

EFFECTIVENESS OF USING AN ELECTRONIC AUDIOBOOK FOR THE PRONUNCIATION OF KOREAN VOWELS, CONSONANTS, AND FINAL SOUNDS TO IMPROVE THE PRONUNCIATION SKILLS OF THAI TEACHERS

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ABSTRACT

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This research aims to: 1) develop an electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds; 2) compare the effectiveness of the electronic audiobook among Thai teachers; and 3) assess the Thai teachers' satisfaction with the use of the electronic audiobook. The sample group consists of 100 teachers who teach Korean in schools under the Office of the Basic Education Commission (OBEC). The research tools used are: 1) the electronic audiobook; 2) the quality assessment form for the electronic audiobook; 3) the achievement assessment form using the electronic audiobook; and 4) the satisfaction assessment form for learning through the electronic audiobook. Data were analyzed using percentages, means, standard deviations, t-tests, and E1/E2 efficiency measures. The research results are as follows: 1) The quality of the electronic audiobooks, as evaluated by experts, is at a good level, with an average score of 4.47 and a standard deviation of 0.57. The developed electronic audiobook has an E1/E2 efficiency score that meets the criterion of an average of 80%, with scores of 83.34/89.90. 2) the results showed that using an electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds is effective in improving Korean pronunciation skills as evidenced by the highly significant difference ($p = 0.000$) between the scores of post-tests of the control group and experimental group using t-test. 3). The evaluation of satisfaction with learning pronunciation skills via the electronic audio-book was at the highest level, with an average score of 4.65 and a standard deviation of 0.34.

Keywords: Audiobooks; Korean pronunciation; Thai teachers

1. INTRODUCTION

A learner's mother tongue often affects the way foreign language sounds are produced (Woo, 2020, p. 2). In the case of Thai learners, several studies have shown that their Korean pronunciation is influenced by their native language (Boonmalerd, 2013; Deok Kyu, 2019; Kamonjiranuwat, 2014; Koheng, 2015; Ru, 2011;

Supsin, 2012). Many methods such as linguistic comparative analysis, recording and comparing pronunciation with native speakers, and utilizing tools like OpenSesame and Praat have been suggested to solve the problem. However, they are not widely applied in classrooms. High school Korean language teachers reveal that they do not actively apply research on Korean pronunciation for Thai learners. Even though Thai teachers realize that pronunciation is key to effective communication. Currently, the primary textbooks focus on vocabulary and grammar, which are limited resources available for effective use. Materials that ensure pronunciation is taught in a precise manner can support teachers' own pronunciation, which will have a positive effect on their teaching.

Previous study findings suggest that digital tools might be effective in language learning. Hismanoglu and Hismanoglu (2011) found that teachers who used internet-based resources when teaching English pronunciation had better results than teachers that only taught from textbooks, and that digital resources could also support learners with their pronunciation and development of accurate syllable stress in English (Hismanoglu, 2012). A variety of activities such as reading, listening, playing digital games, watching videos, and online/offline social interactions can promote learners learning outside of the classroom. Learning Korean pronunciation is important and encourages learners to communicate effectively. However, much of the research on reading and listening research in a language learning context (2011–2020) remains limited in comparison to those focused on other forms of language learning (Vorobel, 2022).

The National Strategy (2018–2037) and Prince of Songkla University's Strategic Plan (2018–2022) encourage integration by use of digital platforms and flexible learning. Recognizing the potential of digital technology in transforming printed books into interactive learning materials, the study compares the effectiveness of learning Korean pronunciation through electronic books and audiobook-based electronic books. Electronic audiobooks can help address the limitations of traditional teaching materials. It also provides more engaging learning experiences for both teachers and students (Almekhlafi, 2021; Tang, 2021; Wood et al., 2018, p. 1947; Xodabande & Hashemi, 2023). Furthermore, well-designed electronic audiobooks improve usability and learning efficiency. It supports pronunciation development and promotes essential 21st-century skills (Connor et al., 2019). The findings from this study can be applied to improve Korean language teaching in real classrooms.

2. RESEARCH OBJECTIVES

- 2.1 To develop an electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds to improve the pronunciation skills of Thai teachers.
- 2.2 To assess and compare the effectiveness of using electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds among Thai teachers.
- 2.3 To evaluate the satisfaction level of Thai teachers using the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds.

3. METHODOLOGY

3.1 Population and sample

The population consists of 100 Thai high school Korean language teachers from 13 educational districts under the Office of the Basic Education Commission (OBEC). These teachers have necessary basic Korean language skills and can learn independently use electronic media. As they are responsible to transfer linguistic and pronunciation knowledge directly to students, their reflections on the instructional media will enhance credibility of the findings. Because OBEC supervises the largest number of secondary schools that teach Korean as a foreign language in Thailand, the study focuses on their teachers. These teachers are responsible not only for improving their own pronunciation skills but also for ensuring accurate pronunciation among students.

The sample was selected based on voluntary participation. They are divided into two groups: (1) the control group, including 50 Thai teachers of Korean using e-books, and (2) the experimental group, including 50 Thai teachers of Korean using electronic audiobooks. This sampling method makes it possible to observe the Korean language learning context and to evaluate the use of the audio book. Unlike conventional e-books, the developed audiobook incorporates authentic pronunciation models that students can listen to and practice repeatedly, while also supporting teachers in improving their own pronunciation skills and delivering more effective pronunciation instruction. Consequently, the audiobook is expected to generate positive impacts on the overall quality of Korean language teaching and learning in Thai secondary schools.

3.2 Variables

3.2.1 Independent variable is how the book on Korean pronunciation skills is used.

3.2.2 Dependent variables include achievement pronunciation skills of Thai teachers and satisfaction with using the electronic audiobook.

3.2.3 Data collection period: December 2023–March 2024.

3.2.4 The research protocol was reviewed and approved by the Institutional Review Board (IRB) of The Research Ethics Committee for Humanities, Social Sciences and Education, Prince of Songkla University, Pattani Campus, approval number psu.pn.2-020/66.

3.3 Research instrument several instruments

were employed in this research as follows:

3.3.1 The quality assessment form for the electronic book to evaluate its content validity for the Korean pronunciation textbook, including vowels, consonants, and final sounds, for Thai teachers has content validity index ranging from 0.66 to 1.00.

The quality assessment form for the electronic book, “Pronunciation of Korean Vowels, Consonants, and Final Sounds”, used to evaluate content validity, has a content validity index (CVI) ranging from 0.66 to 1.00.

3.3.2 The quality assessment form for the electronic audiobook to evaluate its content validity for the Korean pronunciation book, including vowels, consonants, and final sounds, for Thai teachers has content validity index ranging from 0.66 to 1.00.

The quality assessment form for the electronic audiobook, “Pronunciation of Korean Vowels, Consonants, and Final Sounds”, used to evaluate content validity, has a content validity index (CVI) ranging from 0.66 to 1.00.

3.3.3 The Korean pronunciation book “Pronunciation of Korean Vowels, Consonants, and Final Sounds” was developed in two formats:

3.3.3.1 The electronic book for the control group had a quality evaluation result in the good range, with an average score of 4.53 and a standard deviation of 0.589.

3.3.3.2 The electronic audiobook for the experimental group had a quality evaluation result in the good range, with an average score of 4.51 and a standard deviation of 0.584.

3.3.4 The achievement test form

3.3.4.1 Test structure and components to assess the ability to pronounce Korean vowels, consonants, and final sounds including five key areas: (1) knowledge of Korean vowel pronunciation; (2) knowledge of initial sound pronunciation; (3) knowledge of final sound pronunciation; (4) knowledge of syllable combination and Korean word pronunciation; and (5) pronunciation skills for words and sentences based on Korean pronunciation rules.

3.3.4.2 Assessment criteria (Scoring rubric)

The assessment criteria for evaluating Korean pronunciation skills are as follows:

5 = Excellent: The learner pronounces words, phrases, and sentences accurately and clearly, including initial sounds, vowels, and final sounds. Intonation, stress, and rhythm are correctly applied. The reading is fluent. The learner demonstrates confidence in pronunciation.

4 = Good: The learner pronounces words, phrases, and sentences correctly but it slightly lacks clarity in initial sounds, vowels, or final sounds. Intonation, stress, and rhythm are applied correctly. The reading is fluent. The learner shows confidence in pronunciation.

3 = Moderate: The learner pronounces words, phrases, and sentences correctly but frequently lacks clarity in initial sounds, vowels, or final sounds. Intonation, stress, and rhythm are partially correct. The learner demonstrates some confidence in pronunciation.

2 = Fair: The learner pronounces some words, phrases, and sentences correctly but lacks clarity in initial sounds, vowels, and final sounds. Intonation, stress, and rhythm are partially correct. The learner has limited confidence in pronunciation.

1 = The learner mispronounces words, phrases, and sentences. There is a lack of clarity in initial sounds, vowels, and final sounds. Intonation, stress, and rhythm are incorrect. The learner lacks confidence in pronunciation.

3.3.4.3 Instrument quality indicators

The content validity of the evaluation results ranges from 0.66 to 1.00, with a reliability value of 0.83 and difficulty index ranging from 0.20 to 0.80, and the discrimination index is above 0.20.

3.3.5 The satisfaction survey

The satisfaction survey used to assess the learning with the electronic audiobook was developed from the satisfaction questionnaire by Mueangkaew and Aphiratvoradej (2018) and Na Sulong et al. (2018). It was adapted to align with the evaluation objectives. The content validity index ranges from 0.66 to 1.00. The study followed a structured methodology.

3.3.5.1 This study began with a review of relevant research and related materials for the design of an electronic audiobook. Then, the content for teaching Korean pronunciation was determined. The review revealed that Thai learners often have difficulties in pronouncing Korean diphthongs (/j/), final sounds (/l/), and initial sound distinctions (such as /t/ /t*/ /t^h/, /s/ /s*/ /s^h/, /tɕ/ /tɕ*/ /tɕ^h/). From these findings, the audiobook content includes three main topics. There are vowel pronunciation, consonant pronunciation, and final sound pronunciation. This study was on the application of item objective congruence index (IOC-Index), with scores ranging from 0.66 to 1.00. Then, we developed a learning achievement test. The efficacy of the test was then evaluated by 50 participants who were similar to the experimental group. The reliability coefficient of 0.83. The difficulty index ranged between 0.20 and 0.80. The discrimination index was above 0.20.

3.3.5.2 The development of the electronic audiobook includes four main steps. These are (1) creating content, (2) selecting illustrations and example sentence diagrams, (3) recording audio, and (4) combining content, images, and audio into the electronic book using Flip PDF Plus Pro. Researchers decided to apply Flip PDF Plus Pro, which offers a user-friendly interface, functionality, easy design, and convenience. It allows the addition of images, text, audio, and videos. It streamlines the development process and reduces costs. Additionally, electronic audiobooks can be accessed at anytime, anywhere, and on many electronic devices, such as computers, tablets, and mobile phones. It could provide the opportunity to practice pronunciation at any time. The research process applied the System Development Life Cycle (SDLC), which defines problem scope and project planning (Plan), system analysis (Analysis), designing a system (Design), developing the system (Development), testing and debugging (Testing), documenting or manual (Document), and evaluating the system. Maintenance and further development steps are implemented to ensure the system is appropriate for users' needs.

3.3.5.3 The pilot phase of this study comprises reviewing the audiobook electronically to define any technological and content issues. This was carried out by groups of Thai teachers who are not a part of the study's sample.

3.3.5.4 In the evaluation phase, experts assessed the quality and effectiveness of the electronic audiobook. Fifteen Thai teachers, whose characteristics were like those of the sample group, participated in the evaluation. The quality score was 4.39, which signifies a good level of quality, and the effectiveness (E1/E2) was 81.95/80.25. Based on their feedback, the researchers made revisions and improved. After finalizing the adjustments to the electronic audiobook, a satisfaction survey was developed to assess learners' satisfaction with the electronic audiobook. The content validity index (IOC) of the survey was found to range from 0.66 to 1.00. All tools were then tested with the sample group.

3.4 Data collection process the research data collection process is as follows:

3.4.1 Both the control and experimental groups took pre-tests, mid-tests, and post-tests as part of the learning outcomes evaluation system.

3.4.2 Participants were informed about how to use the electronic book and guided on how to install the Beep audio recording software. This was done to test their pronunciation before starting the pre-test, mid-test, and post-test. The installation process was tracked through email and follow-up phone calls with each participant individually to ensure the audio recording software is correctly installed.

3.4.3 Once the participants began the tests, the system will automatically start the timer, and participants were not be able to pause or stop the timer during the test.

3.4.4 During the test, participants were reminded of the exam time limits and informed to strictly follow the instructions. Once the time limit was reached, the system will automatically closed.

3.4.5 Assess satisfaction with using the electronic book.

3.5 Summary and conclusion of data collection: Summary of research findings and discussion.

4. RESULTS

The statistics used in this research were mean, standard deviation, and t-test. Data collected from questionnaires were analyzed using descriptive statistics, presented as mean and standard deviation, t-test, and the calculation of the effectiveness ratio (E1/E2). The results of the analysis are shown in Tables 1 to 7.

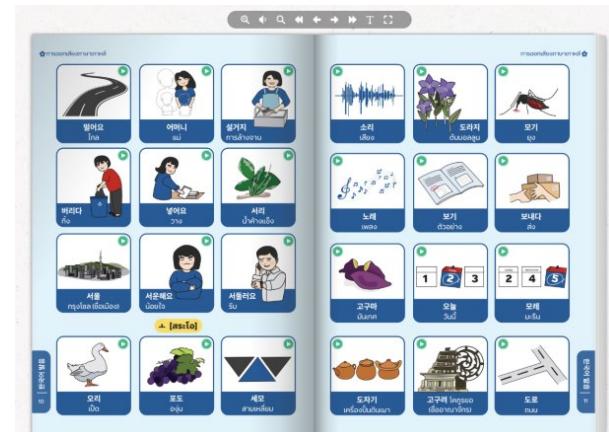
Table 1: The percentage of the respondent demographic

Respondent demographic		Experimental group (N = 50)	Control group (N = 50)	Percent
Gender	Female	39	41	80
	Male	11	9	20
Education level	Bachelor's degree	41	45	86
	Master's degree	9	5	14
Region	Central	23	20	43
	Western	0	2	2
	Eastern	2	3	5
	Northeastern	15	7	22
	Southern	4	11	15
	Northern	6	7	13

Table 1 presents demographic data of the respondents. The majority of the 100 respondents were female, accounting for 80% of the total. Most respondents had a bachelor's degree, representing 86% of the sample. The largest proportion of respondents was from the Central region, making up 43% of the total, followed by the Northeastern region at 22%.

4.1 Results on the development of the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers

The researchers developed a book on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers in two formats: an electronic book and an audiobook (both include images, text, symbols indicating pronunciation features, and audio clips for pronunciation), as shown in Figures 1 and 2.

**Figure 1:** The electronic book**Figure 2:** The electronic audiobook**Table 2:** Evaluation of the quality of the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers by experts

Evaluation criteria	Electronic book			Electronic audiobook		
	M	S.D.	Level	M	S.D.	Level
1. The design is both aesthetic and appropriate.	4.67	0.493	Highest	4.67	0.493	Highest
2. The material is easy to use.	4.67	0.488	Highest	4.61	0.502	Highest
3. The content is well-organized and facilitates learning.	4.25	0.754	High	4.25	0.754	High
Average	4.53	0.589	Highest	4.51	0.584	Highest

From Table 2, the evaluation results of the quality of the electronic book and the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers revealed that the overall quality of the electronic book was at the highest level (with an average score of 4.53 and a standard deviation of 0.589). The overall quality of the electronic audiobook was also at the highest level (with an average score of 4.51 and a standard deviation of 0.584).

4.2 The comparison results of the learning outcomes using the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers

Table 3: Evaluation of the effectiveness of the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers

Score	N	Full score	Mean	Percent	Efficiency(E1/E2)
During learning (E1)	50	100	83.34	83.34	
Post-learning (E2)	50	100	89.90	89.90	83.34/89.90

From Table 3, the study results show that the scores from the learning achievement evaluation for the development of pronunciation skills among Thai teachers indicate that the mid-term test score is 83.34%, and the post-test score is 89.90%. Considering the effectiveness criteria of 80/80, the electronic audiobook on the Korean vowels, consonants, and final sounds for Thai teachers has an average score higher than the established criterion, indicating that it meets the effectiveness standards.

Table 4: Comparison of post-test achievement scores between the control group (using electronic book) and the experimental group (using electronic audiobook)

Group	N	Total score	\bar{x}	S.D.	t	P
Experimental	50	100	89.90	2.583		
Control	50	100	64.90	2.021	-53.897*	0.000

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

From Table 4, the comparison of post-test achievement scores between the control group (those using the electronic book) and the experimental group (those using the electronic audiobook) was conducted using a t-test (Dependent Sample). The results showed that the Sig value was .00, which is lower than the significance level of .05, indicating a statistically significant difference. This means that the experimental group, which used the electronic audiobook, had higher achievement in developing pronunciation skills for Thai teachers than the control group, which used the electronic book without audio integration.

Table 5: Comparison of mean scores during learning between the experimental group (using electronic audiobook) and the control group (using electronic book), classified by topics

Topic	Group	Mean	Std.	t	df	Sig
1. Knowledge of Korean vowel pronunciation	Experimental	97.40	4.070			
	Control	92.90	5.898	-4.440*	87.05	.000
2. Knowledge of Korean initial sound pronunciation	Experimental	82.90	4.296			
	Control	59.90	5.846	-2.417*	89.98	.000
3. Knowledge of Korean final sound pronunciation	Experimental	91.20	7.183			
	Control	66.20	6.667	-18.038	98	.000
4. Knowledge of Korean syllable combination and pronunciation rules	Experimental	91.20	5.938			
	Control	69.80	6.543	-17.125	98	.000
5. Pronunciation skills for words and sentences based on Korean pronunciation rules	Experimental	79.04	2.240			
	Control	61.18	1.976	-42.274	98	.000

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

From Table 5, it can be seen that the experimental group and the control group had significantly different test scores during learning in the topics of Korean vowel pronunciation and initial sound pronunciation (with statistical significance at the 0.05 level).

Table 6: Comparison of mean scores after learning for the experimental group (using electronic audiobook) and the control group (using electronic books) classified by topics

Topic	Group	Mean	Std.	t	df	Sig
1. Knowledge of Korean vowel pronunciation	Experimental	87.30	6.562			
	Control	65.80	3.827	-20.010*	78.88	.000
2. Knowledge of Korean initial sound pronunciation	Experimental	76.57	5.414			
	Control	47.89	4.417	-29.026	98	.000

Table 6: Comparison of mean scores after learning for the experimental group (using electronic audiobook) and the control group (using electronic books) classified by topics (continued)

Topic	Group	Mean	Std.	t	df	Sig
3. Knowledge of Korean final sound pronunciation	Experimental	95.20	8.62	-17.151	98	.000
	Control	65.20	8.862			
4. Knowledge of Korean syllable combination and pronunciation rules	Experimental	90.16	5.060	-27.486*	86.16	.000
	Control	66.40	3.429			
5. Pronunciation skills for words and sentences based on Korean pronunciation rules	Experimental	96.37	3.543	-36.310	98	.000
	Control	72.08	3.134			

Significant at the 0.05 level.

From Table 6, it was found that the experimental group and the control group had significantly different post-learning test scores in the topics of Korean vowel pronunciation and syllable combination and pronunciation rules (with statistical significance at the 0.05 level).

4.3 Evaluation of satisfaction with learning using the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers

Table 7: Satisfaction with the electronic audiobook by the experiment group

Item	X	S.D.	Level
1. Use interface			
1.1 The design of the electronic audio book is interesting.	4.60	0.49	Highest
1.2 Suitable font style and size.	4.48	0.50	High
1.3 The appropriateness of the text color and background, making it easy to read.	4.72	0.45	Highest
1.4 The balance in arranging the composition of images and text in appropriate and consistent proportions.	4.42	0.53	High
1.5 Use of illustrations that are easy to understand and align with the content.	4.72	0.49	Highest
1.6 The colors are beautiful and harmonious on every page.	4.80	0.40	Highest
Overall	4.62	0.32	Highest
2. Ease of use / flexible interactivity			
2.1 The appropriateness of buttons and menus with clear meanings.	4.58	0.53	Highest
2.2 Users can customize freely according to their needs.	4.50	0.67	High
2.3 Learners can easily and quickly navigate through the content.	4.44	0.76	High
2.4 Supports functionality across various devices, such as PCs, laptops, and smartphones.	4.82	0.38	Highest
2.5 Clear user instructions that can be easily studied.	4.76	0.43	Highest
2.6 The narration's audio quality is clear and appropriate for the content.	4.80	0.40	Highest
Overall	4.65	0.43	Highest
3. Interest level & engagement			
3.1 The content sequencing is coherent and appropriate according to the objectives.	4.60	0.49	Highest
3.2 It has an engaging presentation style that encourages users to follow throughout the usage	4.74	0.44	Highest
3.3 It supports interaction that can help stimulate learners' engagement.	4.68	0.47	Highest
3.4 It enhances learners' self-learning efficiency in practicing Korean pronunciation.	4.72	0.45	Highest
Overall	4.65	0.34	Highest

From Table 7, the results of the satisfaction evaluation of the electronic audiobook on the pronunciation of Korean vowels, consonants, and final sounds for Thai teachers show that overall satisfaction is at the highest level, with an average score of 4.65 and a standard deviation of 0.34. When considering each question category, the question on content arrangement and elements that support learning (Interest Level & Engagement) has the highest satisfaction level, with an average score of 4.65 and a standard deviation of 0.34. The question about ease of use and flexible interactivity (Ease of Use / Flexible Interactivity) also shows the highest satisfaction, with an average score of 4.65 and a standard deviation of 0.43. The question on aesthetic and appropriate design (User Interface) has the highest satisfaction level as well, with an average score of 4.62 and a standard deviation of 0.32.

5. DISCUSSION

5.1 The development of the electronic audiobook

The electronic audiobook on Korean vowel, consonant, and final sound pronunciation was developed to support the improvement of Thai teachers' pronunciation skills. The process involved testing the content and having experts review it to make sure it was accurate and suitable for pronunciation practice. The findings show that it worked very well. They suggest that the electronic audiobook can help Thai teachers improve their pronunciation skills. Although free instructional materials for practicing Korean pronunciation are already available. But this electronic audiobook was designed for Korean language teachers under the OBEC. It also provides structured lessons, context-based exercises, and opportunities for repeated listening. Therefore, these features make it practical to use in real classroom settings. The electronic audiobook was created through the following steps:

5.1.1 Content coverage

The developed electronic audiobook focuses on training accurate Korean pronunciation for Thai teachers. The content covers three key parts of pronunciation: vowels, consonants, and final sounds. The electronic audiobook was reviewed and tested by experts to make sure the content was accurate and suitable for pronunciation practice. This suggests that the electronic audiobook can help Thai teachers improve their pronunciation skills. The material is well-structured and designed appropriately for the learners.

5.1.2 Effectiveness of the electronic audiobook

The research results indicate that the electronic audiobook effectively improves the Korean pronunciation skills of Thai teachers. The scores of pre-tests, mid-tests, and post-tests show better pronunciation performance, especially in vowel production (e.g., diphthongs such as (/j/), final sounds, and the correct articulation or blending of initial sounds. These results indicate the unique features of the developed audiobook. It reduces pronunciation errors and increases teachers' confidence as well as communicative effectiveness in Korean. This demonstrates both academic value and practical utility. Furthermore, the teachers' feedback revealed an overall high level of satisfaction with this instructional resource. They found it was comprehensive, easy to use, and helped improve pronunciation, with practical applications for teaching.

5.2 Assessment and comparison of achievement

5.2.1 Effectiveness (E1/E2) and post-test comparison

The effectiveness (E1/E2) of using the electronic audiobook was 83.34/89.90, which exceeded the set criteria of 80/80. The post-test of the experimental group achieved significantly higher scores than the control group at the .05 statistical level. The average post-test score of the experimental group was 89.90. The mean score of the control group was 64.90. This difference was related to the electronic audiobook. The multimedia design, vibrant colors, and audio helped and motivated learners to engage with the audiobook. As a result, the electronic audiobook enhanced learners' outcomes and Korean pronunciation accuracy.

5.2.2 Role of listening and audiobook in pronunciation development

Listening is important for the development of pronunciation skills as it helps students internalize the correct sound patterns, intonation, rhythm, and tone of the target language. Active listening helps learners to experience accurate sound patterns, which enables them to recall and incorporate them as they pronounce. Furthermore, imitation enhances pronunciation learning. When students repeatedly listen to and imitate correct pronunciation, their confidence and ability to pronounce clearly improve. This makes them achieve more native-like pronunciation (Mohsen & Almudawis, 2021). The research result suggests this similar point. It shows that the experimental group (using the electronic audiobook) achieved better post-test results compared to the control group (using the electronic book).

5.2.3 Linguistic factors and errors in Korean vowel pronunciation

The finding that audiobooks enhance learners' English listening and speaking skills is consistent with those of Rizal et al. (2022). The integration of spoken audio into audiobooks makes it possible for non-native speakers to comprehend the English pronunciation, which printed books cannot provide (Tang, 2021; Wood et al., 2018, p. 1947; Xodabande & Hashemi, 2023). Additionally, well-organized and high-quality electronic books significantly improve learning effectiveness and skill development (Clinton-Lisell et al., 2021; Connor et al., 2019). Moreover, the average topic-based scores during the learning process of the experimental group (electronic audiobook users) and the control group (electronic book users) were significantly different at the .05 level. The topic of knowledge in Korean vowel pronunciation and the pronunciation of initial sounds in Korean showed a significant value of .00. Furthermore, the post-test result between the two groups showed significant differences at the .05 level. The issue of knowledge in Korean vowel pronunciation and word

combination and the pronunciation of Korean, both show the same significance values ($\text{Sig} = .00$). These findings align with Ru (2011), who found that Thai students position their tongues lower and further forward than native Korean speakers.

Although Koreans may not notice errors in Thai students' pronunciation of simple vowels because the sounds are quite similar, these mistakes often come from difficulties in controlling tongue position, because Thai students tend to pronounce simple vowels better than diphthongs. This pattern is consistent with Kamonjiranuwat (2014), who highlights that Thai learners often mispronounce diphthongs containing the "/j/" sound, especially when these occur with initial sounds. These errors may result from learners' unfamiliarity with Korean phonemic clusters. In contrast, diphthongs that include the "/l/" sound tend to be easier for Thai learners. Those are similar to Thai's consonant clusters. The findings suggest that some vowel pairs remain difficult for Thai learners to distinguish and recall. Although these vowels may resemble Thai sounds. Their differences in features such as stress and consonant blending can lead to confusion. The repeated exposure to authentic pronunciation models of the electronic audiobook allows learners to listen to and imitate native speakers which help to reduce pronunciation errors and increase learners' confidence when communicating in Korean.

5.3 Satisfaction evaluation

The evaluation of Thai teachers' satisfaction with the electronic audiobook showed a high level of satisfaction (overall mean score of 4.65 and a standard deviation of 0.34). Among all aspects, usability (Ease of Use / Flexible Interactivity) had the highest satisfaction level (overall mean score of 4.65 and a standard deviation of 0.43). This finding is consistent with the assertion by Mizher and Alwreikat (2023) that students' positive attitudes toward electronic books increased their motivation to learn a language using electronic books. Digital textbooks engage positive expectations regarding the enjoyment of learning, which significantly enhanced learning perception and satisfaction at the 0.05 level (Joo et al., 2017).

6. RECOMMENDATIONS

6.1 Recommendations for applying the research findings

When using the developed electronic audiobook, it is necessary to prepare the equipment needed, such as computers or mobile phones, to the recommended specifications to limit any performance delay. Additionally, a suitable learning environment should be arranged. Clear instructions or usage method should be provided to ensure proper use. The electronic audiobook supports Thai teachers in improving their Korean pronunciation by giving them a way to practice through listening. As their pronunciation becomes more accurate, they can teach with more confidence and help learners remember the correct sounds. However, some limitations need to be considered, for example, the cost of the program, the developer's proficiency in using the software, and access to current technologies. In addition, users also need the proper electronic devices and internet access.

6.2 Recommendations for future research

Future research should focus on developing electronic audiobooks for other topics or courses that support pronunciation and communication skills in foreign languages. This will help learners gain knowledge more efficiently, while providing a more accurate, native-like pronunciation. Additionally, teachers should be trained on both the content and the instructional use of the electronic audiobooks before implementing them into classroom instruction.

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