



Development of Online Lesson on Vocabulary for Thai Undergraduate Students at Nakhon Pathom Rajabhat University

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Received: 22 October 2025 Revised: 15 November 2025 Accepted: 2 December 2025

Abstract

The purpose of this article was 1) to develop and determine the efficiency of online English vocabulary lessons designed for Thai undergraduate students at Nakhon Pathom Rajabhat University to meet the 75/75 efficiency criterion; 2) to compare students' English vocabulary learning achievement before and after studying with the online English vocabulary lessons; and 3) to examine the satisfaction of Thai undergraduate students at Nakhon Pathom Rajabhat University with learning English vocabulary through the online lessons. The sample was 40 undergraduate students enrolled in the "English for Intercultural Communication" course during the first semester of the 2022 academic year. They were selected by purposive sampling. The instrument for collecting data consisted of six online English vocabulary lessons with exercises, a vocabulary achievement test, and a satisfaction questionnaire. Data were analyzed using the mean, standard deviation, and a dependent samples t-test. The research results were found as follows; (1) the online English vocabulary lessons achieved an efficiency level of 75.53/77.83; (2) the students' post-test mean scores were significantly higher than their pre-test scores at the .05 level; and (3) the students expressed a high level of satisfaction with learning through online lessons.

Keywords: Online Vocabulary, Online Learning, Lesson Efficiency, Online Vocabulary Satisfaction

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Introduction

The COVID-19 pandemic has significantly transformed education worldwide and resulted in more than 1.5 billion students adopting learner-center online learning. This learning approach allows students to study anytime and anywhere, thereby enhancing the effectiveness of teaching and learning (Chakkrit Phodaphon, 2020). In the United States, the percentage of undergraduate students enrolled online courses increased from 15.6% in 2003–2004 to 26.6% in 2013, demonstrating the growing importance of technology in education (Kumar et al., 2017). Vocabulary knowledge is a crucial element in second language acquisition, as learners possessing limited lexical resources experience challenges in effective communication. Systematic vocabulary development is therefore essential for enhancing overall language proficiency (Thornbury, 2004; Asgari & Mustapha, 2011), and vocabulary learning remains a major challenge for language learners (Nyikos & Fan, 2007). Uchihara and Saito (2019) found a strong relationship between productive vocabulary and the oral fluency of EFL university learners. Specifically, learners with larger productive vocabularies were able to speak more smoothly, with fewer pauses and repetitions, and at a faster rate. Mothe (2013) emphasizes that vocabulary is indispensable for expressing ideas, emotions, and meanings through both productive skills, such as speaking and writing, and receptive skills, including listening and reading. Moreover, Viera (2017) highlights that learners cannot communicate effectively without sufficient vocabulary. Consequently, vocabulary instruction should be varied, intensive, and systematically organized to support long-term learning outcomes (Nation, 2008; Graves, 2009).

According to the Common European Framework of Reference for Languages (CEFR) assessment results at Nakhon Pathom Rajabhat university in the academic year 2021, out of 2,819 students, 73.77% were at levels A1–A2, indicating only basic vocabulary knowledge that is insufficient for effective communication. This emphasizes the urgent need to develop English vocabulary lessons through online media. The use of technology can enhance vocabulary learning efficiency through tools such as online dictionaries, quizzes, hypertext reading, and web-based activities that provide instant feedback. These resources help learners make connections between words and meanings and promote reading comprehension (Horst et al., 2005; Tozcu & Coady, 2004). When learning is enjoyable, it increases motivation and fosters positive attitudes, both of which are essential for language acquisition (Gardner, 1985;

Higgins, Huscroft-D'Angelo & Crawford, 2019). Moreover, technology can further boost learner motivation, engagement, and autonomy by offering instant feedback and self-paced learning opportunities (Ball, 2011; Warschauer & Meskill, 2000). In Thailand, for example, Madayusoh (2022) developed a computer-assisted English vocabulary learning program and found that students' post-test scores were significantly higher than pre-test scores demonstrating that the development of online English vocabulary lessons can effectively enhance vocabulary acquisition among Thai undergraduate students. However, students at Nakhon Pathom Rajabhat University have only three hours of in-class English instruction per week, which is insufficient. Although several studies have examined online lessons for vocabulary learning, most have focused on younger learners and research on online vocabulary lessons specifically designed for Thai undergraduates is limited. Therefore, this study aims to develop and evaluate online English vocabulary lessons for undergraduate students at Nakhon Pathom Rajabhat University to enhance vocabulary achievement and learner autonomy. It is expected that the findings will provide a model for integrating technology into English instruction and contribute to improving English language pedagogy in Thailand.

Research Objectives 1) to develop and determine the efficiency of online English vocabulary lessons designed for Thai undergraduate students at Nakhon Pathom Rajabhat University to meet the 75/75 efficiency criterion 2) to compare students’ English vocabulary learning achievement before and after studying with the online English vocabulary lessons; and 3) to examine the satisfaction of Thai undergraduate students at Nakhon Pathom Rajabhat University with learning English vocabulary through the online lessons

Literature Review

The use of e-learning in higher education has redesigned academic practices by increasing learners’ access to instructional materials and offering greater autonomy in managing their studies (Salamat et al., 2018). In digitally mediated learning environments, Learning Management Systems (LMS) have increasingly evolved into pedagogical spaces that facilitate English language development by promoting learner engagement in academically meaningful language use rather than passive reception of information (Martin & Bolliger, 2018). These environments are further strengthened through the integration of creative digital tools, such as Canva, which enable learners to externalize and systematically organize vocabulary knowledge through visually oriented infographic tasks embedded within LMS-based activities. Artificial intelligence supports adaptive digital learning, while large language model-based chatbots enable real-time interaction and vocabulary development in second language learning (Chen et al., 2020; Zhang & Huang, 2024). In the Thai context, Madayusoh (2022) developed a computer-assisted English vocabulary learning program and found that students’ post-test scores were significantly higher than their pre-test scores, demonstrating that the development of online English vocabulary lessons can effectively enhance vocabulary acquisition among Thai undergraduate students.

Conceptual Framework

This study employed a pre-experimental one-group pretest–posttest design to examine the effects of online English vocabulary lessons on Thai undergraduate students’ vocabulary learning achievement and satisfaction with online learning. The independent variable was the online English vocabulary lessons developed by the researcher, including six units: Personality, Jobs, Food, Clothes, Travel, and Culture. It also included tests to measure learning outcomes and questionnaires to assess students’ satisfaction. The dependent variable in this study was the online English vocabulary lessons developed by the researcher. The dependent variables were students’ English vocabulary learning achievement and their satisfaction with learning vocabulary through the online lessons.

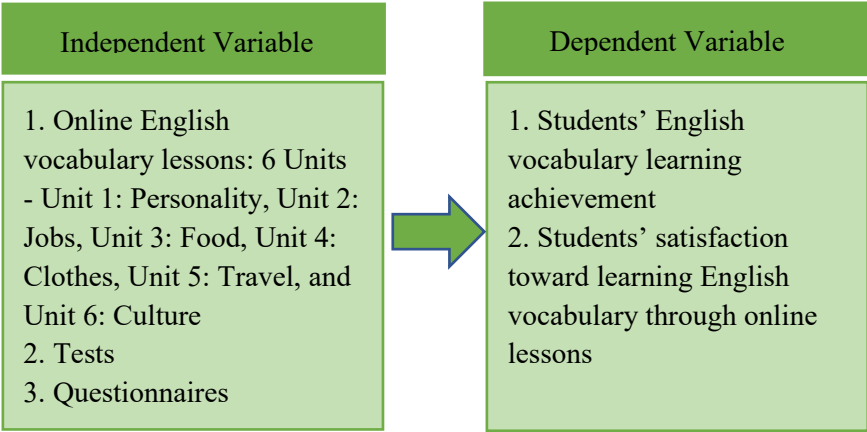


Figure 1 Conceptual Framework

Research Methodology

1. Population and samples

The population of this study consisted of 60 undergraduate students from two sections of the “English for Intercultural Communication” course (Course Code: 1500201) at Nakhon Pathom Rajabhat University in the first semester of the 2022 academic year. The sample included one class section of 40 students selected using purposive sampling with the classroom as the sampling unit. The selection criteria required students to be male or female aged 19 or older and to have already taken the CEFR (Common European Framework of Reference for Languages) English proficiency test. The experimental group consisted of students enrolled in the “English for Intercultural Communication” course in the same semester. Experimental trial 1 was conducted with three students representing high, medium, and low academic performance to test the online lessons and research instruments. Following this, the experimental trial 2 involved nine students divided into three subgroups based on performance level: high, medium, and low.

2. Instrumentation

2.1 Lesson Plans for the Course “English for Intercultural Communication” (Course Code: 1500201)

Lesson plans for six units of the course English for Intercultural Communication (Course Code: 1500201) were developed. The plans cover vocabulary content, learning objectives, and course descriptions consistent with the course syllabus.

2.2 Online Lessons

The researcher developed six online vocabulary lessons using Canva Pro and selected appropriate websites for instructional purposes. The lessons were uploaded to the Learning Management System (LMS) at Nakhon Pathom Rajabhat University and focused on vocabulary learning strategies such as using online dictionaries, analyzing word functions, guessing meanings from context, finding synonyms and antonyms, and using semantic maps. Three experts in English language teaching evaluated the lessons using both the Index of Item-Objective Congruence (IOC) and the Content Validity Index (CVI) to determine their appropriateness and alignment with learning objectives. The lessons were piloted with two small groups of three and nine students, respectively. Before the trial, students were informed of the objectives and procedures and completed a pre-test. They studied one lesson per day for six days and completed unit quizzes after each lesson, followed by a 40-item post-test (60 minutes). During the trial, the researcher provided guidance and collected feedback to improve the lessons for the main study.

2.3 Achievement Test

The researcher analyzed the content of the online lessons to create the achievement test. The researcher developed a 40-item multiple-choice test based on the online lessons to assess students’ vocabulary learning outcomes. The test items were related to the learning objectives, including using online dictionaries, analyzing word functions, guessing meanings from context, finding synonyms and antonyms, and using semantic maps.

2.4 Student Satisfaction Questionnaire

The researcher developed a satisfaction questionnaire to assess undergraduate students’ satisfaction with the online vocabulary learning lessons. The questionnaire consisted of ten items measured on a five-point Likert scale. Three experts in English language education evaluated the questionnaire to determine the Index of Item-Objective Congruence (IOC), which was required to be 0.50 or higher.

Data Collection

The researcher developed the online lessons using Canva Pro, incorporating PowerPoint presentations, instructional videos, handouts, and exercises created by the

researcher. Additionally, relevant websites and YouTube videos were selected and uploaded to the Learning Management System (LMS) to support the course content. The course consisted of six units, each requiring two hours per week, totaling 12 instructional hours. Outside regular class hours, students were expected to study the lessons for one hour per day from Monday to Friday over a six-week period.

In the data collection phase, the researcher first provided students with a detailed explanation of the research objectives and procedures. During the first week, students completed a 40-item vocabulary proficiency pre-test via Google Form before participating in the online lessons, which lasted one hour and were administered during class time.

After completing each unit, students took post-lesson exercises in the LMS, consisting of 10 items per unit, each taking approximately 30 minutes. For all six units, this totaled 180 minutes. In the seventh week, after completing all six online lessons, students completed a 40-item vocabulary proficiency post-test via Google Form, which lasted one hour and was conducted outside regular class hours. Finally, students responded to a 10-item satisfaction questionnaire on Google Form to measure their satisfaction with the online vocabulary lessons used in the English for Intercultural Communication course. This questionnaire was also administered outside regular class hours.

Data analysis

The data were analyzed to determine the development and effectiveness of online English vocabulary lessons. The efficiency (E1/E2) of the lessons was assessed based on students' average post-lesson test scores following the $E1/E2 = 75/75$ criterion (Chaoyong Phromwong et al., 1977). Content validity of the lessons was evaluated by three experts in English language teaching using the Content Validity Index (CVI), with acceptable values set at .80 or higher, and the Index of Item-Objective Congruence (IOC), rated on a three-point scale ($-1 =$ inappropriate, $0 =$ uncertain, $1 =$ appropriate). For the vocabulary achievement test, the same three experts assessed item quality using the IOC, rating the suitability of each item for Thai undergraduate students on the same three-point scale. Item difficulty (p) was maintained within 0.20–0.80, and the discrimination index (r) was required to be at least 0.20; forty items meeting these criteria were selected to ensure adequate content coverage and quality. Descriptive statistics, including the mean ($\bar{x}$) and standard deviation (S.D.), were used to analyze quizzes and achievement test results. Differences between pre-test and post-test scores were examined using a dependent samples t-test. Data from the satisfaction questionnaire, based on a Likert-type scale, were analyzed using the mean and standard deviation and interpreted according to Likert's scale (Best, 1986: 181–182).

Results

This result presents the development and effectiveness of online vocabulary lessons for 40 Thai EFL undergraduates. Learning outcomes before and after the lessons were compared and student satisfaction was evaluated. Participants spent two hours per week engaging in the lessons.

Table 1 Efficiency of the Online Vocabulary Lesson

Efficiency	Students (N)	Total Scores	($\bar{x}$)	S.D.	Efficiency Value
E1	3	60	45.33	5.13	75.55
E2	3	40	30.67	8.50	76.67

Table 1 indicated that the efficiency of the online vocabulary lesson in the small-group trial met the established efficiency criterion of 75/75, indicating that the lesson was effective for vocabulary learning.

Table 2 Efficiency of the Online Vocabulary Lesson

Efficiency	Students (N)	Total Scores	($\bar{x}$)	S.D.	Efficiency Value
E1	9	60	45.00	3.77	75.00
E2	9	40	30.22	3.59	75.55

Table 2 indicated that the efficiency of the online vocabulary lesson in the field trial also met the efficiency criterion of 75/75, confirming the appropriateness and effectiveness of the lesson in enhancing students' vocabulary learning achievement.

Table 3 Efficiency of the Online Vocabulary Lesson

Efficiency	Students (N)	Total Scores	($\bar{x}$)	S.D.	Efficiency Value
E1	40	60	45.32	1.11	75.53
E2	40	40	31.13	1.66	77.83

Table 3 According to the results from the Table 3, the overall efficiency of the online vocabulary lesson was 75.53/77.83, which met the set efficiency criterion of 75/75. This indicates that the developed online vocabulary lesson was effective and appropriate for enhancing students' vocabulary learning achievement.

Table 4 Results of Comparing Vocabulary Learning Achievements Before and After Learning through the Online Lesson

Vocabulary Online Test	n	($\bar{x}$)	S.D.	t-value	p
Pre-test	40	20.75	1.95	28.59	.000*
Post-test	40	31.13	1.66		

** Significant at the 0.05 level ($p < 0.05$).

Table 4 As shown in Table 4, the mean score of the pre-test was 20.75 ($\bar{x}$), 1.95 (S.D.), and the post-test mean score after learning through the online lesson increased to 31.13 ($\bar{x}$), 1.66 (S.D.). The results of the paired samples *t*-test indicated a statistically significant difference between the pre-test and post-test scores at the .05 level ($t = 28.59$, $p = .000$). This finding suggests that the online vocabulary lesson effectively enhanced students' vocabulary learning achievement.

Table 5 Results from affirming students' satisfaction towards online vocabulary lessons

Satisfaction Aspects	$\bar{x}$	S.D.	Satisfaction Level	Rank
Students	4.23	0.62	High	3
Content	4.30	0.70	High	2
Format	4.48	0.60	High	1
Total	4.31	0.65	High	—

Table 5 The table shows the mean scores and standard deviations for students' satisfaction towards the online vocabulary lessons assessed using a 5-point Likert scale. The total mean and standard deviation derived from this part of the questionnaire were 4.31 ($\bar{x}$) and 0.65 (SD), respectively. The format of the online lessons was rated the highest, indicating that students were most satisfied with the design, layout, and readability of the lessons.

Discussion

According to the results of this study, the online vocabulary lessons had a significant impact on students' vocabulary learning outcomes and satisfaction. Several factors contributed to these findings. The lessons were well-structured, visually engaging, and included interactive exercises, which promoted students' engagement and motivation, with the highest satisfaction rating for the format indicating that students appreciated clarity, readability, and organization. Additionally, the online lessons corresponded with course objectives and incorporated practical vocabulary learning strategies, such as using online dictionaries, analyzing word functions, guessing meanings from context, finding synonyms and antonyms, and using semantic maps, which contributed to significant learning improvement. The lessons also encouraged students to engage independently with the materials and practice vocabulary skills outside of regular class hours, with this self-paced, learner-centered approach enhancing vocabulary retention and understanding. Moreover, the use of Canva Pro, LMS platforms, and supplementary online resources provided immediate feedback and interactive learning opportunities, increasing students' motivation and supporting meaningful vocabulary learning. These findings are consistent with previous research indicating that systematically designed and technology-integrated online vocabulary instruction can significantly improve language learning outcomes and learner satisfaction (e.g., Madayusoh, 2022; Nation, 2008; Horst et al., 2005; Tozcu & Coady, 2004).

Conclusion and Recommendations

The findings of this study revealed that the online vocabulary lessons developed by the researcher effectively enhanced Thai undergraduate students' vocabulary learning achievement. The post-test mean score 31.13 ($\bar{x}$) was significantly higher than the pre-test mean score 20.75 ($\bar{x}$) at the .05 level, indicating a notable improvement in vocabulary proficiency. Additionally, students expressed a high level of satisfaction towards the online lessons, with the format of the lessons receiving the highest rating, followed by content and students' engagement. Overall, the development of online English vocabulary lessons met the predetermined efficiency criterion of 75/75, demonstrating that the developed online

vocabulary lessons were both effective and appropriate as a supplementary learning tool for Thai undergraduate students.

Recommendations

Recommendations for instruction and further studies are identifying as follows:

1. Recommendations for instruction

1.1 Teachers should encourage the use of online vocabulary lessons as supplementary materials to support students' independent learning and vocabulary retention.

1.2 Teachers should design lessons with clear structure, interesting visuals, and interactive exercises to enhance engagement and motivation.

2. Recommendations for further study

2.1 Future research should involve a larger sample and extend the duration of the intervention to examine long-term effects on vocabulary acquisition.

2.2 Further studies could explore the impact of online vocabulary lessons on other language skills, such as reading, listening, and speaking, to evaluate language proficiency improvements.

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