fully, students were allowed to write their essays in either Thai or English. During the analysis, each student was assigned a unique code (e.g., S1, S2, S3) to

maintain confidentiality and systematically organize the data. This approach facilitated a thorough and organized examination of the qualitative information from the essays.

Data Analysis

In this study, both quantitative and qualitative data were collected and analyzed. The quantitative data, comprising Likert-scale questionnaire responses and course grades, were analyzed using descriptive statistics and Spearman's correlations to gain insights given the small sample size. The qualitative data from the reflective essays were analyzed using thematic analysis. Initially, the essays written in Thai were translated into English to ensure comprehensive understanding. Following Braun and Clarke's (2006) approach, the thematic analysis began with familiarization, where researchers read the essays multiple times, noting initial ideas. Researchers then systematically coded interesting features across the entire data set, labeling segments relevant to the research questions. These codes were collated into potential themes, with all relevant data gathered for each theme. The themes were then reviewed to ensure they accurately reflected the coded extracts and the entire data set, refining them as necessary by merging, splitting, or discarding. Each theme was clearly named to capture its essence, aligning with findings from previous studies. To avoid bias, each researcher independently coded the data and discussed discrepancies to reach consensus. Finally, the analysis was written up by integrating and presenting the themes with supporting data extracts, creating a coherent narrative that answered the research questions and related back to the literature.

Results

Research Question 1

How do university students self-regulate their learning in integrated online English classes featuring gamification and active learning?

The first research question was addressed through the application of descriptive statistics and thematic analysis, focusing on the ways in which students engage with online English learning. This approach provided a comprehensive understanding of the students' learning processes in a digital environment.

The analysis of descriptive statistics presents profound and critical insights into the self-regulated learning (SRL) strategies employed by Thai EFL students in the domain of online English classes fused with gamification applications and online learning. The overall mean score for students' SRL strategies was 3.80, indicating a commendable level of engagement and effectiveness in these cognitive approaches. Analyzing the mean scores of the sub-scales, it was discerned that Time Management ($M = 3.94$) and Environment Structuring ($M = 3.88$) exhibited the highest levels of engagement, thus underscoring the predominant emphasis placed on these strategies. Consequently, these two strategies received the most substantial emphasis in the students' SRL practices. In contrast, Help Seeking ($M = 3.77$), Self-Evaluation ($M = 3.77$), and Task Strategies ($M = 3.76$), although slightly lower in magnitude compared to Time Management and Environment Structuring, demonstrated a significantly high level of utilization. Notably, Goal Setting ($M = 3.76$) was the least employed strategy by Thai EFL students in their online English learning endeavors, despite still falling within the range of high utilization.

Upon closer examination of the variability within each sub-scale, Goal Setting ($SD = .62$) and Environment Structuring ($SD = .65$) exhibited relatively moderate variability. Task Strategies, with an SD of $.85$, displayed a higher level of variability, suggesting diverse approaches to task completion. Meanwhile, Time Management ($SD = 0.70$), Help Seeking ($SD = .70$), and Self-Evaluation ($SD = .70$) demonstrated similar levels of variability, indicating consistent engagement across these strategies. Regarding the distribution characteristics, Goal Setting, Environment Structuring, and Time Management all displayed positive skewness, indicating slightly right-skewed distributions. This suggests that a few students excelled in these strategies, achieving notably high scores. On the other hand, Task Strategies, Help Seeking, and Self-Evaluation exhibited negative skewness, implying that a few students obtained lower scores compared to the majority. Importantly, the kurtosis values for all sub-scales fell within an acceptable range ($< -2/ 2$), indicating no extreme outliers or unusual distributions.

Overall, Thai EFL students engaging in online English classes demonstrate a commendable level of engagement and proficiency in SRL strategies. Time Management and Environment Structuring emerge as subtly prioritized, while the other strategies exhibit a relatively elevated level of use. Despite slight disparities in mean scores and variability across the sub-scales, the distributions predominantly assume similar patterns, characterized by slightly right-skewed distributions that concentrate higher scores. The details are presented in Table 2.

Table 2. Descriptive statistics

	Mean	SD	Skewness	Kurtosis
Overall Students' SRL Strategies	3.80	.60	.43	.15
Goal Setting	3.73	.62	.77	.08
Environment Structuring	3.88	.65	.18	-.91
Task Strategies	3.76	.85	-.40	.05
Time Management	3.94	.70	.10	-1.05
Help Seeking	3.77	.70	-.01	-.63
Self-Evaluation	3.77	.70	-.17	1.37

Furthermore, the thematic analysis of qualitative data, which focused on the strategies students employed to manage their online English learning, revealed five distinct themes. These themes are illustrated in Figure 5. This analysis provides insights into the adaptive techniques and challenges faced by learners in a digital educational environment.



Figure 5. Emerging themes of how students managed their online English learning

Theme 1: Time Management and Preparation

The discourse among students prominently highlights the crucial role of meticulous time management and proactive preparation in their academic journey. A key element in this context is the establishment of specific study schedules, which students identified as instrumental in maintaining academic rigor and consistency. They emphasized the importance of not only creating these schedules but adhering to them with a sense of commitment and punctuality, especially in relation to class attendance and assignment submissions. They also mentioned preparing their internet connection, devices, and study materials in advance. For example:

I set a specific time for waking up to study, attend every class, try to submit my work on time, and make sure to prepare my internet signal and laptop for English class. (S1)

To ensure a focused learning environment and avoid disturbing teachers and classmates, I organize my online classes in a quiet room with no surrounding noise. Additionally, I make sure my internet connection is ready and keep my phone switched off or on silent mode during lessons. (S2)

Theme 2: Study Environment and Distraction Management

The students' responses highlight a unanimous consensus on the necessity of a conducive study environment, free from distractions, to optimize their focus and learning efficacy. This aspect of their academic experience is deemed critical in facilitating deeper concentration and subsequently, more effective learning outcomes. The emphasis is on the creation of a noise-free space, coupled with strategic avoidance of potential distractions such as cell phones and music during class time, as seen in the responses below:

Online learning requires my utmost focus on the teacher's instructions. I actively participate in class by answering questions, jotting down unfamiliar vocabulary, and searching for their meanings to comprehend the intended message. (S8)

I create a noise-free study environment and refrain from distractions such as using my cellphone or listening to music during class. I diligently follow the teacher's lectures and aim to gather as much knowledge as possible. (S12)

Theme 3: Utilizing Resources and Strategies

The students' narratives illuminate a multi-faceted approach to enhancing their proficiency in English, showcasing a blend of conventional and innovative strategies coupled with a variety of learning resources. This theme accentuates the adaptability and resourcefulness of students in leveraging different tools and techniques to facilitate their language learning journey, as indicated by the following sample responses:

To improve my English learning, I have implemented several strategies. Firstly, I allocate dedicated time slots for studying English. Secondly, I utilize various learning resources like YouTube, websites, and books, which inspire me to enhance my English proficiency. Lastly, I reinforce my knowledge by practicing speaking and writing, which aids in retention. (S6)

I strive to remember new vocabulary words and engage in conversations with the teacher to improve my speaking skills. Although my grammar may not be as proficient as desired, I watch foreign movies and actively listen to the dialogues to enhance my understanding. (S11)

Theme 4: Adaptation and Overcoming Challenges

The student responses highlight the initial challenges faced in adapting to online learning, particularly in the context of learning English. These challenges, primarily centered around communication difficulties, are a common concern in virtual education settings. However, the narratives also reveal a remarkable capacity for adaptation, resilience, and proactive problem-solving among the students, as shown in the following excerpts:

Initially, I found learning English online at home challenging due to the difficulty in communication. However, I have been able to adapt. I listen attentively and strive to improve my English skills to cope with this new learning style. (S20)

Despite the challenges of online learning, I have successfully managed it by reading more books than ever before. I maintain determination and diligence, often motivating myself. (S7)

Theme 5: Review and Reinforcement

The students' insights reveal a keen awareness of the importance of review and reinforcement in solidifying their grasp of the English language. This approach underscores the recognition that language acquisition is not only about absorbing new information but also about consolidating and integrating it into their existing knowledge base, as reflected by these responses:

Before my online English class, I make necessary preparations such as reviewing vocabulary on Sundays, as I will be tested on it using the Socratic program on Mondays. I also check our Facebook group for assigned tasks and read detailed descriptions of upcoming topics. Additionally, I ensure I get enough sleep before class, usually around midnight, to recharge. (S14)

After each class, I review the material to reinforce my knowledge for future use or higher education. (S21)

Overall, the students' responses reflect their proactive approach to managing online English learning. They focus on effective time management, creating conducive study environments, utilizing resources and strategies, adapting to challenges, and reinforcing their knowledge through review and practice.

Research Question 2

What are the relationships between their self-regulated learning strategies and their outcomes in these gamified and actively engaged online English learning environments?

The second research question was examined through the application of correlational analysis. This method facilitated the investigation of relationships between variables.

The Spearman's correlation coefficients presented here offer valuable insights into the relationships among various constructs related to self-regulated learning (SRL) strategies and students' course grades. Starting with the overall students' SRL strategies, strong positive correlations with Goal Setting ($r = .87, p < .01$), Environment Structuring ($r = .72, p < .01$), Task Strategies ($r = .94, p < .01$), Time Management ($r = .84, p < .01$), Help Seeking ($r = .69, p = .001$), and Self-Evaluation ($r = .89, p < .01$) were noted. These findings indicate that students who exhibit higher levels of engagement in overall SRL strategies tend to display a similarly

high level of engagement in each of the sub-scales. Moving to the individual sub-scales, positive correlations between Goal Setting and Environment Structuring ($r = .53, p = .01$), Goal Setting and Task Strategies ($r = .73, p < .01$), and Goal Setting and Time Management ($r = .65, p < .01$) were observed. These results imply that students who effectively set goals also tend to engage in environment structuring, task strategies, and time management. Additionally, there was a positive correlation between Environment Structuring and Task Strategies ($r = .66, p = .001$), indicating that students who organize their learning environment also employ effective task strategies.

Furthermore, Task Strategies showed positive correlations with Time Management ($r = .80, p < .01$) and Help Seeking ($r = .58, p = .006$). This suggests that students who effectively manage their time are more likely to utilize task strategies, and those who seek help when needed also employ effective task strategies. Time Management exhibited a positive correlation with Help Seeking ($r = .52, p = .02$), indicating that students who effectively manage their time are more inclined to seek assistance when necessary. It was also positively correlated with Self-Evaluation ($r = .65, p = .002$). Regarding Help Seeking, a positive correlation was found with Self-Evaluation ($r = .70, p < .01$), suggesting that students who actively seek help also engage in self-evaluation. However, it is important to note that none of the correlations involving students' course grades reach statistical significance. The results are displayed in Table 3.

Table 3. Results of the Spearman's correlations

		2	3	4	5	6	7	8	
1	Overall Students' SRL Strategies	r	.87**	.72**	.94**	.84**	.69**	.89**	-.08
		p	.0	.0	.0	0.001	.0	.72	
2	Goal Setting	r		.53*	.73**	.65**	.71**	.71**	-.01
		p		.01	.0	0.001	.0	.0	.98
3	Environment Structuring	r			.66**	.52*	.28	.71**	-.07
		p			0.001	.02	.22	.0	.75
4	Task Strategies	r				.80**	.58**	.89**	-.17
		p				.0	.006	.0	.45
5	Time Management	r					.52*	.65**	.12
		p					.02	.002	.6
6	Help Seeking	r						.70**	.06
		p						.0	.80
7	Self-Evaluation	r							-.18
		p							.42
8	Students' Course Grades								

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Research Question 3

From the students' perspective, what improvements are necessary to enhance their experiences in these innovative online English classes?



Figure 6. Students' expectations for better online English classes

Based on the students' responses, a thematic analysis reveals three main themes regarding what students hope to have in the English class to improve their studying experience, as seen in Figure 6.

Theme 1: Feedback and Support for Improvement

The first theme emphasizes the importance of feedback and support for improvement. Students express a desire for constructive feedback from their teacher to identify areas for growth and enhance their communication skills. They recognize the value of practice opportunities prompted by the teacher, even if it may initially cause apprehension. The aspiration to overcome limitations and invest effort into raising fluency levels demonstrates their commitment to self-improvement.

I hope to receive constructive feedback from my teacher regarding areas for improvement in my work. (S1)

English classes have enhanced my communication skills, providing valuable opportunities for practice when prompted by the teacher. (S3)

I aspire to overcome any discomfort or embarrassment associated with limited fluency by investing effort and determination into raising my level of spoken English. (S7)

Theme 2: Engaging and Interactive Learning

The second theme revolves around engaging and interactive learning experiences. Students highlight the significance of activities involving speaking, writing, and reading, which enable them to use English fluently and confidently in real-life situations. They attribute personal growth to the encouragement of expressing themselves and utilizing English in everyday contexts. Incorporating multimedia resources, such as videos, pictures, and music, is seen as beneficial for effective learning.

Engaging in activities with classmates that involve speaking, writing, and reading would enable us to use English fluently and confidently in real-life situations. (S2)

The encouragement to express ourselves and utilize English in everyday situations has resulted in noticeable personal growth. (S5)

Incorporating activities that utilize videos, pictures, and music for communication would also contribute to an effective learning experience. (S8)

Theme 3: Balancing Workload and Enjoyable Learning Experiences

The third theme focuses on finding a balance between workload and enjoyable learning experiences. Students express a desire for enjoyable learning experiences in the English class, while acknowledging their current limitations. They emphasize strategies such as vocabulary learning, word games, and receiving homework assignments, which contribute to their gradual improvement. However, some students also express a preference for a reduction in homework assignments to alleviate the increased workload associated with online learning.

My expectations for the English class revolve around enjoyable learning experiences. (S6)

To establish a clear teaching style, it would be beneficial to begin each class by outlining the day's objectives and discussing upcoming exams. Incorporating periodic breaks and integrating fun games into challenging lessons would enhance comprehension of the language. (S12)

I find the English class enjoyable and beneficial, aiding in my vocabulary development. However, I would prefer a reduction in homework assignments. (S16)

Overall, the themes reflect students' aspirations for a supportive and interactive learning environment that encourages their growth, provides engaging activities, and balances workload with enjoyable experiences. These insights can inform educators in designing English classes that address students' needs and enhance their online studying experience.

Discussion

Students' SRL Strategies in Online English Learning

The triangulation of the quantitative and qualitative findings reveals noteworthy similarities and differences in Thai EFL students' self-regulated learning (SRL) strategies in online English classes fused with gamification applications and active learning. Both approaches highlight the significance of Time Management, as demonstrated by the commendable engagement and effectiveness found in the quantitative analysis and the emphasis on study schedules and timely completion of assignments in the qualitative responses. The creation of a conducive study environment is also identified crucial, as confirmed by the high mean scores for Environment Structuring in the quantitative findings and the qualitative emphasis on minimizing distractions and promoting active participation in class. These congruencies highlight the consistent recognition of the importance of these SRL strategies among Thai EFL students, supporting previous research on students' use of distinctive self-regulation processes in personal, behavioral, and environmental aspects (Abdelhalim, 2022). It implies that the students could effectively handle the increased demand for autonomous cognitive and behavioral engagement, demonstrating greater self-directed agency in the absence of regular instructor support in online learning (Jansen et al., 2020). They were able to assume active control over the learning process, both during and after synchronous online sessions (Wang et al., 2013). However, further exploration in this area is needed, making these findings valuable for future comparative studies. However, a notable discrepancy arises regarding Goal Setting. The quantitative findings indicate that Goal Setting is the least utilized strategy, although it still falls within the

range of high utilization. In contrast, the qualitative findings do not explicitly highlight goal setting as a prominent theme in students' self-regulated learning practices. This inconsistency suggests that while goal setting may not receive strong emphasis in the quantitative data, it does not imply its complete neglect in students' online English learning efforts.

No Correlation with Learning Outcomes

Spearman's correlation analysis revealed significant positive relationships among various sub-scales of self-regulated learning (SRL). Goal Setting, Environment Structuring, Task Strategies, Time Management, Help Seeking, and Self-Evaluation all exhibited positive correlations with overall SRL strategies, aligning with prior research by Jansen et al. (2017), Martinez-Lopez et al. (2017), and Zalli et al. (2020) that confirmed the presence of these six sub-constructs in measuring SRL strategies. However, when considering their associations with students' course grades, no statistically significant connections were found. This suggests that while SRL strategies contribute to students' engagement and self-regulation, additional factors may influence their learning outcomes. Broadbent and Fuller-Tyszkiewicz (2018) argue that differences in academic achievement in online learning are linked to learners' capacity for motivational regulation and the implementation of SRL strategies. These findings contradict most prior studies (Adam et al., 2017; Cazan, 2014; Ejubovic & Puka, 2019; Ergen & Kanadli, 2017) on the impacts of SRL strategies on learning outcomes. Critical assessments by Broadbent and Poon (2015) and Rivers et al. (2022) support these findings, suggesting that while traditional face-to-face factors contributing to achievement may apply to online contexts, their effects are comparatively weaker, necessitating exploration of other important factors. Nonetheless, studies such as those by Kizilcec et al. (2017) and Lawanto et al. (2014) have indicated no effects of certain sub-scales of SRL strategies on learning outcomes, and Chase et al. (2013) even suggest that individual sub-scales may have no discernible impact on learning outcomes as each SRL sub-scale may be complemented by other aspects, such as students' behaviors during learning processes.

Characteristics of an Ideal Online English Class

Students expressed their expectations for improvement, which revolved around three main themes: feedback and support for improvement, engaging and interactive learning, and balancing workload and enjoyable learning experiences. These expectations align with previous research on effective language learning, emphasizing the importance of feedback, interactive activities, and maintaining a balance between challenging tasks and enjoyable learning experiences (Abadikhah et al., 2018; Inan-Karagul & Seker, 2021; Wang et al., 2023). Students' desires for constructive feedback, engaging activities, and enjoyable learning experiences demonstrate their motivation and commitment to improving their English language skills. To enhance students' online English learning experiences, educators can consider incorporating strategies that address students' expectations. Providing constructive feedback, incorporating interactive activities, and balancing workload can contribute to students' engagement and motivation. The use of multimedia resources, such as videos, pictures, and music, can make learning more enjoyable and facilitate language acquisition. Furthermore, supporting students in developing effective time management skills and creating a conducive study environment can help optimize their learning outcomes.

Conclusion

The findings of this study have illuminated the commendable level of engagement and proficiency in Self-Regulated Learning (SRL) strategies among Thai EFL students in online English classes fused with gamification applications and active learning, with a notable emphasis on Time Management and Environment Structuring. The observed strong positive relationships between various SRL constructs provide valuable insights into the students' proactive approach to their learning journey. However, it is imperative to acknowledge the study's inherent limitations, which include its restricted generalizability, reliance on self-report measures, and exclusive focus on SRL strategies without considering other potentially influential factors. These limitations underscore the need for future research endeavors to address these gaps comprehensively and explore additional variables that could contribute to a more holistic understanding of the dynamics of online English learning. Such endeavors will undoubtedly enrich our knowledge and shed further light on the intricacies of this educational landscape.

Implications of the Findings

The findings from the study highlight the need to enhance Self-Regulated Learning (SRL) strategies among Thai EFL students in online environments, with a specific focus on Time Management and Environment Structuring. Educational programs should incorporate structured guidance and digital tools to aid students in effectively managing their study schedules and creating conducive learning spaces. Moreover, educators should integrate explicit goal-setting exercises into their curricula to encourage students to establish clear, actionable objectives, which could enhance engagement and direction in their learning processes. The research also suggests the need for a holistic approach to understanding student performance in online settings, given the absence of a significant correlation between SRL strategies and grades. This approach should consider motivational factors, emotional intelligence, and technical skills, among other elements, to better support students' academic success.

In terms of instructional design, the characteristics of an ideal online English class as identified by the students—engaging content, interactive learning experiences, and balanced workloads—call for a reevaluation of current educational practices. Educators should focus on incorporating multimedia resources and designing activities that are not only instructive but also enjoyable, to maintain student interest and motivation. Feedback mechanisms should be enhanced to provide timely, constructive responses to students, potentially involving peer feedback to foster a collaborative learning environment. Additionally, the discrepancies in the utilization of SRL strategies such as Goal Setting suggest a need for further research to explore how these strategies are adopted across different cultural and technological contexts, enhancing our understanding of their effectiveness in diverse educational settings.

About the Authors

Budi Waluyo is an Assistant Professor of English Language Teaching at the School of Languages and General Education, Walailak University, Thailand. He finished his M.A. at the University of Manchester, U.K., and his Ph.D. at Lehigh University, U.S.A. He received an International Fellowship Program from the Ford Foundation, USA, and a Fulbright Presidential Scholarship from the U.S. government. His research interests involve education policy, educational technology, ELT, and international education. ORCID ID: <https://orcid.org/0000-0003-1919-2068>

Kritsadee Songkhai (Corresponding Author) is a Thai national with a master's degree from Nankai University, obtained through a Confucius Institute Scholarship. She also holds a Ph.D. in Linguistics and Applied Linguistics from Wuhan University, funded by the China Scholarship Council. ORCID ID: <https://orcid.org/0000-0003-0701-3499>.

Jiali Li is a Chinese national with a master's degree from Huaqiao University. In July 2022, she joined the International Education Volunteer Program organized by the Chinese Ministry of Education's Center for Language Education and Cooperation, serving as a volunteer at Walailak University in Thailand until March 2024.

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