

Using Digital Tools and Storytelling for Transforming the English Language Pronunciation in Thai Tertiary Contexts

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ABSTRACT

This research aimed to study the impacts of using digital tools and storytelling on Thai EFL pre-service teachers' pronunciation ability. The research employed a mixed-methods design to gather qualitative and quantitative data. To investigate the effectiveness of the instruction, integrating digital tools and storytelling on pronunciation, a pre-experimental one-group pretest-posttest design was conducted with 34 EFL pre-service teachers at a public university in the lower north of Thailand for eight weeks. The research instruments comprised 1) lesson plans, using digital tools and storytelling to enhance pronunciation ability, 2) pre- and post-tests on testing pronunciation ability, 3) learning logs, and 4) an attitude questionnaire. The statistical measurements included means, standard deviation, percentage, and a dependent t-test. In terms of qualitative analysis, the coding and thematic analysis methods were adopted to analyse the data. The findings revealed that the post-test average scores of the Thai EFL pre-service teachers' pronunciation ability were higher than the pre-test ($p < 0.05$). The average attitude level of the pre-service teachers towards the instruction using digital tools and storytelling to enhance pronunciation ability was at the strongly agree level, with a mean score of 4.52, indicating that they perceived the instruction as having a positive impact. For the qualitative findings, the impacts found were 1) phonological awareness, 2) confidence increases, 3) positive learning motivation, 4) pronunciation improvement, 5) pronunciation teaching application, and 6) self-directed learning.

Keywords: digital tools; storytelling; pronunciation ability; feedback

INTRODUCTION

Given that clear and accurate pronunciation can facilitate better interpretation of messages, it is crucial for English language learners to analyse spoken language effectively, thereby enhancing comprehension (Hewings, 2004). Pronunciation is a fundamental aspect of communication, and numerous researchers have dedicated decades to investigating methods to improve students' pronunciation. The primary aim has been to enhance learners' listening skills and oral communication, underpinned by the belief that pronunciation instruction can significantly improve students' pronunciation efficacy. Findings from previous studies indicate a positive correlation between pronunciation ability and pronunciation instruction (Arrieta, 2017). However, research focusing on enhancing the pronunciation abilities of EFL pre-service teachers still needs to be expanded despite the expectation that these individuals should serve as exemplary role models for learners. Many studies have concentrated on improving general students' pronunciation, neglecting the specific needs of EFL pre-service teachers, whose pronunciation should be of a high standard to guide their students effectively. According to Aksakalli and Yağiz (2020), there is a notable

paucity of research addressing the pronunciation abilities and instruction of EFL pre-service teachers.

In the English language teaching context, EFL pre-service teachers are expected to produce utterances encompassing both segmental and supra-segmental elements with precision, fluency, and clarity. Cabrera (2016) emphasised the necessity for Thai teachers to guide students in producing suprasegmental elements, highlighting the importance of training EFL pre-service teachers to analyse pronunciation problems and produce accurate utterances. Hamilton (2011) further asserted that effective communication requires attention to individual sounds and suprasegmental elements such as stress and intonation. In Thailand, where English is perceived as a foreign language, the accurate pronunciation of English words is often challenging, impacting effective communication. This challenge extends to EFL pre-service teachers, who require additional training to refine their pronunciation skills and, consequently, guide their students more effectively. Pusiripinyo (2020) observed that student teachers needed help with accurate pronunciation during their teaching practicum despite completing a phonology course. This observation aligns with findings by Kotcharat and Limsiriruengrai (2014), which revealed that English major students needed help pronouncing English speech correctly even after completing a Phonetics course and studying phonological systems, primarily due to insufficient practice.

To elucidate the obstacles that Thai EFL pre-service teachers face, pronunciation difficulties are often attributable to interlanguage systems (Selinker, 1972). Language transfer, a key factor in the formation of interlanguage, frequently results in negative transfer due to the differences between the first language and the second language. Consequently, Thai EFL pre-service teachers are prone to producing errors in English speech. Dee-in (2006) identified common pronunciation errors among Thai speakers in the consonant sounds, namely /g/, /tʃ/, /dʒ/, /v/, /z/, /ʒ/, /θ/, /ð/, and /ʃ/, as well as in the vowel sounds; /i/, /ɪ/, /e/, /ə/, /u/, /ʊ/, /aʊ/, /eɪ/, and /eə/. Additionally, Thai speakers often omit final sounds, a tendency stemming from the Thai language's omission of final sounds. Regarding suprasegmental features, Thai speakers struggle with stress and intonation patterns, as these differ significantly from English due to the tonal nature of the Thai language. Another factor contributing to pronunciation difficulties is the overgeneralization of target language rules, where learners extend or mix specific target language rules (Richards, 1971). All of these factors that hinder EFL pre-service teachers from effectively modelling pronunciation for learners pose significant challenges during their teaching practicum. Therefore, it is essential to emphasise extensive practice and input–output processes to help them overcome pronunciation difficulties and develop the ability to analyse problematic aspects of their pronunciation.

In this technology-driven era, digital tools are widely utilised to provide input that supports the development of pronunciation skills. Previous studies have highlighted the need to integrate technology in pronunciation instruction, as digital tools offer language learners opportunities to repeat and imitate input (Pennington & Rogerson-Revell, 2019). Using digital tools not only enhances language learners' pronunciation skills but also supports the development of other English skills, while increasing learning motivation, engagement, and confidence (Haryadi & Aprianoto, 2020). However, some studies suggested that including digital tools with pronunciation instruction can bridge the gap of lacking explicit instruction, where necessary for pronunciation learning. In this study, the pronunciation instruction was crafted using Yoshida's (2018) framework for pronunciation-focused activities.

Some perspectives suggest that teaching pronunciation in isolation may limit meaningful learning, as it often lacks interaction and communicative context. While drills can be useful for reinforcing pronunciation patterns, relying solely on them may not be the most effective instructional method. As pointed out by Tice (2004), the overuse of drills can lead to demotivation and may be less effective than providing meaningful context for practising pronunciation. From this perspective, storytelling serves as an effective approach to foster interaction and communication, addressing the limitations of isolated pronunciation instruction. This view is supported by Tifani et al. (2020), who suggest that storytelling promotes interaction by engaging learners in a communicative exchange between storytellers and their audience. Therefore, integrating digital tools with storytelling offers a promising approach to enhancing EFL pre-service teachers' pronunciation skills.

The core objective of this research is to enhance pre-service teachers' pronunciation abilities by integrating digital tools and storytelling in lesson designs. As future English teachers, EFL pre-service teachers must be proficient in analysing segmental and suprasegmental elements of pronunciation and providing constructive feedback to themselves and their peers. To investigate the effects of digital tools and storytelling on the pronunciation abilities of Thai EFL pre-service teachers, the following research questions have been formulated:

1. Is there a significant difference between the pronunciation test scores before and after using digital tools and storytelling?
2. In what ways do digital tools and storytelling influence the pronunciation abilities of Thai EFL pre-service teachers?
3. What is the attitude of Thai EFL pre-service teachers toward the instruction using digital tools and storytelling?

LITERATURE REVIEW

DIGITAL TOOLS AND PRONUNCIATION ABILITY ENHANCEMENT

Numerous studies have explored the challenges that hinder EFL pre-service teachers from mastering English pronunciation, and the application of technology to enhance pronunciation skills (Yoshida, 2018). Some research has concentrated on using Computer-Assisted Language Learning (CALL) to enable learners to observe and emulate native speakers' speech. Additionally, the digital era has introduced a variety of applications designed for teaching pronunciation, providing learners with essential input to understand concepts and practise their output. However, the efficacy of digital tools is significantly enhanced by constructive feedback from teachers, peers, and self-assessment. According to Yang (2022), feedback is useful for clarifying unclear concepts, reinforcing practice, identifying problematic issues, and finding appropriate solutions. Pokrivčáková (2015) recommended that the optimal use of digital materials involves engaging learners in communicative exercises, such as interactive activities, simulated conversations, or peer-to-peer role-playing. This suggests that digital tools should be implemented within a framework that promotes interaction, reflection, and corrective feedback. Hence, this study incorporated feedback sessions into the intervention to complement the use of digital tools.

From this perspective, integrating digital tools in pronunciation instruction should be closely aligned with interactive activities to facilitate both the input and output stages of pronunciation learning. Therefore, this research focuses on selecting digital tools that facilitate interaction among students and teachers, ensuring that corrective feedback is effectively applied to support pronunciation development.

In exploring the usefulness of digital tools, this research study employed four digital applications to provide pre-service teachers with language input, output, and feedback. The first digital tool selected was Padlet, which facilitates interaction by enabling learners to share their opinions on a digital bulletin board, allowing them to post comments, resources, and media on a shared virtual wall. This application enables learners to analyse problematic sounds and share their findings with classmates. The second digital tool chosen was Seesaw. This application is beneficial for practising language output, enabling learners to record and upload videos instantly using their mobile phones. Using this app, learners can also comment on and provide feedback about their peers' pronunciation, thus promoting collaborative learning. The next digital tool integrated into this project was YouTube. YouTube delivered authentic input and exposed pre-service teachers to native-speaker models for pronunciation practice. Additionally, the Longman Online Dictionary was used in the initial stage to provide focused exposure to pronunciation features such as individual sounds and word stress. These four digital tools collectively support pronunciation teaching by offering comprehensive language input, platforms for sharing storytelling, and an interactive tool for analysing segmental and suprasegmental aspects.

STORYTELLING

Storytelling is an efficient method for developing oral skills, which involves interactive communication between the teller and the audience. A storyteller aims to convey meaning engagingly and interact with listeners, making storytelling an authentic task that provides learners with a natural context for speaking (Lucarevski, 2016). Hence, storytelling can be an effective method that can be used with digital tools to enhance pronunciation ability. Yanto (2018) proposed that storytelling techniques support communicative aspects such as sentence structure, fluency, pronunciation, and vocabulary. In the context of this study, storytelling was employed to provide productive practice with a meaningful purpose for language use, supporting pronunciation development in both segmental and suprasegmental aspects.

According to Arunthari (1999), storytelling techniques can be categorised as follows: 1) telling stories using only the teller's voice, 2) telling stories with actions, 3) telling stories with pictures, 4) telling and drawing, 5) telling and singing, and 6) telling stories using props. These techniques demonstrate that storytelling is not merely about memorising and narrating a story; instead, it challenges EFL pre-service teachers to make their storytelling engaging. Furthermore, storytelling is an effective tool for language teaching, allowing pre-service teachers to practice storytelling in the classroom with constructive feedback provided. When combined with digital tools, storytelling becomes even more powerful, enabling learners to rehearse, record, reflect, and receive feedback on their pronunciation.

METHODOLOGY

RESEARCH DESIGN

This study employed a mixed-methods approach, incorporating qualitative and quantitative data collection methods. To explore the participants' progress in pronunciation ability, a pre-experimental one-group pretest-posttest design was utilised.

PARTICIPANTS

The study involved 34 Thai EFL pre-service teachers who had just completed their third year and were preparing to begin their teaching practicum in the fourth year of their teacher education program at a university in the lower northern region of Thailand. Participants were selected through purposive sampling. Notably, all had completed a phonetics course during their second year. Among the 34 participants, 30 were female and four were male.

RESEARCH INSTRUMENTS

This investigation employed four research instruments, namely: 1) lesson plans, 2) a pronunciation test, 3) learning logs, and 4) a questionnaire assessing pre-service teachers' attitudes towards storytelling instruction with digital tools. To collect the data, the researcher devised the instruments as outlined below.

LESSON PLANS

Eight lesson plans were developed corresponding to the selection of eight stories. The design of these lesson plans was guided by integrating the pedagogical tasks commonly associated with pronunciation teaching (Yoshida, 2018) into the sequential steps for using storytelling in English Language Teaching (ELT) classrooms (Wright, 1995).

Beginning with selecting digital tools, the criteria were based on their usefulness in providing students with rich language input and encouraging them to analyse pronunciation and provide feedback. To ensure a systematic selection process, the researcher applied the criteria Yoshida (2018) proposed, including appropriateness to learning objectives, quality and accuracy, practicality, and cost. Consequently, the Longman Online Dictionary and YouTube were selected as digital tools to offer authentic input from native speakers. Additionally, Padlet was used to foster discussion and interaction among learners. Furthermore, Seesaw emerged as a platform for facilitating the presentation and dissemination of learners' storytelling performances. Seesaw enables learners to effortlessly record and upload video content via mobile devices, facilitating peer review and feedback exchange. These four digital tools were selected for their accessibility and cost-effectiveness, ensuring easy integration into instructional contexts without imposing financial burdens.

Before developing lesson plans integrating digital tools and the storytelling approach, a crucial preliminary step involves defining the content area. Eight stories were selected based on the problematic sounds, stress patterns, and intonation identified in the pre-service teachers' pronunciation. Each story was analysed to identify specific pronunciation features that would enable the pre-service teachers to receive targeted input and produce output aimed at addressing and improving their pronunciation. The chosen stories, listed as follows, serve as the foundation

for the subsequent instructional activities: 1) Do You Speak English, Moon?, 2) There was an Old Woman who Swallowed a Fly, 3) Grandfather Bear is Hungry, 4) Jack and the Robber, 5) Squeaky Door, 6) Green Eggs and Ham, 7) It's a Squash and a Squeeze, and 8) The Little Engine that Could. An example of a story analysis is shown in Table 1, where the analysed pronunciation aspects were used in the pronunciation instruction in the pre-storytelling stage.

TABLE 1. An Example of a Story and Pronunciation Analysis

Title	Pronunciation Focus				
	Initial sounds	Final sounds	Vowel sounds	Stress	Intonation
It's a Squash and a Squeeze	/θ/, /ð/, /pl/, /r/, /l/, /fl/, /kr/, /sk/, /gr/	/z/, /f/, /s/, /n/, /k/, /g/, /t/, final -ed, /tʃ/, /ʃ/, /ŋ/	/i/, /ɪ/, /ʌ/, /ə/, /e/, /ɛ/, /o/, /aʊ/	Two-word stress: <i>lady</i> , <i>tickle</i> , <i>implore</i> , <i>heaven</i> , <i>grumbled</i> Three-word stress: <i>gigantic</i> , <i>enormous</i> , <i>happiness</i>	Rising/falling intonation Ex; <i>Take in my hen?</i> <i>What a curious</i> <i>plan!</i>

After identifying content areas, the learning objectives were determined according to the prominent pronunciation aspects, starting from sounds, stress, and intonation. Moreover, the teaching steps were designed by integrating teaching pronunciation skills with storytelling techniques.

Drawing upon the insights of Yoshida (2018), the pedagogical tasks essential for effective pronunciation instruction were delineated as follows: 1) provision of a pronunciation model, 2) facilitation of student pronunciation practice recording, 3) collection and assessment of students' recorded practice, and 4) provision of independent pronunciation practice opportunities. In crafting the instructional sequence, the researcher adopted the instructional phases outlined by Wright (1995), which encompass 1) pre-storytelling, 2) while-storytelling, and 3) post-storytelling stages.

In the first stage, the pre-storytelling activity began with discussing the title, characters, setting, character actions, and event prediction. Furthermore, a phonological analysis of sounds, word stress, and intonation in the story was presented, analysed, and discussed using an online dictionary to listen to word pronunciations and Padlet to share opinions on pronunciation issues, challenges encountered, and possible solutions. To prepare the EFL pre-service teachers for their storytelling performances, a storytelling demonstration was presented, and storytelling techniques were analysed and discussed through Padlet.

Transitioning to the whole-storytelling stage, participants were exposed to digital storytelling video clips sourced from YouTube, through which they conducted a detailed examination of sounds, stress patterns, and intonation features within the stories. Subsequent activities in this stage also included collaborative storytelling practice, supported by peer feedback. Throughout this phase, the teacher provided instructional guidance, facilitated skill refinement, and offered corrective feedback to the EFL pre-service teachers.

In the post-storytelling phase, participants delivered their storytelling performances using the Seesaw application to record and share storytelling videos with peers. This stage encouraged participants to engage in self-assessment and peer evaluation, fostering a supportive learning environment conducive to skill enhancement. Furthermore, participants were prompted to articulate reflective insights via the Seesaw platform upon completing each instructional session, promoting metacognitive engagement and continuous improvement. As shown in Figure 1 below, the three stages of the storytelling approach are illustrated.

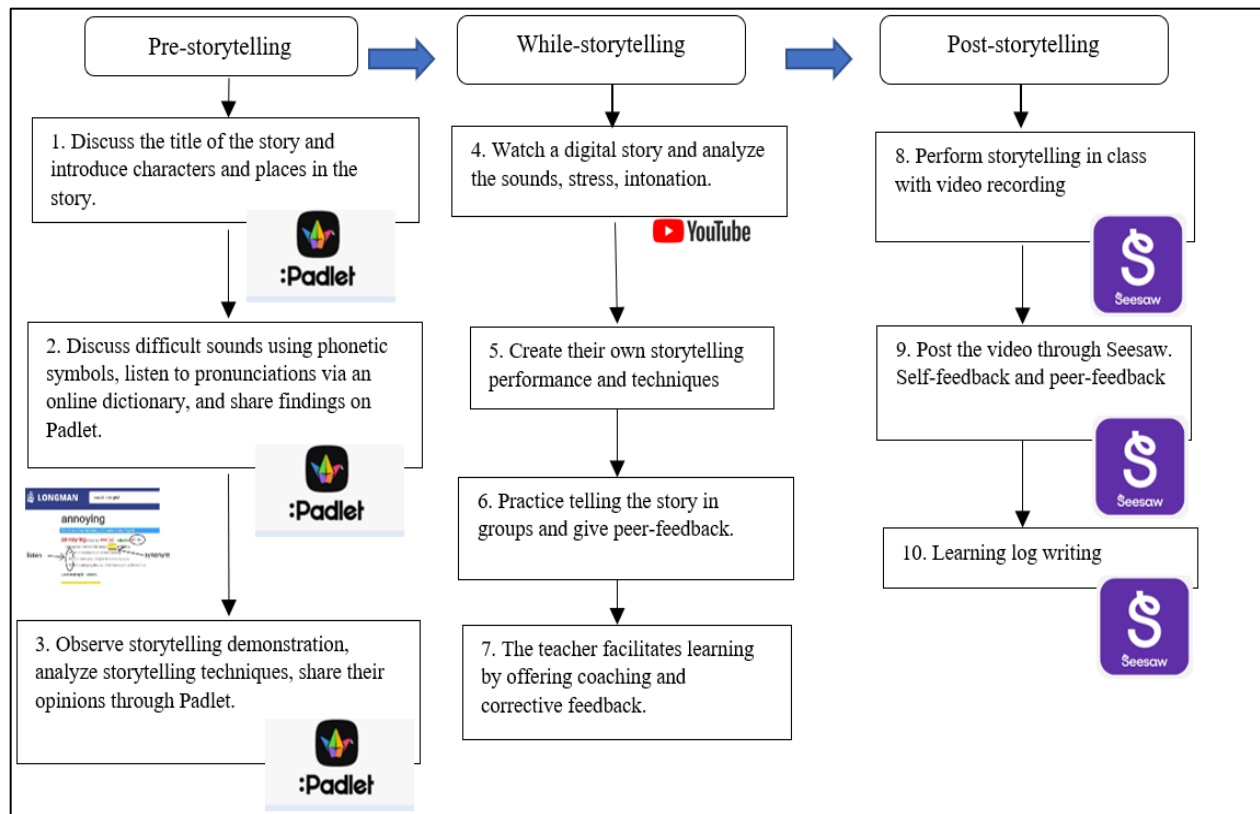


FIGURE 1. The Model of the Instruction, Integrating Digital Tools and Storytelling

Notably, the development of content specifications and lesson plans was carried out based on the previously identified pre-, while-, and post-storytelling stages. Subsequently, the content specification and lesson plans underwent a rigorous validation process involving three experts' assessments utilising the item objective congruence index (IOC). Lesson plans attaining an IOC value falling within the range of 0.67 to 1.00 were deemed suitable for inclusion in the pilot study, reflecting a high degree of alignment with instructional objectives and content specifications. Following the validation phase, the qualified lesson plans underwent trial implementation with a cohort of six EFL pre-service teachers excluded from the study sample. Feedback from this pilot phase facilitated iterative adjustments to the lesson plans, ensuring refinement in line with instructional efficacy and participant needs. Specifically, modifications were made to the duration of lessons, with additional emphasis placed on extending the time allocated for video creation and sharing activities. Additionally, it was observed that providing corrective feedback during the practice phase of the while-telling stage was imperative. This adjustment was necessary as students exhibited difficulty with self-correction during the while-storytelling phase. Consequently, corrective feedback was integrated into the while-telling stage to address this deficiency effectively. The refined lessons were subsequently implemented with the actual study sample after these revisions.

PRONUNCIATION TEST

The pronunciation test was developed by integrating elements from the test devised by Gerhisser and Wrenn (2007) and principles of pronunciation test design as proposed by Brown and Abeywickrama (2019). Comprising six distinct sections, the test evaluated various aspects of pronunciation proficiency, including 1) initial consonant sounds, 2) final consonant sounds, 3) vowel sounds, 4) stress patterns in two-syllable words, 5) stress patterns in three-syllable words, and 6) intonation patterns. Each section carried equal weightage, with a maximum score of 10 points allocated per segment. Table 2 presents the initial consonant test from Part One.

TABLE 2. Part One Test Example: Testing the Ability to Produce Initial Consonant Sounds

Part 1: Testing initial consonant. Circle the sound that the test taker pronounces incorrectly.	Initial Sounds tested	Wrong sounds pronounced
Once, a h blacksmith had the most beautiful daughter. She was such a good daughter to him. He was so p roud. He w ished to wed her to the best male in the Uni u niverse. "My daughter must have the best male in the universe as her husband!" said the blacksmith. One day, as he was pounding iron, he saw the r eflection of the sun. T hen, he looked up at the sky. Seeing the sun, he said, "The sun has sent the b rightest light to earth. So, I t hink he is the best male in the Universe. He will be my son-in-law. I will not c hange my mind for s ure"	/bl/, /pr/, /r/, /l/, /br/, /v/, /w/, /tʃ/, /ʃ/, /θ/, / ð/	Score:/10

After designing the test specification, the pronunciation test was administered to three experts to validate the item objective congruence index and evaluate whether the test items were relevant to the test objectives. The analysis result displayed an IOC value between 0.67 and 1.00, indicating an acceptable value of IOC. The scoring method was conducted by listening to the test taker's pronunciation, with one point for each correctly pronounced sound marked in each part of the test. Test administration required participants to read aloud excerpts from stories individually, with an allotted 8–10-minute timeframe. Voice recordings of the test sessions were employed to facilitate subsequent verification of scoring accuracy, thus bolstering the reliability of test scoring.

Furthermore, the three experts evaluated the test specifications to ascertain the appropriateness of the test construct. Subsequently, the test was piloted with a cohort of EFL pre-service teachers excluded from the study participants. The pronunciation test scores from the pilot study were used to identify the discrimination index and reliability. As a result, the discrimination index of the pronunciation test items was between 0.36 and 0.68. The Kuder-Richardson Formula 20 (KR-20) was employed to achieve test reliability, and the analysed data revealed a value of 0.932.

QUESTIONNAIRE FOR SURVEYING THE THAI EFL PRE-SERVICE TEACHERS' ATTITUDES

The questionnaire assessed the attitudes of Thai EFL pre-service teachers who underwent the intervention that integrated digital tools and the storytelling method. The questionnaire employed a 5-point Likert scale, with response options ranging from "strongly agree" to "strongly disagree". Additionally, items from a prior investigation conducted by Sitti and Visuttakul (2022) were adapted, categorically addressing three overarching domains: content, learning activities, and usefulness. The questionnaire comprised 12 items, each subject to evaluation utilising the index of item objective congruence (IOC). Subsequently, the instrument was deployed to ascertain participants' attitudes toward instructional methodologies integrating digital tools and storytelling to facilitate pronunciation enhancement. The questionnaire underwent a pilot phase to gauge its

reliability, culminating in calculating Cronbach's alpha coefficient, which yielded a value of 0.831, indicative of internal solid consistency among the questionnaire items. After the pilot study, the finalised questionnaire was administered to participants after completing the 8-week instructional intervention. This facilitated the collection of comprehensive feedback regarding participants' perceptions and attitudes toward the instructional approach.

LEARNING LOGS

Using learning logs, EFL pre-service teachers recorded their pronunciation challenges, progress, reflections, and insights after the completion of each instructional session. To lessen potential translation ambiguities and language barriers, participants were encouraged to articulate their reflections and progress in the Thai language, facilitating clearer expression and comprehension of their learning experiences throughout the 8-week intervention.

DATA ANALYSIS

Qualitative data from the learning logs were analysed using coding and thematic analysis techniques. The coding schemes were conducted to explore the themes that emerged from the learning logs. The framework used for the coding process started with familiarising the texts, generating initial codes, searching for themes, reviewing themes, defining and renaming themes, and discussing the emerging themes to answer the research questions (Braun & Clarke, 2006). The coding schemes were tested in the pilot study before being applied in the main study. Two inter-coders participated to ensure the coding method's reliability and consistency. One of the coders was the researcher, and the other was a lecturer from an English program holding a doctoral degree in English language teaching.

The pre-test and post-test pronunciation scores were analysed using a dependent samples t-test for quantitative data. Additionally, the pre-service teachers' attitudes were analysed using means and standard deviations.

RESULTS

RESEARCH QUESTION 1: DIFFERENCE BETWEEN THE PRONUNCIATION TEST SCORES BEFORE AND AFTER USING DIGITAL TOOLS AND STORYTELLING

The pre-test and post-test scores were used to compare the EFL pre-service teachers' pronunciation before and after the instruction integrating digital tools and storytelling, as described in Table 3.

TABLE 3. Pre-test and Post-test Scores of the EFL Pre-service Teachers (N = 34)

Testing	Mean	SD	t	Sig.
Pre-test	28.00	5.10	15.93	0.0000
Post-test	40.50	6.30		

From Table 3, the average pre-test score was 28.00, and the post-test score was 40.50. Therefore, there was a statistically significant difference between the pre-test and post-test scores ($p < 0.05$). It can be concluded that using digital tools and storytelling can effectively enhance the Thai EFL pre-service teachers' pronunciation ability.

RESEARCH QUESTION 2: THE IMPACTS OF DIGITAL AND STORYTELLING ON THE EFL PRE-SERVICE TEACHERS' PRONUNCIATION ABILITY

The data collected from learning logs revealed six emerging themes. The themes were 1) phonological awareness, 2) increasing confidence, 3) positive learning motivation, 4) pronunciation improvement, 5) pronunciation teaching application, and 6) self-directed learning.

PHONOLOGICAL AWARENESS

Analysis of the learning logs revealed that the EFL pre-service teachers demonstrated an improved ability to differentiate incorrectly pronounced sounds following practice and corrective feedback. Several participants noted their efforts to control final sounds, recognising that incorrect pronunciation could alter the meaning of words. Additionally, they discovered that some sounds were pronounced differently from the rules they had previously learnt. Some participants reflected on the necessity of consulting dictionaries to ensure accurate pronunciation. The learning logs also indicated that the EFL pre-service teachers identified and attempted to address their problematic sounds, particularly those aspects of pronunciation absent in Thai. This improvement was further evidenced by their ability to subconsciously correct their peers' mispronunciations and self-correct during storytelling activities. Participants frequently repeated mispronounced words upon recognising their errors, illustrating enhanced phonemic awareness and self-monitoring capabilities, as demonstrated below.

"I need to control my final sounds because I tend to drop them. I know that this could change the meaning of those words. When I watched my video clips, I realised that I have a problem with /r/ and /l/ since we don't have them in our language"

INCREASING CONFIDENCE

The learning logs of the Thai EFL pre-service teachers revealed a notable increase in their confidence levels. Initially, participants reported nervousness and shyness about performing storytelling activities, primarily due to their lack of experience and limited opportunities to speak English daily. They also expressed concerns about their pronunciation, reflecting on their previous phonetics course, which needed more practical application. By

watching recordings of their storytelling performances on the Seesaw platform, learners were able to reflect on their progress. This reflective practice significantly boosted their confidence, reassuring them of their ability to conduct storytelling and guide students effectively during their teaching practicum. As mentioned by the Thai EFL pre-service teachers' reflection.

"After practising storytelling and recording my performance, I became more confident little by little. It seems I have a chance to apply what I learned in the real context."

POSITIVE LEARNING MOTIVATION

The Thai EFL pre-service teachers' learning logs indicated a positive emotional response to the lessons. They reported enjoying the sessions and finding the storytelling activities engaging and entertaining. The digital tools employed in the instruction were particularly well-received, as these platforms facilitated the sharing of ideas and the practice of analytical thinking. The participants noted that these tools enhanced their engagement and enjoyment, especially when reading feedback and words of encouragement from their peers, which fostered a sense of enthusiasm for class participation. The participants also wrote in their learning logs that they were eager to learn about upcoming stories and expressed a keen interest in receiving corrective feedback, as they were motivated to improve the quality of their storytelling. Some even suggested creating elaborate videos with realistic settings for making movies. This demonstrated their enthusiasm and active involvement in learning and practising pronunciation.

“It was so much fun to get to listen to a story and try to perform it by myself. I also like when the teacher used the Padlet dashboard to get us to share our opinion after analysing the sounds and stress in each story. I had to think a lot and became an active learner.”

PRONUNCIATION IMPROVEMENT

The EFL pre-service teachers' learning logs documented notable progress in their pronunciation skills. By identifying their problematic pronunciation aspects, such as specific sounds, stress patterns, and intonation, the participants actively worked to address and improve these areas. They reported an increase in speech fluency over time. Several pre-service teachers compared their initial video recordings to their most recent ones, expressing pride and satisfaction with their progress.

“I think my pronunciation is getting better. I can overcome my weakness in pronouncing /r/. I know that we don't have this sound in our language. However, I could manage to get rid of this problem after getting feedback and keeping practising. I could finally coach my friend to be able to solve the same problem”.

PRONUNCIATION TEACHING ABILITY

The Thai EFL pre-service teachers reflected on the efficacy of using digital tools, such as digital storytelling from YouTube, to provide students with practical language input. They expressed intentions to incorporate these tools in their teaching practicum. Additionally, they found storytelling activities beneficial for practising speaking skills and enhancing pronunciation. They emphasised students' need to understand the sound system and its production to improve their pronunciation. Furthermore, the pre-service teachers indicated their plans to apply digital tools and storytelling techniques in their future classrooms. Interestingly, they felt more confident in their ability to coach students and provide constructive feedback to help them address problematic sounds. In addition, they proposed using digital platforms to allow students to access language input at their own pace, practise pronunciation through storytelling, and share their performances digitally. The Thai EFL pre-service teachers reflected on the efficacy of using digital tools, such as digital storytelling from YouTube, to provide students with practical language input. They expressed intentions to incorporate these tools in their teaching practicum. Additionally, they found storytelling activities beneficial for practising speaking skills and enhancing pronunciation. They emphasised students' need to understand the sound system and its production to improve

their pronunciation. Furthermore, the pre-service teachers indicated their plans to apply digital tools and storytelling techniques in their future classrooms. Interestingly, they felt more confident in their ability to coach students and provide constructive feedback to help them address problematic sounds. In addition, they proposed using digital platforms to allow students to access language input at their own pace, practise pronunciation through storytelling, and share their performances digitally.

“Using digital storytelling is useful to teach English. I have learned a lot from watching storytelling videos and have analysed the sounds, stress, and intonation in many stories. I think I will use digital storytelling from YouTube to get students to watch and practice telling stories. Using Seesaw is very convenient for getting students to perform their storytelling. They will have time to practice and listen to their speech, just like what I did”.

SELF-DIRECTED LEARNING

The EFL pre-service teachers reflected on their commitment to practising pronunciation outside class hours. They reported engaging in self-directed practice sessions and exploring additional storytelling content on platforms like YouTube beyond the prescribed curriculum. Some participants identified supplementary applications offering pronunciation improvement games, recognising the importance of serving as effective language models for their future students. Moreover, several pre-service teachers demonstrated a spirit of collaboration by sharing instructional videos on pronunciation improvement via the Seesaw platform, thereby facilitating peer learning. Many expressed their intent to continue practising pronunciation independently, even after completing the eight lessons. They acknowledged the value of sustained practice in honing their pronunciation skills, having gained insights into effective pronunciation strategies during class sessions. This collective commitment to ongoing practice underscores their recognition of the correlation between diligent practice and eventual proficiency attainment.

“Using digital tools is a good way to learn English. I could listen to English whenever I have free time. Also, I could share a learning tool with my classmates. I could even see my storytelling performance and try to fix it before sharing with my classmates.”

RESEARCH QUESTION 3: THE EFL PRE-SERVICE TEACHERS’ ATTITUDES TOWARDS USING DIGITAL TOOLS AND STORYTELLING TO ENHANCE PRONUNCIATION ABILITY

The EFL pre-service teachers’ attitudes were surveyed using the 5-rating scale questionnaire. The mean range and corresponding verbal interpretations are as follows: 1.00–1.50 is interpreted as “strongly disagree”, 1.51–2.50 as “disagree”, 2.51–3.50 as “moderately agree”, 3.51–4.50 as “agree”, and 4.51–5.00 as “strongly agree”. Table 4 presents the analysis of EFL pre-service teachers’ attitudes, as shown below.

TABLE 4. The Attitude Level of Thai EFL Pre-service Teachers towards the Use of Digital Tools and Storytelling to Enhance Pronunciation Ability

No.	Item	SD.	Mean	Level
Content				
1	The content of the lessons, integrating digital tools and storytelling, is suitable for practising pronunciation.	0.66	4.59	Strongly agree
2	The instruction, integrating digital tools and storytelling, contains appropriate pronunciation aspects for practising.	0.61	4.59	Strongly agree
3	The amount of content and time was suitable for learning.	0.55	4.62	Strongly agree
4	The content of the lessons, integrating digital tools and storytelling, encourages improving pronunciation ability	0.58	4.29	Agree
Activities conducted				
5	The activities encourage learning and interaction.	0.74	4.38	Agree
6	The activities are practical and engage learners.	0.57	4.74	Strongly agree
7	The activities support a positive learning environment.	0.70	4.38	Agree
8	The activities are appropriate for applying the use of digital tools and storytelling to enhance pronunciation ability	0.49	4.65	Strongly agree
Usefulness				
9	The instruction, integrating digital tools and storytelling, can improve my pronunciation ability.	0.50	4.59	Strongly agree
10	The instruction, integrating digital tools and storytelling, can help me recognise my pronunciation errors and fix them.	0.60	4.65	Strongly agree
11	The instruction, integrating digital tools and storytelling, provides more opportunities to listen to English.	0.73	4.35	Agree
12	The instruction, integrating digital tools and storytelling, provides more opportunities to speak English.	0.61	4.41	Agree
Average		0.32	4.52	Strongly agree

In Table 4, the Thai EFL pre-service teachers strongly agreed that the instruction, integrating digital tools and storytelling, had an impact on enhancing pronunciation ability at the mean level of 4.52. The most positive item they rated was that the activities were practical and engaged learners, with the mean at a level of 4.74.

DISCUSSION

To address the first research question, the analysis of results indicated a notable enhancement in the pronunciation ability of the EFL pre-service teachers after the instructional intervention. A marked increase in post-test scores compared to pre-test scores was observed, suggesting a significant improvement in pronunciation ability. This study's findings were relevant to Lucarevschi (2016), who observed the pronunciation skills of EFL learners while implementing storytelling activities. Lucarevschi's research demonstrated higher post-test pronunciation scores than pre-test scores, thus supporting the findings of this study. Additionally, the finding underscores the effectiveness of digital tools and the storytelling method, which allow learners ample opportunities to engage with language input and output. As interactive activities such as sharing opinions and storytelling performances provided opportunities for meaningful communication in English, the EFL pre-service teachers were motivated to practise and analyse their own pronunciation. Consequently, their pronunciation scores improved. This aligns with Pokrivčáková (2015), who suggested that digital tools should be used interactively. Similarly, Blake (2013) highlighted the potential of digital tools to offer personalised and effective methods for enhancing pronunciation among L2 learners.

To answer the second research question, the extent of the impacts of digital tools and storytelling on the Thai EFL pre-service teachers' pronunciation ability, the findings revealed six features. They are: 1) phonological awareness, 2) increasing confidence, 3) positive learning motivation, 4) pronunciation improvement, 5) pronunciation teaching application, and 6) self-directed learning. The six features are further discussed here.

With regard to knowledge of phonological awareness, the EFL pre-service teachers reported an enhanced ability to distinguish between sounds and identify their problematic areas. This aligns with the noticing hypothesis proposed by Schmidt (1994), which posits that second language acquisition (SLA) learners can effectively monitor language when they consciously attend to input. In this study, explicit pronunciation instruction was introduced at the initial stage of storytelling, with phonological aspects discussed through Padlet, leading the EFL pre-service teachers to focus on pronunciation input. This is consistent with Nhat and Hien's (2024) findings, which revealed that explicit instruction in phonetics and phonology theory, including both segmental and suprasegmental aspects, significantly improved students' pronunciation. Additionally, feedback provided during practice is beneficial for clarifying unclear concepts, reinforcing practice, exploring problematic issues, and seeking solutions (Yang, 2022). Furthermore, participants engaged in activities involving the analysis of sounds, stress patterns, and intonation while also receiving and providing feedback to peers through integrating digital tools and the storytelling approach. Celce-Murcia et al. (2010) further support this approach, asserting that learners can benefit from recording and listening to their pronunciation. Such practices facilitate the development of self-correction abilities, enabling learners to refine their pronunciation skills autonomously.

From the perspective of the Thai EFL pre-service teachers, their confidence levels increased through engagement in activities that allowed for personal practice and self-observation prior to actual storytelling performances. This enhanced confidence may stem from the opportunity to refine their skills and receive feedback on their performances before sharing their videos. This observation aligns with the findings of Lucarevschi (2016), who suggested that learners benefit from multiple opportunities to practise pronunciation through narrative retelling within authentic contexts, thereby bolstering their confidence in oral expression. Utilising digital tools and storytelling techniques, the EFL pre-service teachers exhibited heightened enthusiasm towards the instructional sessions, evincing positive attitudes towards the activities. According to Arunthari (1999), incorporating a variety of storytelling techniques such as singing, using props, and employing physical actions can enhance the communicative purpose of storytelling, making it more comprehensible and engaging for the audience. This heightened enthusiasm served as a motivational impetus, prompting increased engagement in learning and practice activities, facilitated by the interactive nature of the digital tools. This finding was also supported by Haryadi and Aprianoto (2020), who found that integrating digital technology tools effectively engendered learner engagement and motivation. Moreover, the Thai EFL pre-service teachers articulated their anticipation of improved pronunciation and expressed enjoyment during the practice stage, attributing this positive experience to the interactive nature of storytelling. This observation resonates with the assertions made by Sharma (2018), suggesting that storytelling activities can enhance motivation and alleviate anxiety in language learning contexts.

Furthermore, storytelling catalyses English-speaking practice within and beyond classroom settings, as posited by Difuza (2021). In sum, digital tools and storytelling methodologies are potent motivators for learning and practising pronunciation. Digital tools are

recognised as catalysts for motivation, fostering learning autonomy, and stimulating creativity, as noted by Hafner and Miller (2011).

The teaching application found in this research revealed the exploration of integrating digital tools and storytelling in pronunciation instruction among Thai EFL pre-service teachers. Participants recognised this instructional approach as a valuable tool for enhancing their students' English skills, particularly highlighting the usefulness of digital tools in providing diverse linguistic input and fostering active participation. Storytelling activities were particularly valued for stimulating language output and enabling repetitive practice, a key factor in improving pronunciation. This study's findings were supported by previous research. For instance, Gilakjani and Sabouri (2016) emphasised the importance of multimedia in pronunciation teaching, highlighting how digital tools can provide authentic listening experiences and immediate feedback, enhancing learners' phonological awareness. Furthermore, the findings suggest that integrating digital tools and storytelling can address educators' scepticism regarding pronunciation instruction (Derwing & Munro, 2005). These methods provide precise, structured approaches to teaching pronunciation, which can particularly benefit novice teachers. As Levis (2005) pointed out, effective pronunciation teaching required a combination of explicit instruction and meaningful practice, both facilitated by digital tools and storytelling. In the context of Thai EFL pre-service teachers, the study highlights the potential for these teachers to serve as effective role models, demonstrating accurate pronunciation. This aligns with the broader educational goal of preparing pre-service teachers to become proficient English language instructors. According to Burgess and Spencer (2000), teachers' pronunciation significantly influences their students' pronunciation skills, underscoring the importance of training pre-service teachers in effective pronunciation teaching methods.

Regarding pronunciation improvement, the Thai EFL pre-service teachers reported their progress and improvement since they were more aware of pronunciation aspects through phonological analysis activity and giving self-feedback, peer feedback, and receiving corrective feedback from the teacher. This helped them to be mindful of how to reduce language transfer and produce correct ones. As proposed by Ferguson (2011), it is necessary for learners' development if they are provided with feedback since it can lead learners to monitor, evaluate, and regulate their learning. Furthermore, storytelling provides rich, comprehensible input and interactive output in a realistic context, activating them to keep practising inside and outside the classroom. According to Wang and Castro (2010), comprehensible input through listening and reading can help improve speaking fluency.

The learning logs revealed that the EFL pre-service teachers actively engaged in pronunciation practice through storytelling activities both inside and outside the classroom. They explored additional digital tools to enhance their language input and shared these resources with their peers. The teachers wanted to continue improving their English skills even after the lessons concluded. This behaviour aligns with the concept of self-directed learning, as defined by Knowles (1975). It involves learners taking the initiative to identify their learning needs, set goals, find resources, and evaluate their progress. By integrating digital tools and storytelling activities, the EFL pre-service teachers extended their learning beyond the formal classroom, utilising various online resources (Sundqvist & Sylvén, 2016). Moreover, these lessons provided opportunities for learners to recognise, assess, and critically reflect on their learning, thereby fostering the development of self-directed learning skills (Acar et al., 2016).

Regarding the attitudes of the EFL pre-service teachers towards using digital tools and storytelling lessons, the findings are a resounding endorsement of their effectiveness. The EFL pre-service teachers agreed that the instruction significantly enhanced their pronunciation abilities, and the content and activities provided ample opportunities to engage with the target language. This robust feedback suggests that the EFL pre-service teachers perceive the content, activities, and overall utility of digital tools and storytelling as effective in encouraging pronunciation improvement. This finding is consistent with Inayah's (2015) research, which revealed that students have positive attitudes towards storytelling techniques and that these techniques positively impact their speaking abilities. Notably, the activities in each lesson offered opportunities for analysing pronunciation aspects, receiving language input through both oral and digital storytelling, practising, and performing speech, all of which contributed to pronunciation improvement. This aligns with Nugroho and Atmojo (2020), who found that digital devices provide extensive opportunities for language learning both within and beyond the formal classroom setting. Furthermore, integrating digital tools and storytelling helped EFL pre-service teachers recognise and correct their pronunciation errors, thereby reducing first language transfer. This was achieved through proper correction strategies, repetitive practice, and increased language input and output (Qiaolan, 2022).

CONCLUSION AND IMPLICATION

This study aimed to investigate the impact of using digital tools and storytelling to enhance the pronunciation abilities of Thai EFL pre-service teachers. The results indicated a significant improvement in pronunciation ability, reflected by higher post-test scores than pre-test scores. Analysis of learning logs and fieldnotes revealed that using digital tools and storytelling positively influenced the teachers' development, including phonemic awareness, confidence, motivation to learn, pronunciation ability, and the application of pronunciation teaching strategies. Furthermore, these methods fostered self-directed learning among the participants. The EFL pre-service teachers also expressed positive attitudes towards using digital tools and storytelling to improve pronunciation.

This study provided valuable insights into enhancing English language learners' pronunciation through the integration of digital tools and storytelling, grounded in the principles of input, interaction, output, and feedback. Digital tools and storytelling served as key sources for delivering input, facilitating output, and providing feedback. These elements supported learners in internalising accurate pronunciation through repeated exposure to the target language. Furthermore, explicit pronunciation instruction enabled learners to apply the input effectively during language production. Drawing on the output hypothesis, the study emphasised the importance of producing language as a way to improve pronunciation. These opportunities allowed learners to monitor their language use, identify errors, and refine their pronunciation through interaction and feedback. Importantly, digital tools and storytelling can help Thai EFL pre-service teachers improve their pronunciation. This empowers them not only to acquire the language but also to use it meaningfully in real-world contexts. Clear articulation fosters mutual understanding, reduces communication barriers, and enhances the speaker's credibility and confidence in various social and professional settings.

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