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Research Paper

Self-Regulated English Vocabulary Learning in Active Digital Classrooms: A Case Study at a Thai University

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Abstract
This case study examines the effectiveness of self-regulated vocabulary learning strategies using teacher-created lists and ICT tools in a 12-week general English course at a Thai university, assessing outcomes through pre- and post-tests and qualitative surveys of 969 students and six foreign lecturers. Quantitative data were analyzed using paired-sample t-tests to measure vocabulary improvement, independent t-tests to examine gender differences, and one-way ANOVA with Tukey HSD to assess proficiency level disparities. Qualitative data, including student reflections and lecturer feedback, were analyzed using thematic analysis, applying a deductive approach for student data and an inductive approach for lecturer data. Themes emerged around students' self-regulated learning strategies, such as repetitive practice and online research, as well as challenges related to word memorization and pronunciation. Lecturers generally supported the

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intervention but noted concerns about rote learning and student engagement. While self-regulated learning with teacher-created vocabulary lists boosts vocabulary development in smart classrooms, challenges with student motivation and contextual application call for further pedagogical improvement.

***Keywords**:* Self-Regulated Vocabulary Learning, Vocabulary Instruction, Vocabulary Knowledge, Vocabulary List

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1. Introduction

Research on self-regulated vocabulary learning within university settings that employ active learning and smart classrooms remains limited, despite the critical importance of vocabulary in language acquisition and communication (Xu et al., 2024). Vocabulary knowledge, encompassing both the breadth and depth of word familiarity, as well as active and passive knowledge, is fundamental for achieving language mastery and effective communication (Brooks et al., 2021; Enayat & Derakhshan, 2021). The scarcity of studies in this area highlights key questions for second and foreign language learners regarding the optimal vocabulary size necessary for proficiency in a target language and the educational strategies required to develop it. Estimates of the required vocabulary size for language proficiency vary, with Schmitt (2008) suggesting that learners need familiarity with approximately 8,000-to-9,000-word families for reading and 5,000 to 7,000 for speaking in English. These figures align with the findings of Laufer and Ravenhorst-Kalovski (2010) and Nation (2006). Yet, basic conversational ability and engagement with authentic texts may require a more modest vocabulary size, with knowledge of 2,000-to-3,000-word families being sufficient for foundational communication (Schmitt, 2007).

While extensive vocabulary is essential for comprehension in a target language, practical constraints such as time limitations and the complexity of vocabulary learning present significant challenges (Teng & Zhang, 2022). Vocabulary expansion occurs incrementally, with some words requiring in-depth explanations due to their semantic and morphological complexities (Mizumoto, 2013). Classroom time is often insufficient to cover even the recommended range of 2,000-to-3,000-word families, let alone the ideal 5,000 to 7,000 necessary for comprehensive proficiency, especially when considering the additional requirements of vocabulary assessment and retention (Ziegler, 2015). This discrepancy between the theoretical vocabulary size needed for language proficiency and the practical implementation of vocabulary instruction in secondary and university education creates a persistent pedagogical dilemma (Rose et al., 2018). To address this challenge, the current study examines the effectiveness of educator-constructed vocabulary lists in higher education, utilizing explicit self-regulated learning strategies to enhance vocabulary instruction. The research aims to bridge the gap between theoretical models of vocabulary acquisition and their practical application within the evolving context of universities that prioritize active learning and smart classroom environments, with a particular focus on higher education in Thailand.

The English curriculum in Thailand, as outlined by Adipat (2021), places a strong emphasis on fostering autonomous learning, promoting innovation, and integrating information and communication technology (ICT) both inside and outside the traditional classroom. The curriculum incorporates a variety of pedagogical approaches, including integrated skills, cooperative learning, and task-based learning, to achieve its educational goals, with a particular focus on communicative language teaching in listening and speaking (Maretha & Waluyo, 2022; Pitikornpuangpetch & Suwanarak, 2021). A key

initiative involves developing in-house teaching materials that align with national education standards, aiming to reduce dependence on foreign content while embedding elements of local culture to improve learning outcomes (Kanoksilapatham & Suranakkharin, 2018). The institution where this study took place implemented a thematic approach in its general English courses, providing specialized content in areas such as English for Media Communication and English for Health Sciences, as per the Thai Qualifications Framework for Higher Education and the university's commitment to smart classrooms and active learning concepts. Although the concept of the "Smart Classroom" is relatively new in the English Language Teaching literature, it originates from developments in remote education and the use of online educational tools (Zhang & Chen, 2021). The institution prioritizes the integration of ICT in language teaching to support both synchronous and asynchronous learning, enhance interaction, foster autonomous learning, and ultimately improve learning outcomes (Pratiwi et al., 2024; Waluyo, 2020).

This research addresses the scarcity and notable gap in studies on self-regulated vocabulary learning within progressive educational settings by examining the implementation and impact of self-regulated learning strategies, particularly through the use of teacher-created vocabulary lists. At the study site, institutional policy mandates that students acquire 3,000 English words over the course of six General English classes within two years, requiring the mastery of 500 words per course each term. This study provides a comprehensive analysis of the learning outcomes in one such course, focusing on key factors such as student test results, gender differences, and proficiency levels. Additionally, the research investigates the perspectives of foreign English lecturers on the challenges and opportunities involved in teaching vocabulary in this context. The findings are intended to

contribute valuable insights into the development of more effective vocabulary learning strategies at the university level, informing curriculum design and instructional practices. The following research questions guide the study:

1. How does explicit self-regulated learning using teacher-created vocabulary lists affect students' vocabulary acquisition, with consideration of gender and proficiency differences?
2. What are students' perceptions of their vocabulary learning experiences?
3. How do foreign English lecturers perceive the integration of explicit self-regulated vocabulary learning in their instruction?

2. Literature Review

2.1 Self-Regulated Vocabulary Learning with Explicit Instruction

Self-regulated learning is a complex, dynamic process wherein learners set specific goals and engage in the ongoing monitoring, regulation, and control of their cognitive functions, motivation, and behaviors (Alam & Mohanty, 2024). Such a process is shaped by both the learners' objectives and the contextual conditions of their learning environment (Pintrich, 2000). In this educational framework, students are not passive recipients of knowledge but are encouraged to take responsibility for their own learning, a task that requires the integration of two key elements: self-regulated learning strategies and motivational beliefs (Pintrich, 1999; Zimmerman, 1990; Zimmerman & Schunk, 2008). The combination of these components fosters a deeper level of engagement and autonomy, essential for successful vocabulary acquisition in environments that emphasize technology-enhanced and student-centered learning (Zarrati et al., 2024). By exploring the effectiveness of explicit self-regulated learning within such a context, the study aims to provide insights

into how learners can be better equipped to take charge of their vocabulary development, which is critical for achieving higher language proficiency.

The integration of self-regulated learning principles into vocabulary acquisition gained significant momentum in the early 2000s, particularly with the development of the Self-Regulating Capacity in Vocabulary Learning Scale by Tseng et al. (2006). The scale provided a psychometrically sound tool for measuring volitional (action) control within the context of self-regulated vocabulary learning, offering a reliable means of assessing how learners manage their actions toward achieving vocabulary learning goals. Its applicability has been explored across various cultural settings, including Japan (Mizumoto & Takeuchi, 2012) and Turkey (Yeşilbursa & Bilican, 2013), demonstrating the scale's versatility and cross-cultural relevance. Early research in the field underscores the importance of explicit instruction in self-regulation processes, which facilitates learners' ability to deploy effective learning strategies, develop meta-strategic knowledge, and apply autonomous strategies for vocabulary acquisition. Furthermore, such instruction supports the retention (Dobakhti et al., 2020) and generalization of vocabulary knowledge, making it a key component of successful language learning (O'Leary & Dubey, 1979; Pressley & Levin, 1986; Zohrabi et al., 2021). The critical role of explicit guidance in enhancing learners' self-regulated learning capacity has thus been a focal point in advancing both theoretical and practical approaches to vocabulary acquisition.

Teachers, as integral facilitators in the learning process, play a fundamental role in this context by offering precise instructions and elucidating the desired self-regulated procedures in vocabulary learning (Luo & Zhou, 2024). Subsequently, they entrust students with the responsibility to apply these strategies independently during their learning endeavors. Empirical evidence suggests that students who receive explicit instructions

tend to exhibit superior performance in subsequent vocabulary assessments (Metcalfe et al., 2024; Mizumoto & Takeuchi, 2009). The provision of explicit instructions not only sets the stage for the vocabulary learning environment but also exerts a tangible influence on students' intrinsic motivation for learning. Furthermore, it shapes the dynamics of student-teacher and student-student interactions, recognized as pivotal factors in the successful acquisition of English as a Foreign Language (EFL) vocabulary, particularly within potentially demotivating learning environments (Tanaka, 2017). It is essential to emphasize that while proficient learners often construct their own self-regulation strategies, less proficient learners may lack these inherent capabilities. Thus, explicit instructional interventions stand to benefit both categories of learners in the domain of vocabulary acquisition (Chamot, 2018; Lantolf, 2024).

2.2 Enhancing Vocabulary Acquisition through Self-Regulated Vocabulary Lists

A persistent and multifaceted challenge in vocabulary acquisition is the vast number of words learners must master, often within the constraints of limited instructional time (Gesa & Miralpeix, 2023). The complex task of prioritizing words for both in-class teaching and independent study confronts language educators. The need to consider students' varying proficiency levels and linguistic needs further complicates this decision (Coxhead, 2000). The selection of vocabulary is a pedagogical dilemma that significantly influences the effectiveness of language instruction, as the chosen words must strike a balance between relevance, frequency, and utility in both academic and everyday communication. In response to this challenge, vocabulary lists have emerged as critical pedagogical tools that serve multiple purposes. Not only do they provide a structured framework for setting specific vocabulary learning objectives, but they also offer a means for assessing students'

progress in acquiring both breadth (the number of words known) and depth (the complex understanding of word meanings) of vocabulary knowledge (Gardner & Davies, 2014). Furthermore, vocabulary lists enable teachers to create and integrate supplementary learning aids, such as quizzes or digital flashcards, which can help reinforce the acquisition process by providing consistent exposure and practice with targeted words (Muqaibal et al., 2023).

The flexibility of vocabulary lists is emphasized by their adaptability to cater to diverse learner needs. Educators can discern which words merit inclusion in their instructional materials, tailoring their choices according to the proficiency levels and requirements of their students. For instance, beginners may benefit from the incorporation of words sourced from the Essential Word List (Dang & Webb, 2016), while English for Academic Purposes (EAP) students may find relevance in the Academic Vocabulary List (Gardner & Davies, 2014) (Barclay & Schmitt, 2019). The vocabulary lists employed in the current study are culled from these comprehensive lists, effectively targeting learners at the A2-B1 levels of the Common European Framework of Reference for Languages. To substantiate the effectiveness of this approach, prior research by Yamamoto (2014) stands as an illuminating precedent. Yamamoto's investigation centered on vocabulary acquisition through deliberate vocabulary list learning among first-year social sciences students at a private university in Kanagawa, Japan. The study revealed not only positive effects on the development of receptive vocabulary knowledge but also on the advancement of productive vocabulary knowledge and the overall depth of vocabulary knowledge.

A parallel study by Bakla and Cekiç (2017) corroborated these findings, demonstrating that students who engaged in independent vocabulary study outside of class hours surpassed their counterparts who solely relied on vocabulary acquisition through reading literature. This counters the common

presumption that memorization and autonomous vocabulary list study foster mere rote memorization, as Mehrpour (2008) found that students who memorized and independently studied word lists outperformed their peers on sentence-making tests when compared to those who employed contextualizing techniques. Furthermore, Khoii and Sharififar (2013) accentuated the utility of vocabulary lists by revealing that students who exclusively utilized word lists achieved equivalent results to those who incorporated semantic mapping techniques into their learning strategies. This body of research collectively highlights the potential benefits of self-regulated vocabulary list learning, shedding light on its merits as a valuable tool in the arsenal of vocabulary acquisition strategies.

2.3 Exploring Self-Regulating Capacity (SRC) in Vocabulary Learning

This study also endeavors to delve into the multifaceted domain of students' and teachers' learning and teaching experiences within the framework of explicit self-regulated vocabulary learning, employing carefully crafted vocabulary lists. To elucidate these experiences, the research incorporates the concept of self-regulating capacity (SRC) in vocabulary learning. This concept, introduced by Tseng et al. (2006), holds that understanding learners' intrinsic SRC, which underpins their efforts to seek and subsequently apply personalized strategic learning mechanisms, is of paramount significance. SRC functions as a diagnostic tool, allowing for the identification and comprehension of learners' strengths and weaknesses in the field of vocabulary acquisition.

SRC is one of six latent variables that constitute a comprehensive model of motivated vocabulary learning, following a developmental trajectory and functioning as a cyclical process. It accentuates learners' self-perception as proactive agents, necessitating the cultivation of self-regulating capacity as

they take control of their vocabulary acquisition journey (Tseng & Schmitt, 2008). This capacity plays a pivotal role in determining the effectiveness of a learner's chosen learning strategy (Elcin & Sahinkarakas, 2021; Pratiwi et al., 2023). Moreover, it is amenable to enhancement through various interventions introduced during the process of student vocabulary acquisition. For instance, Fathi et al. (2018) introduced the Memrise mobile app as a learning tool, observing that students who engaged with the app exhibited a heightened degree of SRC, resulting in improved vocabulary test scores. It is imperative to acknowledge, however, that cultural disparities can exert significant influence over the varying degrees of SRC in vocabulary learning observed across nations (Mizumoto & Takeuchi, 2012; Waluyo & Kusumastuti, 2024; Yeşilbursa & Bilican, 2013).

In the context of vocabulary learning, SRC encompasses students' control over their commitment, metacognition, satiation, emotions, and environment, as assessed through self-reported surveys (Tseng et al., 2006), as elaborated in Figure 1. Notably, studies have revealed intriguing patterns within this construct. For instance, a study involving Iranian EFL intermediate-level learners found that students scored highest in environmental control while recording the lowest scores in emotional control, with male students indicating a notably high level of self-regulating capacity (Moiinvaziri, 2018). Relatedly, a study conducted by Nebes (2019) with Croatian EFL students identified the learning environment as the most controlled variable, along with commitment and emotional control. Furthermore, Mahadi (2019) discerned a positive correlation between an EFL learner's English proficiency level and their metacognitive control, indicating that higher proficiency levels engender greater metacognitive control. However, it is worth noting that contradictory findings regarding the impact of SRC on learners' vocabulary learning outcomes exist within the literature

(ÇEPNİ, 2021; Vujnovi, 2017). Nevertheless, Ziegler (2015) affirmed the predictive value of SRC in vocabulary learning, particularly concerning learners' motivational characteristics. This predictive capacity was assessed through variables such as academic self-efficacy, control beliefs, intrinsic goal orientation, extrinsic goal orientation, task value, and test anxiety, as measured by the Motivated Strategies for Learning Questionnaire (MSLQ). This validation substantiates the utility and credibility of SRC as an indispensable instrument within the domain of vocabulary acquisition research.

Figure 1. Constructs of SRC in vocabulary learning

3. Methodology

This study investigated self-regulated vocabulary learning in a Thai university using active learning and smart technologies. Through a one-group pretest-post-test design and qualitative insights, the research assesses a 12-week General English course aimed at academic communication, utilizing an integrated-skill approach and technological tools. Employing a mixed-method evaluation—merging students' vocabulary test scores with feedback from students and lecturers—it thoroughly examines the effectiveness of the pedagogical strategies employed.

3.1 Research Participants

3.1.1 Students Participants

A total of 969 (20.85% male and 79.15% female) undergraduate students participated in this study. They represented a variety of schools/faculties, including the School of Medicine, the School of Pharmacy, the School of Informatics, and the School of Public Health. Their ages ranged from 18 to 21 years, and all had a minimum of five years of school-level English learning experience. The participants were drawn from a convenience sample where it did not involve non-probability (Sedgwick, 2013). Prior to their participation in the study, participants took a standardized English test developed by the university. The results indicated that 56% of the participants were at A2, 38.7% were at A1, 4.9% were at B1, and .4% at B2 levels of English proficiency based on the Common European Framework of Reference for Languages. Table 1 presents detailed information.

Table 1.

Students' background information

Gender	Frequency	Percent
Male	202	20.85
Female	767	79.15
School/Faculty		
Akkhraratchakumari Veterinary College	5	0.52
School of Medicine	48	4.95
School of Pharmacy	93	9.60
School of Informatics	53	5.47
School of Political Science and Laws	48	4.95
School of Architecture and Design	15	1.55
School of Public Health	62	6.40
School of Agricultural Technology	3	0.31
School of Engineering and Technology	71	7.33

School of Nursing	80	8.26
School of Liberal Arts	137	14.14
School of Science	19	1.96
School of Allied Health Sciences	223	23.01
School of Management	112	11.56
English Proficiency (CEFR Levels)		
A1	375	38.7
A2	543	56
B1	47	4.9
B2	4	0.4

3.1.2 Teacher Participants

This study also included six foreign English lecturers who taught the English course and implemented the explicit-self-regulated vocabulary learning. The lecturers came from China, Indonesia, the Philippines, and Poland, with a minimum of 1.5 years and a maximum of 6 years of teaching experience in higher education. They ranged in age from 28 to 39 years. Table 2 contains information about the lecturers.

Table 2.

Lecturers' background information

Code	Gender	Country Origin	Age	Teaching Experience in Higher Education (Years)
T1	Female	China	39	3.5
T2	Female	Indonesia	33	4
T3	Male	Philippines	32	4
T4	Male	Philippines	36	5
T5	Male	Poland	28	1.5
T6	Female	Indonesia	35	6

3.2 Research Instrument and Procedures

3.2.1 Research Instruments

In this study, two distinct instruments were employed to gather comprehensive data. The first instrument encompassed vocabulary

assessment through pre- and post-tests, as well as weekly vocabulary tests. These assessments consisted of a diverse range of question types, including multiple-choice questions focusing on word definitions, antonyms, synonyms, sentence completion, and parts of speech. To administer these tests, the researchers leveraged the online platform *Socrative.com*. This approach ensured a robust evaluation of the participants' vocabulary acquisition and retention.

The second instrument utilized in this study took the form of qualitative surveys, inviting both students and lecturers to engage in reflective exercises concerning their respective learning and teaching experiences. The students' responses were channeled through open-ended questions designed to elicit insights into their self-regulation strategies, their perceptions of vocabulary development, and the challenges they encountered throughout their vocabulary learning journey. The aggregate output of these student responses amounted to an impressive 6,981 words, furnishing researchers with an invaluable window into the multifaceted landscape of self-regulated learning practices and experiences.

Concurrently, lecturers were also solicited to contribute their perspectives by responding to open-ended questions that probed into their pedagogical experiences and thoughts regarding the utility of vocabulary lists and sets as pedagogical tools in aiding students' vocabulary acquisition. This comprehensive exploration resulted in the collection of 6,981 words from the educators' responses, thereby providing researchers with a nuanced understanding of the implementation and impact of vocabulary teaching from the educators' vantage point. This triangulated approach, integrating both student and educator perspectives, enriched the study's overall depth and breadth of insights.

3.2.2 Research Procedures

The procedures implemented in this study involved five stages, as detailed below:

Stage 1

Stage 1 began prior to the academic term, where the course coordinator, in collaboration with lecturers, developed ten English vocabulary lists aligned with CEFR levels A2–B1. The vocabulary lists were created using the *Essential Word List* (Dang & Webb, 2016) and the *Academic Vocabulary List* (Gardner & Davies, 2014) to ensure that the vocabulary was both practical and academically relevant. Each list contained 50 words, presented in a structured table format that included definitions and sample sentences, providing students with clear context for usage. The word lists were finalized through a panel discussion with three language instructors who reviewed their pedagogical appropriateness, academic relevance, and lexical frequency. To promote independent learning, students were encouraged to study the vocabulary outside of class, deepening their understanding of word meanings and applications. Each student was provided with printed vocabulary lists and digital access through the university's LMS (Learning Management Systems). Over the course of one academic semester, students were required to master a total of 500 words, distributed across the ten vocabulary lists, as shown in Table 3.

Table 3.

Sample target vocabulary

abandon (v)	according (adv)	communicate (v)	element (n)	journal (n)
abbreviate (v)	brainstorm (n)	compare (v)	footer (n)	hesitation (n)
abundance (n)	brief (adj)	demonstrate (v)	general (adj)	highlight (n)
abstract (n)	calculate (v)	edit (v)	genre (n)	hypothesize (v)
acronym (n)	choice (n)	effectivity (n)	graphic (adj)	obsolete (adj)

Note. V: Verb, Adv.: Adverb, N: Noun, Adj.: Adjective

Stage 2

Stage 2 commenced with the start of the academic term. During the first week, lecturers introduced the vocabulary lists to the students and provided explicit instructions on how to engage with the material. Students were required to: 1) complete the definition and sentence sample for each word in one vocabulary list within one week, 2) use an online dictionary, such as the Cambridge Dictionary (https://dictionary.cambridge.org/), to assist in this task, as illustrated in Figure 2, and 3) submit the completed vocabulary list before the next class session. To standardize procedures across sections, lecturers provided a vocabulary worksheet template, which included blank columns for word class, definition, and original/sample sentence. Lecturers offered a brief orientation on how to effectively use the online dictionary and emphasized the importance of self-regulation in vocabulary development, encouraging students to take ownership of their learning process. Lecturers also discussed various strategies and tips to enhance vocabulary learning outside the classroom, reinforcing the need for consistent practice and active engagement with new words.

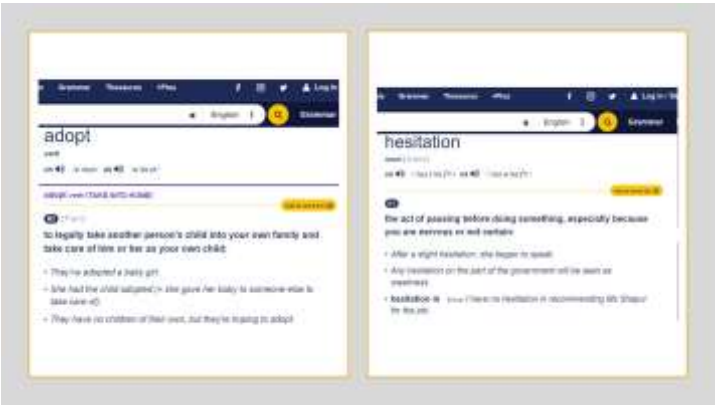

Figure 2. Samples from the online Cambridge dictionary

Students were also informed that after studying each vocabulary list for one week, they would take a 15-minute vocabulary test during class. The test

was announced in advance, and each consisted of 15 multiple-choice and short-answer items randomized through Socrative.com. These tests were based on the words from the upcoming week's vocabulary list, for example, vocabulary list 1 was tested in week 2, vocabulary list 2 in week 3, and so on. The tests were administered using Socrative.com, an online quiz tool that allowed teachers to run real-time quizzes with live monitoring on their computers. Students took the tests in class using their personal smartphones, with a timer set to ensure time management and an alarm signaling the end of the test period. All test results were automatically recorded and exported for later analysis. The test questions covered various aspects of vocabulary knowledge, including synonyms, antonyms, sentence completion, parts of speech, and definitions. Figure 3 displays sample images from the *Socrative* application, demonstrating the administration of the quizzes.

Figure 3. Sample pictures of the vocabulary test on Socrative.com

Teachers also converted the words into the *Quizlet* application (quizlet.com) for students to investigate both at home and in the classroom, as seen in Figure 4. Quizlet sets were organized by week, and students were

encouraged to complete flashcard reviews and matching games weekly as supplementary practice.

Figure 4. The sample picture from the Quizlet application

Stage 3

Stage 3 took place throughout the teaching and learning process from week 2 to week 12. Each week, students were assigned a new vocabulary list to study, followed by a vocabulary test. Due to the lack of in-person learning in classes, lecturers created a Facebook group to facilitate communication, providing guidelines for how students could reach out to discuss their vocabulary learning progress. Each section's lecturer posted weekly announcements, vocabulary tips, and answered student queries in real-time or asynchronously. The lecturers monitored students' vocabulary development weekly, reviewing test results and offering consultation hours both in their offices and online to address any concerns. This 12-week intervention included pre-tests administered in week 1 and post-tests in week 12 to measure students' progress. Both tests were administered in a controlled online environment using the same format as weekly tests to ensure

reliability and comparability. The combination of weekly assessments, online interaction, and direct consultation aimed to support continuous vocabulary acquisition and ensure that students received the necessary guidance despite the shift to online learning.

Stage 4

Stage 4 encompassed the data collection process and the conclusion of the course. Both students and lecturers were invited to reflect on their learning and teaching experiences through qualitative surveys, providing insights into the effectiveness of the vocabulary learning approach. Additionally, students' test scores were compiled and analyzed to assess their overall learning progress and development throughout the semester. The vocabulary learning component was completed in parallel with the course's conclusion, marking the end of the instructional period and the formal assessment of students' vocabulary acquisition.

3.3 Data Analysis

The first research question was examined using paired t-tests (pre-and post-tests), independent t-tests (gender differences), and one-way ANOVA (variances by proficiency levels). Then, the second and third research questions were explored using thematic analysis because they involved qualitative data. The students were coded in S1, S2, S3, etc., while teachers were coded in T1, T2, T3, etc. The thematic analysis followed the procedures suggested by Braun and Clarke (2006). A deductive approach was applied to the students' qualitative data: researchers brought up the SRC in vocabulary learning to the students' data and analyzed which strategies were employed. Researchers also took notes of unlisted strategies. Since there was no research yet on teachers' perspectives on this research subject, an inductive approach was utilized to analyze the lecturers' data, where researchers interpreted the ideas based on the available responses and grouped them

based on the emerging topics. The deductive approach is a top-down approach in which researchers lay the groundwork for analyzing the data, for coding meanings, and for clustering codes to produce themes, whereas the inductive approach is a bottom-up approach (Braun et al., 2015).

4. Results

4.1 The Effectiveness of the Intervention

The paired-sample t-test revealed a substantial improvement in students' vocabulary test scores prior to ($M = 6.73$, $SD = 2.704$) and following the intervention ($M = 8.12$, $SD = 3.24$), $t\ (968) = 13.568$, $p < .001$, with a medium effect size: Cohen's $d = (8.12 - 6.73) / 2.980803 = 0.5$. The correlation was significant at .43. Although significant, the post-test mean was not high as expected with the score ranging from 0 to 15. Due to the high value of SD, it was assumed that there were big discrepancies in the scores among the students. However, across the weekly tests (Table 4), students' scores were higher than 8 with the highest in vocabulary test 10. The trends varied (Figure 5), signifying that students had varying degrees of difficulty learning each word list. The students performed well on the last four vocabulary tests, demonstrating that they had adapted more effectively to vocabulary learning as they became more comfortable and accustomed to the learning process.

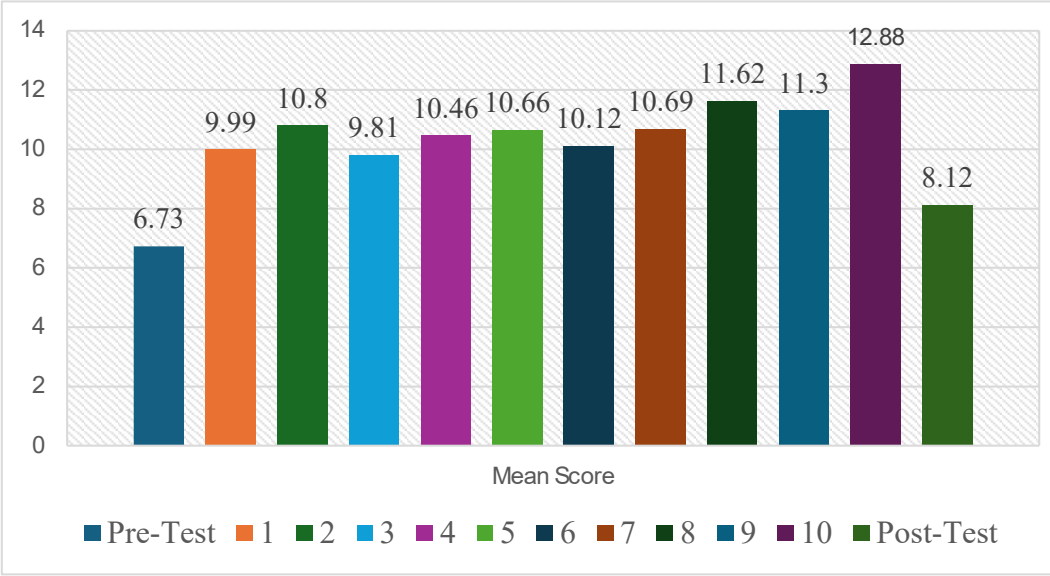

Figure 5. Students' score means across the vocabulary tests

Furthermore, the independent t-test demonstrated that female and male students achieved comparable outcomes in both the pre- ($t(967) = 3.16$, $p = 7.52$) and post-tests ($t(967) = 1.468$, $p = .142$), showing that the intervention had no effect on gender differences. Then, a one-way ANOVA with Tukey HSD ($F(965) = 66.451$, $p < .001$) disclosed that B2 and B1 students fared better than lower-level students, but interestingly, A1 students slightly outperformed A2 students in post-test scores. Based on the between and within group variances, the effect size was large: $f = .5$.

4.2. Students' Reflections

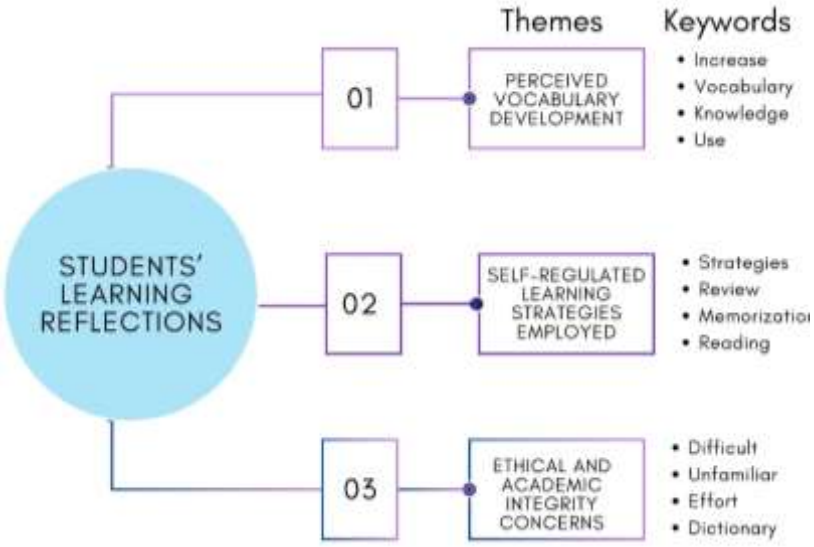

Figure 6. Thematic analysis results of students' vocabulary learning reflections

As seen in Figure 6, the thematic analysis identified three key themes from students' vocabulary learning experiences:

Theme 1: Perceived Vocabulary Development

The students acknowledged a significant increase in their vocabulary knowledge, which corresponded to the quantitative results. Through memorization and individual practice at home, the vocabulary lists assisted students in learning new words. They occasionally sought to use words from the list during class discussions. The lists introduced students to unfamiliar words, and such instances piqued their interest in English dictionaries, as seen by the following excerpts:

> My lexical knowledge has grown significantly. I have a larger vocabulary. When it comes to conversation tests, I become more proficient. (S3)

> It allows me to learn more vocabulary on my own and apply them more effectively in real life. I can select whether to use words with sentences or articles. (S12)

As the method reflected, the students discussed their efforts to memorize the listed words extensively, but interestingly, no one complained. They recognized that a single word might have multiple meanings depending on the context. Several students used the given words to create a story, while others translated them into their native language to gain a deeper understanding of the meaning. One of the students exemplified the learning process as follows:

> When I've learnt the vocabulary for this course, I'll attempt to recall the meanings when I'm chatting to friends in English outside of the classroom, or while there's a group gathered to play games, dine together, or sit and talk, or possibly when I'm speaking and recording myself. These make me realize that repeating my speech can be beneficial to self-improvement. (S54)
>
> As they had one week to learn one vocabulary list, they did not spend much time on finishing the in-class vocabulary test. One student described, “Because I had already reviewed and practiced the unknown words, it didn't take long for me to complete the quiz because I already knew the words.” (S1)

Theme 2: Self-Regulated Learning Strategies Employed

The students indicated that they made extensive use of strategies to manage their commitment to learning throughout the learning process. They repeated reviews using online and offline translation tools throughout the weeks, practiced reading, and spelling words, often recited the listed words,

and analyzed the words' usage and pattern in sentences. One student even looked for the mentioned words in international songs to assist her/him in memorizing them. Explicit instructions appeared to provide students with a clear outline of what they needed to do each week, and their independent learning activities aided in regulating their commitment to acquiring the vocabulary. Below are the sample excerpts.

> In the areas I study, I practice reading and spelling words. I wrote down the words I had never heard before, and then I utilized those words to translate and spell them for myself. I recall it when I practice frequently. (S2)
>
> I strive to understand each word and look for terms that have several contexts. Each week brings a new set of words with varied degrees of difficulty. Sometimes I come across a new word, and other times I come across tough words that aren't typically used when speaking or conversing. (S10)

Apart from demonstrating their ability to manage their commitment, the students discussed their strategies for adjusting their learning environment. They valued the university's internet connection in their dormitory; it made it easier for them to conduct online research on the listed words. They noticed the lecturers' friendliness, which created a favorable learning atmosphere. One student explained," The fact that I learnt the vocabulary for this course at home made me even more driven to figure out what the words meant. As a result, I have greater knowledge in learning new terms all the time, which I may use to my advantage. It's incredibly beneficial to me." (S32)

Emotional and metacognitive control were highlighted by several students. They felt lethargic at times and decided to postpone their independent study. On metacognitive areas, a student said," …. (doing) exercises and reading topics that interest me and learn new words. This will

help me to have more fun and concentrate on practicing rather than just sitting and reciting words, which is no longer tough with the internet, and I make sure to use the terms frequently. So, if I want to remember it in the long run, I need to use the vocabulary frequently." (S43).

Theme 3: Difficulties and Challenges Encountered

The students identified three problems: difficult or unfamiliar words with uncertain meanings, mispronunciation, and memorizing concerns. Students saw new words that they had never seen or pronounced before after learning the vocabulary lists, as expected. This was a difficult circumstance because they had to practice the exact pronunciation multiple times. On other occasions, they could grasp the meanings of the words well. Some words that felt weird for them. One student expressed," Some words cannot be found by a translator app in a single location, and others cannot be located at all. I had to leave out some words because I didn't know what they were." (22)

Concerning the employed strategies, students articulated the difficulty of controlling their commitment throughout the learning process. Repeated efforts were reflected in their comments that they had to memorize the words and did their best to pronounce the words correctly. Some felt their confidence decrease slightly in certain weeks. Yet, for those who like learning a language, this learning method excited them, as one uttered," Learning is difficult. Learning can be challenging and stressful for me at first because I am not fluent in the language. But I enjoy a good challenge. This type of learning appeals to me much. It forces me to study a lot. I am fascinated with languages." (S72)

The students also noted some difficulties in metacognitive, environmental, and emotional control, as presented below:

> Because it requires memorizing the context of words, their definitions and usage in sentences, as well as examples of

related terms, the Socrative Vocabulary Test is a difficulty or obstacle experienced when studying Vocabulary Sets 1–10. (S10)

Probably in terms of locating a definition for each word, as some English dictionaries do not include the term. I need to search on numerous websites, and the challenge is to complete the writing in one night because the vocabulary will take a long time to complete. (S27)

4.3 Lecturers' Reflections

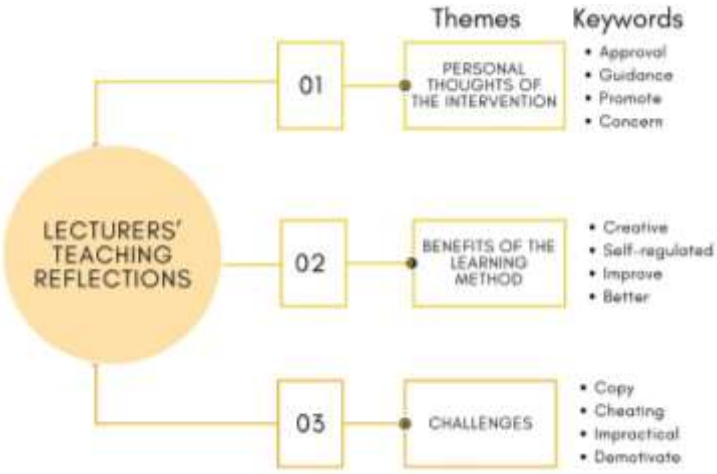

Figure 7. Thematic analysis results of teachers' teaching reflections

As seen in Figure 7, the thematic analysis identified three key themes from teachers' teaching experiences:

Theme 1: Personal Thoughts of the Intervention

Four lecturers indicated their approval of the learning method (T1, T2, T5, and T6). They thought that it was helpful for students because most of the students' language proficiency is low, but they are eager to learn. Due to their low proficiency, they usually do not know how to start and what to do next,

so they need guidance, as one mentioned, “Vocabulary lists can be used as the guided learning, and the students can focus on the outcomes for their vocabulary result.” (T2). This is when the vocabulary lists are advantageous as students can focus on the outcomes of their vocabulary test. The method promotes self-regulated learning. They would be excited when they saw students make use of the listed words. They did emphasize, however, that other students did not study at all and appeared careless, as one of them stated, “I find it very developing if the students have willingness to make use of it. However, from my own experience, I notice that simply many of them don’t really study and don’t really care.” (T5). The amount of vocabulary caused some boredom for the students. One lecturer expressed outright disdain for the method stating, “Using the vocab list in our courses becomes mechanical as they are just memorizing it. It’s very impossible because how could you use those words in real world without any context?” (T4). Here, the teacher placed an emphasis on how vocabulary lists lead only to rote learning and lacked context. The other instructor agreed to observe both the positive and negative consequences of the learning method on students, but it had become a tradition due to its routine implementation (T3).

Theme 2: Benefits of the Learning Method

According to five lecturers (T1, T2, T3, T5, and T6), one of the benefits was that students received assistance and gradually increased their vocabulary knowledge, as shown below:

> They don’t need to waste their time looking for the vocabulary themselves and use the sets as guidance to improve them step by step. (T1)
>
> They can be creative in creating sentences. (T2)

> Some of those words are also used in learning materials, so if they study those words, it also helps them in learning the lessons in the book. (T3)
>
> I think if they had a wider vocabulary bank, that would make them feel very comfortable. (T5)
>
> It benefits the students to increase their vocabulary, because the vocabulary that we are giving to them means that they have a chance to use it in a specific unit or in a specific lesson and guide them to remember better because we're not only giving them words but also the context in each unit. (T6)

With the 500 vocabulary words at the A2-B1 level, the learning outcome was quantifiable. Lecturers could adapt in-class activities to incorporate the mentioned words throughout the appropriate weeks. When students examined the words individually, they discovered their meanings and began to use them in sentences. Nonetheless, one lecturer was adamantly opposed to the benefits, claiming that students learned solely through memorization (T4).

Theme 3: Challenges

All the lecturers highlighted several challenges they faced when implementing the learning method (T1, T2, T3, T4, T5, and T6). First, not all the students followed the learning instructions, and it was hard to tell because they could also get a good score on the in-class test. Two teachers posed a perception in cheating risks as follows:

> The teachers have less monitoring whether the students do it sincerely and copy and paste from their friends, like students don't really create sentences by themselves. (T2)

> We're giving too many words to study and somehow, they find it impractical and might resort to not-some good practices like cheating or just taking it for granted. (T3)

Second, the number of words was too high for students to learn. A lecturer stated, "Some students take the sets as granted, they don't know the purpose of the use of the vocab sets." (T1). That way, the vocabulary lists could demotivate some students. Third, students had homework and assignments from other courses, so assigning this weekly vocabulary list was felt to be burdensome as shown here, "This limits the students, maybe you know, when we ask the students to learn 50 words of vocab set, they are overwhelmed by the numbers of the vocabulary." (T2). One lecturer suggested incorporating the listed vocabulary into classroom activities and noted it as part of student participation in class as mentioned here, "The challenge is to probably vary the way we give the vocabulary list and we can actually do many things, right? We can do matching exercises, multiple choices, or Socrative quiz." (T6). This could compensate for the other lecturer's concern about learning vocabulary without context.

5. Discussion and Implications

5.1 Impact of Explicit Self-Regulated Vocabulary Learning with Vocabulary Lists

This study, situated within the broader context of a dearth of research exploring self-regulated vocabulary learning within the dynamic framework of universities embracing active learning and smart classroom initiatives, undertakes a rigorous assessment of the effectiveness of explicit self-regulated vocabulary acquisition. To provide a comprehensive evaluation, the research employs a triangulation approach, harnessing three distinct categories of data: students' test scores, students' reflections, and lecturers'

reflections. First and foremost, the intervention yielded a substantial increase in students' test scores, signifying a noteworthy improvement in vocabulary acquisition, with a moderate effect size. This observation is substantiated by the analysis of students' performance across ten vocabulary assessments, which consistently demonstrated an upward trajectory.

Moreover, the students themselves reported a discernible enhancement in their vocabulary knowledge, attributing this progress to the vocabulary lists provided as part of the intervention. These lists facilitated the acquisition of new words through structured memorization and individual practice, occasionally finding their way into classroom discussions. Lecturers, in agreement, acknowledged the utility of these lists as valuable reference tools, particularly for students at lower proficiency levels. Such students, it was noted, could channel their focus toward monitoring their vocabulary test outcomes, concurrently honing their self-regulation skills. These findings emphasize the efficacy of the intervention in bolstering students' vocabulary learning, with outcomes consistent across gender lines. The study's results align with those of Yamamoto (2014), whose investigation into vocabulary acquisition through focused vocabulary list learning among first-year social sciences students at a private university in Kanagawa, Japan, yielded positive impacts not only on receptive vocabulary knowledge but also on the development of productive vocabulary knowledge and the overall depth of vocabulary comprehension. Notably, this learning method outperformed alternative strategies, including vocabulary acquisition through literature reading, contextualization techniques, and semantic mapping (Bakla & Cekiç, 2017; Mehrpour, 2008; Khoii & Sharififar, 2013).

Furthermore, the qualitative data revealed that explicit instruction and the provision of vocabulary lists played a critical role in guiding student vocabulary learning, findings that resonate with prior research outcomes

(Mizumoto & Takeuchi, 2009; Tanaka, 2017). Additionally, this study discerned that students with higher proficiency levels tended to benefit more significantly from this learning strategy, although intriguingly, some lower-proficiency students outperformed their more proficient counterparts. While similar aspects have been explored in previous research, the incorporation of vocabulary lists and gamification support further enriched the findings, confirming notable improvements in vocabulary knowledge progression among low-proficiency students (Shooshtari et al., 2024; Waluyo & Bakoko, 2021; Waluyo & Bucol, 2021).

5.2 Students' Self-Regulating Capacity (SRC) in Vocabulary Learning

In the context of self-regulated vocabulary learning, our investigation unearthed noteworthy insights into students' self-regulating capacity (SRC). Students predominantly identified their ability to effectively manage their commitment to achieving their learning objectives as the most prominent facet of SRC, followed closely by control over their learning environment, emotional regulation, and metacognitive control. The discerned self-regulated learning practices among students were in alignment with the perspectives articulated by their lecturers, as evidenced in the results section. Interestingly, these findings diverge from those obtained in analogous studies among English as a Foreign Language (EFL) learners in Croatia (Nebes, 2019), Malaysia (Mahadi, 2019), and Iran (Moiinvaziri, 2018). These disparities, while somewhat anticipated, underscore the significant influence of students' cultural backgrounds on their SRC, a phenomenon previously cautioned by extant research (Mizumoto & Takeuchi, 2012; Yeşilbursa & Bilican, 2013).

However, it is noteworthy that our study's findings regarding the SRC component align with the insights gleaned from Ziegler's (2015) investigation. Ziegler's study revealed that SRC possessed predictive value in

the realm of vocabulary learning, particularly concerning learners' motivational traits, as assessed by the Motivated Strategies for Learning Questionnaire (MSLQ). This encompassed traits such as academic self-efficacy, control beliefs, intrinsic goal orientation, extrinsic goal orientation, task value, and test anxiety. Moreover, qualitative data analysis unveiled the significance attributed by students to motivation, anxiety levels, and task completion in the context of their studies. Notably, five lecturers also underscored the growth of these factors among students over the course of the study (T1, T2, T3, T5, and T6). All these findings enhance the understanding of the complex interplay between self-regulated learning strategies (SRC), cultural factors, and motivational traits in the context of self-regulated vocabulary learning—an area that has been relatively underexplored, especially within universities that implement active learning and "Smart Classroom" initiatives.

6. Conclusion, Limitation, and Recommendation

To conclude, the findings of this study demonstrate the effectiveness of explicit self-regulated vocabulary learning using teacher-curated vocabulary lists in a university context that promotes active learning and smart classroom practices. Through structured and guided instruction, students engaged in consistent vocabulary acquisition activities, resulting in notable improvements in their vocabulary knowledge. The learning approach enabled students to systematically build their lexical repertoire through repeated exposure, contextual practice, and personal reflection. Both students and lecturers acknowledged the practical benefits of this method, particularly for learners with limited English proficiency who required greater structure and direction to track their progress. The alignment between student and teacher perspectives emphasized how scaffolding vocabulary learning can foster

learner autonomy and cultivate essential academic habits such as planning, monitoring, and self-evaluation.

The qualitative findings provided deeper insights into the self-regulatory strategies that students employed throughout the intervention, including goal setting, emotional and metacognitive regulation, and environmental control. Although students reported various challenges such as unfamiliar vocabulary, pronunciation difficulties, and time constraints, many demonstrated persistence and intrinsic motivation to overcome these obstacles. Lecturers appreciated the method's structure but also raised concerns about passive memorization and limited contextual application, suggesting a need to integrate vocabulary more meaningfully into classroom activities. These findings highlight the importance of designing vocabulary instruction that balances explicit guidance with opportunities for authentic use. Overall, this study reinforces the value of self-regulated vocabulary learning and offers pedagogical implications for supporting diverse learners in higher education by combining structure, autonomy, and reflective practice.

Despite the promising outcomes, certain limitations must be acknowledged to provide a comprehensive view of the study. The research was conducted within a singular academic institution, which narrows the generalizability of its findings. While the intervention yielded significant results, issues such as sustaining student motivation and facilitating the contextual application of vocabulary emerged as challenges that require further attention. The reliance on self-reported qualitative data introduces potential biases, as students may overestimate or underestimate their self-regulation capabilities and learning progress. Furthermore, the short-term nature of the study does not account for long-term vocabulary retention, raising questions about the enduring impact of explicit self-regulated vocabulary learning on students' linguistic development. The technological

tools used, such as Socrative and Facebook, although effective in the specific setting, may not be universally applicable, particularly in educational environments with limited access to such platforms.

To address these limitations and deepen the understanding of self-regulated vocabulary learning, future research should aim to expand the scope of investigation across diverse cultural and institutional settings. By examining how different educational systems and student populations respond to self-regulation strategies, researchers can uncover the broader applicability and adaptability of this method. Longitudinal studies would also provide valuable insights into the long-term retention of vocabulary knowledge and how sustained engagement with self-regulated learning tools can impact overall language proficiency. Additionally, exploring alternative methods, such as gamification, collaborative learning, or the integration of more contextualized tasks, could further enhance student motivation and engagement, offering a more dynamic approach to vocabulary acquisition. Educators are encouraged to continue refining their pedagogical strategies, incorporating explicit self-regulation techniques with both traditional and digital resources to create comprehensive, student-centered learning experiences that promote deeper understanding and lasting language skills.

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