Effectiveness of Online Lessons on English Sound System and Pronunciation for University Students

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Abstract

The objectives of this research were 1) to determine the effectiveness of online lessons on the English sound system and pronunciation for undergraduate students, and 2) to compare the learning achievement of undergraduate students before and after studying through the online lessons on the English sound system and pronunciation. The participants consisted of 30 non-English major undergraduate students enrolled in the Fundamental English course provided by the Language Institute at a university in Nakhon Pathom Province, Thailand in the first semester of the academic year 2022. The participants were selected using the purposive sampling technique. The research instruments included online lessons, an achievement test, and an assessment form to evaluate the quality of the online lessons, which were completed by experts. The statistical analysis included percentage, mean, standard deviation, and dependent sample t-test. The findings revealed that the effectiveness of the online lessons was determined to be 75.55/78.44. Furthermore, the learners' achievement after studying through online lessons was significantly higher than before, with a significant difference at the .05 level.

Keywords: effectiveness, online lessons, English sound system and pronunciation, university students

1. Introduction

In the current era, technological advancements have facilitated rapid and convenient communication between countries worldwide. As a result, English has become a crucial language for Thai individuals and people across the globe. To effectively utilize English for communication purposes, learners should possess the ability to pronounce English accurately, enabling them to better comprehend both English speakers and listeners. The importance of pronunciation in language cannot be overstated, as it significantly influences the effectiveness of human communication. Hence, it is crucial for English language learners, whether in a second or foreign language context, to comprehend the phonological system of the language. Supporting this notion, Hewings (2004) highlighted the significance of pronunciation in both speaking and listening skills [1]. When it comes to speaking, clear and accurate pronunciation is vital for intelligibly conveying and interpreting the intended meaning of speech. Consequently, mastering the pronunciation of consonants and vowels in English holds paramount importance in language learning.

According to several scholars, including Tantanis (2012) [2], Ur (1999: 52-58) [3], and Wei You Fu Zhou Ya Lun (1999) [4], extensive research has been conducted on the challenges faced by Thai learners in English pronunciation. These studies have identified various factors contributing to the difficulties experienced by Thai individuals in pronouncing English accurately. One prominent issue arises from the absence of certain consonant and vowel sounds in the Thai language that are present in English. Additionally, the stress patterns and emphasis on syllables and words differ between the two languages. English words may have primary, secondary, or no stress on any syllables, whereas most Thai words have stress placed on the final syllable. Moreover, Thai learners encounter challenges in pronouncing final consonants due to the Thai language's lack of final consonant diphthongs and the presence of only eight consonants spelled at the end of words, leading to less precise pronunciation in such contexts. Blending Thai sounds with English sounds further compounds the problem, as identified by the studies [2, 3, 4].

At the present time, the utilization of online lessons through internet networks has revolutionized teaching and learning by providing students with unrestricted access to educational materials. Clark Carlson (1982) have defined teaching on the Internet as an individualized teaching process that relies on the Internet, accessible through web browsers [5]. Moreover, innovative educational technologies play a crucial role in the modern era. Regardless of their geographical location, individuals with internet access can search for and access the necessary information, thereby engaging in online teaching and learning. This concept aligns with

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the definitions provided by Allen Seaman (2011) [6] and Shelton Saltsman (2005) [7], who describe online education as a form of distance education that utilizes computers and the internet as the primary delivery mechanism [6, 7].

Based on the mentioned reasons, the researcher made the decision to incorporate technology into the language classroom by creating online lessons on the English sound system and pronunciation for undergraduate students. This initiative aims to support learners who are studying English as a foreign or second language. Achieving accurate and effective English pronunciation will instill learners with confidence in their English communication skills and enable them to apply this knowledge in their professional lives, thereby enhancing their overall potential. Thus, the primary objective of this research is to enhance learners' English pronunciation skills. To accomplish this, the online lessons place significant emphasis on reading and writing the English phonetic alphabet, while also focusing on extensive practice of English pronunciation based on the phonetic system.

2. Research Objectives

The objectives of this research were as follows:

1) To determine the effectiveness of online lessons on the English sound system and pronunciation for undergraduate students, and

2) To compare the learning achievement of undergraduate students before and after studying through the online lessons on the English sound system and pronunciation

3. Research Questions

The research questions for this study were as follows:

1. How effective are the online lessons on the English sound system and pronunciation for undergraduate students?

2. To what extent do online lessons on the English sound system and pronunciation help improve undergraduate students' learning achievement?

4. Literature Review

4.1   The Importance of English Pronunciation

Pronunciation holds significant importance and is a crucial skill to acquire. If learners are unable to pronounce words correctly, it can lead to various challenges and difficulties in their learning journey. Thai scholars have identified several English consonant sounds that are absent in the Thai language. Additionally, there are certain sounds in English that bear similarities to Thai sounds. As a result, Thai individuals tend to substitute Thai sounds for English sounds, which is an incorrect approach. The usage

of Thai sounds instead often leads to misunderstandings or, at times, alters the meaning of words entirely. Mathayomchan (1997) [8] emphasized that Thai people, when learning English as a foreign language, often face difficulties in achieving fluency in speaking. This challenge primarily arises because English is typically taught in educational institutions using Thai as the primary medium of instruction. The ability to speak English fluently is contingent upon an individual's knowledge, practice, and opportunities to directly engage with native speakers and practice pronunciation. Accordingly, Kanoksilpathum (2016:2) [9] stated that to effectively communicate, speaking and listening skills must be employed simultaneously. If the speaker's pronunciation is unclear, the listener will not comprehend or understand the message accurately. Consequently, effective communication may be hindered or may not occur at all.

4.2   Problems with English Pronunciation among Thai Speakers

Thailand encounters various challenges and obstacles in the process of studying English. One significant issue is the proper pronunciation of English, particularly in achieving a native-like accent. Thai speakers often face difficulties in pronouncing certain English sounds. Tantanis (2012) conducted a study and identified the pronunciation problems among Thai students, which ranked as follows in descending order: the initial consonant positions of //, //, /v/, /r/, /z/, //, //, //; the final consonant positions of //, //, //, //, //, /z/, //, //, /l/; and vowel sounds of //, //, //, //, //. These difficulties arise due to the absence of these sounds in the Thai language system. Consequently, students tend to substitute Thai sounds, influenced by their native language, in place of these English sounds [2]. According to Wei You Fu Zhou Ya Lun (1999) English pronunciation problems among Thai speakers arise from the assimilation of Thai sounds into English sounds. Despite learning English, most Thai individuals are not provided with a thorough understanding of the English sound system [3].

As a result, language learners often imitate English pronunciation based on the pronunciation model provided by Thai teachers. Ur (1999: 52-58) stated that learners often mispronounce certain sounds due to their absence in their native language. Consequently, learners tend to substitute similar sounds from their native language, such as the /d/ or /z/ sounds instead of // when pronouncing the word "that." This difficulty in differentiating phonemes can lead to incorrect pronunciation, resulting in altered meanings, as seen in the examples of /I/ and /i/ in the words "ship" and "sheep." Proper usage of these sounds must be based on contextual clues. If a learner has never encountered a particular sound, no amount of effort will enable them to pronounce it accurately [4]. Based on these points, it can be concluded that English pronunciation holds great

significance and is essential for learners of English as a foreign language. It aids in the development and enhancement of their English language skills, particularly in terms of reading aloud new words and building readers' confidence. Additionally, it plays a crucial role in improving communication efficiency.

5. Research Methodology

5.1 Research Design

The research was pre-experimental, a quantitative research study. According to Best (1977), the type of study was a pre-experimental design for the one-group dependent pretest-posttest method [10].

5.2 Participants

The participants were 30 undergraduate students volunteering to participate in this study. All of them were non-English major students from various faculties in a university in Nakhon Pathom province. All of them enrolled in the Fundamental English Course, provided by the Language Institute during the first semester of the academic year 2022.

6. Research Instruments

The research instruments being applied in this study consisted of online lessons on the English sound system and pronunciation for undergraduate students, the assessment form to evaluate the online lessons, the online lessons, and an achievement test. The following details developed the research instruments.

6.3.1 An assessment form to evaluate the online lessons to be filled in by the experts. The assessment form to examine the quality of the online lessons on the English sound system and pronunciation for undergraduate students. The quality of the online lessons is assessed by three experts in educational technology and English teaching. The experts assessed the quality of online lessons using an 18-item 5-level assessment scale, covering 3 aspects: content and presentation, usability, and benefits of the online lessons. As approved by the experts, the quality was at a good level (mean 4.26, and standard deviation 0.32). The details of the questions are shown in Table 1.

6.3.2 The online lessons on English sound system and pronunciation for the generic person Based on the objectives of this research, the focus is on learners practicing reading and writing the International Phonetic Alphabet, as well as improving their pronunciation of consonants and vowels, accentuation, intonation, and the ability to connect words and syllables according to phonetic principles. Consequently, the lessons are structured into six parts: 1) International Phonetic Alphabet (IPA), 2) Vowel Sounds, 3) Consonant Sounds, 4) Word Stress, 5) Sentence Stress, and 6) Linking Sounds. Furthermore, the quality of the online lessons was assessed by educational technology experts, and the content was reviewed by English language teaching professionals to ensure its suitability for learners before implementation. Following the assessment, the researcher conducted a pilot study, recruiting participants from undergraduate students who had previously taken the Fundamental English Course. Ten students voluntarily participated in the pilot study, which aimed to evaluate the suitability of the online lessons for learners' proficiency level and assess whether they found the lessons easy or challenging to follow independently. Subsequently, thirty samples were selected to participate in the study, using online lessons on the English sound system and pronunciation to determine their effectiveness. The result of the study revealed that the online lessons exhibited an efficiency rating of 75.55 out of 78.44, surpassing the threshold of 75/75.

6.3.3 An achievement test on the learners' learning achievement A pre-and post-learning achievement test using online lessons on the English sound system and pronunciation for the generic person. The test was multiple-choice questions with four options, 30 items and 30 points. The test time was 50 minutes. Overall, the test difficulty (p) was between 0.25-0.75, discriminating power (r) was between 0.25-0.75, and reliability was 0.79. Three experts in testing and evaluation validated the content and accuracy of word choice in each item of the developed test. The index of item-objective congruence (IOC) was equal to 1.00. The test was revised following the experts' comments. The revised test was pilot tested by 30 Nakhon Pathom Rajabhat University students who previously participated in the Fundamental English course. The obtained scores were analyzed for the quality of each test item by the SPSS program to determine the difficulty (p) and the discrimination (r) by examining the difficulty items (p) according to the criterion between 0.20-0.80. According to the criteria, the power of discrimination (r) should be from 0.20 and above. Then the confidence (reliability) of the test was analyzed using Kuder-Richard's Formula 20 (KR-20) (Kuder and Richardson, 1937) [11]. The test confidence value should be 0.70 or higher. The developed test got a confidence value of 0.79 [11].

7. Procedures

This research was conducted in 2022, following a series of steps. Firstly, the researcher coordinated with the Language Institute of Nakhon Parthom Rajabhat University to seek assistance from their personnel who conducted online teaching. The online lessons focused on the English sound system and pronunciation for undergraduate students. Additionally, a sample group was selected based on specific criteria, and their consent was obtained. Subsequently, the researcher provided an explanation of the research project and in-

Table 1. The assessment of the online lessons on the English sound system and pronunciation for undergraduate students.

Statement	Mean	S.D.	Level of Effectiveness
Contents and presentation			
1. The contents are consistent with the expected learning.	4.00	1.00	Very good
2. The contents are accurate and precise.	4.66	0.57	Excellent
3. The contents are appropriate in rank.	4.66	0.57	Excellent
4. The contents are clearly described.	4.33	0.57	Very good
5. The amount of content in each lesson is appropriate.	4.66	0.57	Excellent
6. The language used in the online lesson is easy to understand	4.33	0.57	Very good
7. The pictures are presented appropriately and consistently.	4.00	1.00	Very good
8. The order of the presentation is proper.	4.33	0.57	Very good
Average	**4.25**	**0.26**	**Very good**
Usability			
9. Font style, color, and size are appropriate.	4.00	1.00	Very good
10. Screen elements are suitable.	4.33	0.57	Very good
11. Sound effects are suitable.	4.00	0.00	Very good
12. Screen graphic design is relevant to the content.	4.40	0.90	Very good
13. The connection of each part is convenient.	4.60	0.50	Excellent
Average	**4.20**	**0.36**	**Very good**
Benefits			
14. The online lessons provide helpful knowledge and information to learners.	4.00	0.00	Very good
15. The online lessons are appropriate to use as a learning innovation.	4.33	0.57	Very good
16. The online lessons can support language learning as a source of information.	4.33	0.57	Very good
17. The online lessons can help develop the language proficiency of learners.	4.00	0.00	Very good
18. The online lessons can be studied and reviewed at any time.	5.00	0.00	Excellent
Average	**4.33**	**0.32**	**Very good**
Overall	**4.26**	**0.32**	**Very good**

structed the participants on how to access the online lessons, allowing them to study at their convenience over a 30-day period. The participants were enrolled in online lessons using the Moodle program. Following this, the researcher administered a pre-test to the sample group using the online lessons. The participants engaged in self-directed learning, studying the content, and completing activities in the online lessons until they had completed six lessons. Throughout the study, the researcher monitored the participants' progress and addressed any difficulties or obstacles encountered when using the online lessons developed by the researcher. The feedback was used to improve the online lessons. After the completion of the six lessons, the participants were asked to complete a post-test to assess their learning achievements. At the end of the 30-day period, the participants thoroughly studied the online lessons. The researcher examined the assessment forms collected during the course and analyzed the data. Consequently, the scores obtained from the achievement test conducted after studying with the online lessons were used for data analysis.

8. Data Collection and Data Analysis

The data collection procedure was divided into three stages. The first stage was before the development of the online lessons, during the implementation, and after implementation. The statistics used to analyze data from this study were the basic statistics such as percentage, mean, and standard deviation.

The pre-test and the post-test data were analyzed by t-test and the evaluation of the effect size. Quantitative data were processed in SPSS, and according to Promwong, Netbprasert, Linsagun (1977) [12] E1/E2, the efficiency of course materials was analyzed at 75/75 [12].

9. Findings

This section presents the findings based on the research questions as follows:

RQ1. How effective are the online lessons on English sound system and pronunciation for undergraduate students?

The current study revealed that the effectiveness of the online lessons was estimated at 75.55/78.44. The result showed that the overall scores participants earned during the study were 75.55%, thus reflecting the efficiency of the teaching and learning process in E1. The E2 showed that the scores of the achievement post-test were 78.44% which reflected their knowledge and ability after learning through the online lessons.

As verified by the experts, the quality of the online lesson on the English sound system and pronunciation was very good (mean 4.26, and standard deviation 0.32). In addition, the experts assessed the quality of online lessons in 18 items, shown in Table 1, using a 5-level assessment scale, covering three aspects: content and presentation, usability, and benefits of the online lessons. Overall, the quality was at a very good level

Table 2. Effectiveness of the online lessons on English sound system and pronunciation of the sample group

Target group	n	Score	Mean	S.D.	Effective score
E1	30	60	45.33	2.26	75.55
E2	30	30	23.53	2.37	78.44

(mean 4.26 and standard deviation 0.32), which consisted of the benefits of the online lessons (mean 4.33 and standard deviation 0.32), content and presentation (mean 4.25 and standard deviation 0.26), and usability (mean 4.20 and standard deviation 0.36), respectively.

RQ2. How does using online lessons on English sound system and pronunciation for undergraduate students affect the learners in terms of learning achievement?

The comparison of learners' learning achievement before and after learning through online lessons on the English sound system and pronunciation for the generic person. The findings illustrated that the learner's achievement in the English sound system and pronunciation from the post-test was significantly higher than before at 0.05.

10. Discussions and Conclusion

The creation of online lessons on the English sound system and pronunciation for undergraduate students uses the teaching management system via the Moodle program. It has effectively organized the content and activities across six comprehensive lessons. Each lesson encompasses specific learning goals, lesson files for in-class study exercises, and a subsequent quiz to reinforce comprehension. These lessons have been carefully developed with the input of experts in the field, ensuring their efficacy. Furthermore, the content of the activities is regularly updated based on expert recommendations. The quality of these online lessons has been evaluated by experts in educational technology and English language instruction, affirming their effectiveness. In addition, the researcher also experimented with the lessons to determine their effectiveness with non-sample learners before being used. The effectiveness of online lessons was 75.55/78.44, which is related to the research findings of LUO (2017), who developed online instruction on the pronunciation of Chinese Pinyin for Matayom 1 students, Assumption College Sriracha. The results illustrated that online lessons are effective according to the criteria, and the subjects were satisfied with the online instruction on the pronunciation of Chinese Pinyin at the most satisfactory level [13].

Based on our thorough analysis of background data, the online lessons on the English sound system and pronunciation for undergraduate students have been developed utilizing the Learning Management System (LMS) with the Moodle program. This approach enables learners to conveniently access the online lessons at their preferred time and location, benefiting both facilitators and students alike. Accordingly, Laohacharasang T. (2002:1) emphasized that the Learning Management System in E-Learning serves as an effective tool for managing lessons, organizing learning activities and groups, fostering interactive communication between teachers and learners, and creating quizzes for assessing and evaluating learners' progress. Simultaneously, the online lessons offer a diverse range of activities, including practice exercises designed to reinforce learners' knowledge after completing each sub-content section. These activities are specifically designed to empower learners to independently review their understanding throughout the learning process [14].

The present study revealed that the online lessons on the English sound system and pronunciation for undergraduate students achieved a high level of effectiveness (mean 4.26, standard deviation 0.32). These online lessons underwent rigorous evaluation by educational technology experts to ensure their quality. The content was revised by English language teaching professionals to optimize suitability for learners prior to implementation. Additionally, quality monitoring of the lessons focused on assessing computer-based instruction, specifically examining the integration of content and instructional techniques within the digital environment. The outcomes of this evaluation are expected to provide substantial benefits to the students. Likewise, the Moodle program on the Internet provides lecturers with the capability to create diverse systems, including content and activity management. Moreover, the online lessons incorporate a range of assigned activities aimed at fostering independent knowledge review by learners. In a related study, Nakthung, Suwandecha, and Triwankul (2017) investigated the development of English phonology and phonetics lessons to enhance learners' attitudes toward English and their pronunciation abilities. The research findings revealed a positive impact on the English pronunciation accuracy and overall development of pronunciation skills of the experimental group [15].

In addition, this study conducted a comparative analysis of the participants' pre-test and post-test scores following their completion of the online lessons on the English sound system and pronunciation. The results indicated a significant improvement in scores for the general population, demonstrating enhanced knowledge acquisition as a result of the study. The findings further revealed that learners were able to effectively engage with the content and activities provided through the online system, promoting self-directed learning. Moreover, the online lessons offered the advantage of flexible scheduling, enabling

Table 3. Mean, S.D., and t-test of learners' achievement on English sound system and pronunciation

Test	n	Score	Mean	S.D.	t	Sig.
Pre-test	30	30	13.33	3.20	15.218*	0.00
Post-test	30	30	23.53	2.37		

Note: *significant level of .05 (P .05)

learners to attend classes at their convenience, regardless of time or location. Therefore, learners who engage in independent study tend to achieve higher outcomes when using online lessons. This aligns with the research conducted by Nithiwaraphakun, Buasam-Ang, and Chumnumnawin (2020), who developed an innovative approach to improving the pronunciation of English alphabet sounds among first-year students at Phranakhon Rajabhat University. The study demonstrated a significant improvement in pronunciation skills after the intervention, with statistical significance at the .05 level [16]. These findings are also consistent with the research conducted by Chuensombat, Thanamai, and Phumrat (2021). Their study explored the use of web applications based on a teaching and learning model rooted in brain-based learning principles and phonics instruction to enhance the pronunciation abilities of students at Kasetsart University. The results indicated a significant improvement in pronunciation skills in post-study, with statistical significance at the .05 level [17].

11. Limitations of this research

Based on the teaching and learning conducted through the online system, this study encountered limitations related to internet connectivity during the teaching process. This issue affected learners while they were engaging with the online lessons. Moreover, the insufficient efficiency of the internet network could potentially diminish the effectiveness of a well-designed lesson. Additionally, it is important to note that the participants in this study consisted of 30 undergraduate students from Nakhon Pathom Rajabhat University. Therefore, it is necessary to exercise caution when generalizing the findings to other learners.

12. Acknowledgements

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