Exploring Patterns and Challenges in English Word-Final Consonant Pronunciation among Southern Thai EFL Learners

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Abstract

English pronunciation can be a challenge for Thai learners due to phonological differences between their first language (L1), Thai and English. This paper analyses the difficulties in pronouncing English word-final consonants among Southern Thai EFL learners. The participants were 27 undergraduate students at a university in southern Thailand who use Southern Thai as their L1. Data were gathered through a word list task and semi-structured interviews. The findings broadly support previous studies, regarding the pronunciation of fricatives and voiced consonants that do not occur in Thai. Nevertheless, the participants' tendency to omit final stops (/p/, /t/, /b/, and /d/) likely reflects transfer from their Southern Thai pronunciation. This pattern differs from Standard Thai, where final consonants are generally pronounced more clearly. These results enhance our understanding of how regional dialects influence L2 phonology. This leads us to reconsider L1 transfer as a homogenous process among speakers of the same L1 background. Interview responses indicated that there was a lack of exposure to pronunciation instruction in previous education, which highlights the necessity to integrate pronunciation into English curricula, preferably at earlier stages of learning. The research has significant implications for EFL teaching practices, especially in the regional setting of Thailand.

Keywords: Southern Thai EFL learners, Word-final consonants, L1 transfer, English pronunciation, Dialectal variation

Introduction

English has become a global lingua franca, serving as the primary medium of communication among speakers of different native languages. Adherents of the World Englishes paradigm advocate for the acceptance of diverse ways in which English can be used—such as patterns and structures used by speakers from various linguistic backgrounds—and reject the idealisation of native English speakers from the Inner Circle (Kachru, 1989). Several studies support the ideology of World Englishes that English should be learnt for successful communication and a variety of Englishes should be accepted (Boonsuk, 2025; Jeong & Lindemann, 2025; Pathanasin, 2025. Under the principle of World Englishes, the goal of pronunciation learning should be for clear communication, rather than to be native-like. Nevertheless, intelligibility is crucial for effective communication, and English pronunciation plays a vital role in achieving this. Mispronunciation can alter the intended meaning or make the message unintelligible. Poor pronunciation not only causes misunderstanding, but also creates anxiety and lowers confidence among language learners (Nguyen, 2023; Singhanuwananon, 2018).

English pronunciation poses a significant challenge for learners of English as a Foreign Language (EFL) worldwide. Due to differences between the phonological systems of their first Language (L1) and the target language, learners often struggle with pronunciation more than with other linguistic aspects, such as vocabulary and grammar (Yule, 2006). According to Yule (2006), L1 interferes with phonological performance in a speaker in three aspects.

The first aspect involves differences in phonemic distinctions for sounds that are not present in both the L1 and English, as many EFL learners struggle to differentiate these sounds. The second aspect concerns differences in phonological rules between L1 and English. Learners tend to apply their L1 phonological rules to English pronunciation. Finally, L1 transfer becomes evident when learners impose the phonotactic constraints of their L1.

Thai is the only national language in Thailand, while English is the most important foreign language. Thai and English belong to different language families, as do their phonological systems (Timyam, 2015). The distinct phonemic inventories are seen to account for English pronunciation problems in Thai learners. Several studies have investigated the causes of pronunciation difficulties among Thai EFL learners (Atthaphonphiphat, 2017; Kanokpermpoon, 2007; Peerachachayanee, 2022; Suntornwawet, 2019). Results of previous studies have identified L1 interference and phonological differences between the two languages as the primary causes of the pronunciation problems in Thai learners (e. g. , Jaiprasong & Pongpairoj, 2020; Sahatsathatsana, 2017; Thongsongsee & Watanapokakul, 2023). Although much research has examined pronunciation issues among Thai EFL learners, more focused studies on learners from different linguistic backgrounds could provide educators with deeper insights into their challenges and help design more effective lessons to enhance their performance. The present study specifically targets a group of learners with a linguistic background distinct from that of EFL learners in other regions of Thailand. It is hypothesised that while the participants share common pronunciation errors with other Thai EFL learners, their linguistic background contributes to unique consonant variations not observed in previous studies. This study aims to examine the pronunciation difficulties related to word-final consonant sounds among university students in southern Thailand who use the Southern Thai dialect in daily communication. Specifically, this study addresses two research questions:

1. What are the patterns and challenges associated with English word-final consonant pronunciation among Southern Thai EFL learners?

2. What factors contribute to the pronunciation difficulties of Thai learners with the Southern Thai dialect in their linguistic background?

Literature review

This section provides the background knowledge underpinning the research design, with a focus on phonological distinctions between English and Thai, as well as on the sound systems of Central and Southern Thai. The phonemes or abstract sounds are represented in slant brackets / /, and allophones or the actual pronunciation are shown in square brackets [ ].

Phonological distinctions between English and Thai

Several linguists have examined differences between the English and Thai phonological systems. Since this study focuses on the pronunciation of English word-final consonants, this section highlights the key distinctions between the two languages. English and Thai differ notably in their consonant inventory sizes. English has 24 consonant phonemes, while Thai has 21. The phonological inventories of English and Thai are presented in Table 1, based on Raktham (2018) ; Ronnakiat and Chitwiriyanon (2022); and Tuaycharoen (1990). The nine English consonant phonemes not found in Thai are highlighted in bold in Table 1.

Based on the manner of articulation, the English consonant sounds are categorised into: stops /p, b, t, d, k, g/, nasals /m, n, ŋ/, fricatives /f, v, θ, ð, s, z, ʃ, ʒ, h/, affricates /tʃ, dʒ/, approximants /r, w, j/, and lateral /l/. Among these sounds, there are nine voiceless consonants: /p, t, k, f, θ, s, ʃ, h, tʃ/ and fifteen voiced consonant phonemes: /b, d, g, m, n, ŋ, v, ð, z, ʒ, dʒ, l, r, w, j/.

However, the Thai's consonant system features a smaller number of voiced and voiceless distinctions, relying more heavily on aspiration for contrast. Thai has nine stop consonants, including unaspirated voiceless stops: /p, t, k/, aspirated voiceless stops: /pʰ, tʰ, kʰ/; voiced stops: /b, d/; and a voiceless glottal stop /ʔ/. There are only three fricatives, and all of them are voiceless: /f, s, h/, and two voiceless affricates: /tɕ, tɕʰ/. The remaining phonemes are all voiced sounds—nasals: /m, n, ŋ/; approximants /w, j/, trill /r/, and lateral /l/.

We can see that one of the key differences between English and Thai consonant inventories is the aspiration in Thai. Thai has a more obvious distinction between aspirated and unaspirated stops as well as affricates, which are not prominent in English. On the contrary, English makes use of a larger variety of voiced/voiceless contrasts which distinguish between the eight pairs of phonemes: p/b; t/d; k/g; f/v; s/z; θ/ð; ʃ/ʒ; and tʃ/dʒ. Furthermore, nine English consonant phonemes are not found in Thai: /g, v, θ, ð, z, ʃ, ʒ, tʃ, dʒ/. The phoneme /r/ is realised differently in English and Thai. To be specific, it is pronounced as an alveolar approximant [ɹ] in English, whereas in Thai, it corresponds to an alveolar trill [r]. According to Ashby (2005), in rhotic accents (e.g., American English), the /r/ is pronounced in all positions of words. In contrast, in non-rhotic varieties (e.g., British English), the final /r/ is not pronounced unless followed by a vowel.

Table 1 Comparison of English and Thai consonant inventories

Manner of articulation	Place of articulation	English phonemes		Thai phonemes	
		voiceless	voiced	voiceless	voiced
Stops	Bilabial	p	b	p, pʰ	b
	Alveolar	t	d	t, tʰ	d
	Velar	k	g	k, kʰ	
	Glottal			ʔ	
Nasals	Bilabial		m		m
	Alveolar		n		n
	Velar		ŋ		ŋ
Fricatives	Labiodental	f	v	f	
	Interdental	θ	ð		
	Alveolar	s	z	s	
	Post-alveolar	ʃ	ʒ		
	Glottal	h		h	
Affricates	Post-alveolar	tʃ	dʒ		
	Alveolo-palatal			tɕ, tɕʰ	
Approximants	Palatal		j		j
	Alveolar		r		
	Labial-velar		w		w
Trill	Alveolar				r
Lateral	Alveolar		l		l

Final consonant sounds in English and Thai

Almost all English consonant phonemes can occur in word-final position, except for /h/, /w/, and /j/. In contrast, only nine Thai consonant sounds can appear at the end of words: stops /p, t, k, ʔ/, nasals /m, n, ŋ/, and approximants /w, j/. The phonological differences between English and Thai tend to present significant challenges for Thai EFL learners. As noted by Kanokpermpoon (2007), some English phonemes are absent from Thai or occur in different distributions. The restrictive nature of the Thai syllable structure also contributes to pronunciation difficulties. While English allows a broad range of final consonant sounds, Thai permits only nine (Kanokpermpoon, 2007; Peerachachayanee, 2022). This limitation often results in common errors for Thai learners, such as substitutions, omissions, and simplifications when Thai speakers encounter unfamiliar final sounds in English (Narksompong, 2007).

Another common issue among Thai EFL learners is the devoicing of final voiced stops /b, d, g/. These are frequently replaced with their voiceless counterparts /p, t, k/, which can appear as final sounds in Thai. In addition to devoiced sounds, Thai learners often

pronounce these sounds as unreleased. For instance, the word *good* is often pronounced as [gʊt̚], and *big* as [bɪk̚] (Narksompong, 2007; Peerachachayanee, 2022). Similarly, English final fricatives—completely absent in Thai— also pose a major challenge. Learners often substitute them with stops or delete them. Words, such as *leave* and *breathe* are commonly pronounced as [liːp̚] and [briːt̚], while *please* becomes [pliːt̚]. These patterns suggest that Thai learners tend to approximate unfamiliar phonemes with the closest sounds available in their L1 (Atthaphonphiphat, 2017; Kanokpermpoon, 2007; Suntornsawet, 2019).

In addition to substitutions, Thai speakers often omit final consonants, especially fricatives and affricates which are absent in Thai phonology. The lack of final affricates aggravates this issue, leading to simplification strategies where they tend to replace them with stop sounds. For instance, *church* may be realized as [cʰɤːt̚], and *judge* as [dʒʌt̚] (Kanokpermpoon, 2007; Peerachachayanee, 2022; Suntornsawet, 2019). These phonological changes significantly affect intelligibility, as English listeners often rely on final sounds to distinguish words.

Moreover, Thai learners frequently modify or omit final /l/ and /r/ when speaking English. The final /l/ is often substituted with /n/, or /w/, producing words like *call*→[kʰɔːn] and *hotel*→[hoːtʰew] (Kanokpermpoon, 2007; Peerachachayanee, 2022). Likewise, the final /r/ is frequently dropped, resulting in *car* being realised as [kʰaː] (Atthaphonphiphat, 2017; Suntornsawet, 2019).

Phonological variation between Central Thai and Southern Thai

Thailand has several major regional dialects, mainly northern, northeastern, southern and suburban dialects in the central area. These regional variations have also highlighted pronunciation differences among Thai EFL learners. Standard Central Thai serves as the official national language. Southern Thai is spoken south of Chumphon Province and extends into adjacent areas in northern Malaysia (Hartmann & Hudak, 2000). Several researchers have documented the phonological features of Central Thai and Southern Thai (e. g., Abramson & Tingsabadh, 1999; Awirutthiyothin, 2010; Hartmann & Hudak, 2000; Kamalanavin, 2005; Phonyarit, 2025; Rose, 1997), as summarised in Table 2.

Table 2 Comparison of Central Thai and Southern Thai phonological features

Phonological feature	Central Thai	Southern Thai
Consonants	・21 word-initial consonant phonemes	No difference
	・9 word-final consonant phonemes	No difference
	・Frequent pronunciation of initial /r/ as /l/ in informal speech	・Strong preservation of the alveolar trill/tap /r/
	・Unreleased final stops [p̚, t̚, k̚]	・Frequent deletion of final consonants
Vowels	・18 monophthongs (9 short, 9 long) with phonemic length contrast	No difference
	・3 diphthongs	No difference
Tones	・Five tones (Low, Mid, High, Rising, Falling)	・Seven tones (High-falling, Rising-falling, High-rising, Mid-rising, Rising-falling (mid), Low-rising, Low-falling)

Although final consonants in Standard Thai are typically pronounced without an audible release (Abramson & Tingsabadh, 1999) and limited to nine sounds: /p, t, k, m, n, ŋ, j, w, ʔ/, the pronunciation of final consonants in Southern Thai is significantly different (Kamalanavin, 2005). These variations, which are observed in consonant deletion, modified articulation, and clarity, affect the intelligibility across dialects in spite of the fact that the consonant inventory, as a whole, is similar. Southern Thai speakers tend to

drop final stops and fricatives, creating open syllables whereas Standard Thai speakers often retain these sounds, producing clearer final consonant articulation. Additionally, the two varieties are further differentiated by articulation differences. Final /p, t, k/ in Standard Thai are normally unreleased, thus producing a perceptible closure, but in Southern Thai, they are normally softened or omitted (Kamalanavin, 2005). This tendency to use the open syllable structure may also lead to the difficulty in pronouncing English words with a closed syllable structure. Even final nasals /m, n, ŋ/ are also more likely to be longer in Southern Thai, affecting speech rhythm and overall prosody. Such differences do not merely represent dialectal differences, but also provide insight into the L1 transfer patterns in Southern Thai EFL learners.

As presented in Table 2, other phonological features, including vowels and tones, also show minor differences. Generally, the vowel sounds of Central and Southern Thai are identical, however the tonal systems are slightly different. While Central Thai has only five tones, Southern Thai uses seven tones. While a recent study by Phonyarit (2025) identified nine major regional dialects within Southern Thai, each with minor phonetic variations, the study also confirmed previous findings that the Southern Thai tonal system consists of seven contrastive tones. These differences in tone use, though not directly linked to final consonant pronunciation, contribute to the unique rhythm and prosody. This prosodic variation may have an indirect effect on English pronunciation, especially word stress placement and word-final articulation. Hence, although the vowel and tone systems are relatively comparable across dialects, the most significant variations lie in consonant production, particularly in word-final position. This may significantly contribute to the pronunciation challenges encountered by Southern Thai learners.

Challenges in English pronunciation among Thai EFL learners

Several studies have examined pronunciation difficulties among Thai EFL learners, often attributing errors to phonological differences between English and Thai. For instance, Makamthong and Hesmatantya (2022) found that students substituted Thai sounds when pronouncing the fricatives /θ/ and /ð/, and the affricate /dʒ/, with substitutions varying by word position.

Consistent with prior findings, Plailek and Essien (2021) also found that Thai undergraduates struggled with the pronunciation of word-final consonants, including /θ/, /ð/, /v/, /f/, /s/, and /l/. Similarly, Muangphruek (2017) observed that learners frequently omitted or substituted final sounds, especially those absent in Thai, such as /θ/, and struggled with consonant clusters like /st/ and /rt/. Chakma (2014) also reported that Thai high school students substituted Thai sounds for problematic English consonants in both initial and final positions. In addition, Ruengkul (2020) explored the pronunciation of -ed endings with a group of 33 university students. In her study, the participants read 15 words that ended in -ed sounds, pronounced as /ɪd/, /d/, and /t/. It was found that they performed the best when words ended in /ɪd/ sounds, whereas /d/ and /t/ ranked second and third, respectively.

Given such persistent challenges, Sridahnyarat (2017) further investigated the acquisition of English fricatives in Thai undergraduates grouped by English proficiency (high, intermediate, low) using three speaking tasks: word list, sentence reading, and interviews. The findings indicated that advanced learners could accurately produce /s/, /f/ and /ʃ/ word-finally and word-initially. During word list reading, intermediate learners had difficulty with final /ʃ/, while low-proficiency learners were unable to pronounce /s/, /f/, and /ʃ/ in final positions in either word list or sentence reading tasks. These findings reinforce the role of phonological interference in Thai EFL learners.

Beyond phonological influences, several studies have explored factors accounting for pronunciation accuracy. For example, Sahatsathatsana's (2017) study not only L1 interference but also teaching methods, and learner motivation as key issues. Furthermore, Plailek and Essien (2021) found that the foundational knowledge of English pronunciation was the most significant factor. Teacher instruction quality ranked as the second, followed by the frequency of English pronunciation practice. Additionally, the phonological differences between Thai and English sound systems were also highlighted as a major source of difficulty.

Complementing these findings, comparative phonological studies (Atthaphonphiphat, 2017; Kanokpermpoon, 2007; Makamthong & Hesmatantya, 2022; Narksompong, 2007; Peerachachayanee, 2022;

Suntornsawet, 2019) consistently indicate that L1 interference is a key factor contributing to pronunciation errors among Thai EFL learners. These errors are primarily attributed to structural differences in phonotactics, syllable structure, and consonant distribution between English and Thai.

Collectively, these studies reveal not only the consistent impact of L1 transfer on the pronunciation of English consonant sounds but also the role of learner proficiency, establishing a foundation for further exploration into how different linguistic background may affect English pronunciation patterns of Thai learners.

In terms of English pronunciation challenges, Jehma and Phoocharoensil (2014) analysed pronunciation difficulties in Southern Thai EFL learners. Their participants are fifth and sixth grade Pattani-Malay students from Yala Province. The results showed that the participants struggled more with English fricatives than with stops across all word positions, with errors occurring in 32.90% of fricatives, compared to only 4.50% of stops in final positions. Similarly, focusing on final sounds, Atthaphonphiphat (2017) conducted a study with 350 university students in a southern Thai province, and reported that learners pronounced English final consonants correctly in less than 50% of cases. Among the target sounds, /s/ showed the highest accuracy rate (47.40%), while /ð/ was the least accurately pronounced (0.70%). The findings also supported other previous studies that phonological transfer further influences the realisation of English word-final consonants.

In summary, previous research affirms that Thai EFL learners have difficulty with pronunciation due to L1 transfer and instructional limitations. While most studies have examined Thai learners in central regions (Muangphruek, 2017; Peerachachayanee, 2022; Plailek & Essien, 2021; Ruengkul, 2020), limited research has focused specifically on pronunciation difficulties among Southern Thai EFL learners who speak Southern Thai dialect. This study addresses that gap by analysing their pronunciation patterns, offering insights for educators and curriculum developers to design targeted instruction that reflects these learners' distinctive linguistic backgrounds.

Methodology

Participants

The study involved 27 second-year undergraduate students who were enrolled in an English pronunciation course (19 males and 8 females, aged 19-22), from a university in southern Thailand. Their majors are Environmental Technology and Management, and their English proficiency were primarily at the A2 CEFR level. A purposive sampling method was employed based on two criteria: (1) participants had lived and attended school in provinces across southern Thailand, and (2) they regularly spoke Southern Thai in daily life. Although most of them also communicated in Central Thai, Southern Thai remained their primary spoken variety.

Research instruments

This study employed two research tools: a pronunciation analysis task and a semi-structured interview. For the pronunciation analysis, the researchers compiled a list of 21 words, each ending in a distinct English consonant sound that can occur in the word-final position. These words were selected from a first-year English textbook, assuming participants' prior exposure and familiarity.

The interviews adapted questions from Thongsongsee and Watanapokakul's (2023) study on word stress patterns. Using a semi-structured format, the interview combined both structured and open-ended questions to explore the learners' pronunciation challenges. The interview focused on four key aspects: pronunciation awareness, previous instruction, learners' approaches to unfamiliar word pronunciation, and strategies used for pronunciation improvement.

To ensure content validity and reliability, three English lecturers—each with over five years of teaching experience—evaluated the interview questions using the Index of Item-Objective Congruence (IOC). The evaluation yielded a high agreement score of 0.89. Based on their feedback, necessary revisions were made. Prior to data collection, the study received ethical approval to verify its adherence to the principles outlined in the Declaration of Helsinki and the Belmont Report, ensuring participants' rights, research transparency, and ethical integrity.

Data collection

Participation in the study was voluntary, and all participants were fully informed about the study's objectives, procedures, and data confidentiality protocols. They were assured that participation would not affect their course grades or studies. After addressing any concerns, all participants signed a written consent.

For the pronunciation analysis, the first researcher, a native English speaker and instructor of the pronunciation course, gave a list of 21 words to the participants and instructed them individually to read aloud the words to him. If the participants wanted to repeat any words, they were allowed to do so, and the last version they produced would be used for data analysis. After reading, their pronunciation was transcribed using the International Phonetic Alphabet (IPA). Cases of omission were marked with the symbol ø, and additional phonetic notes were recorded as needed. To enhance transcription reliability, all sessions were video-recorded, allowing for later verification. Each session lasted 2-3 minutes. Immediately following the pronunciation task, participants were individually interviewed in Thai by the second researcher in semi-structured sessions lasting 5-10 minutes. All interviews were audio-recorded for subsequent analysis.

Data analysis

The pronunciation data were transcribed in real time and then reviewed using video recordings for transcription accuracy. The third researcher, trained in English phonetics, independently verified the transcriptions. The final data set were entered into Microsoft Excel spreadsheet for statistical analysis. Accuracy rates and common substitutions were calculated, and frequent substitution patterns were identified.

Interview data were analysed thematically, following Braun and Clarke's (2006) guidelines. Audio recordings were transcribed verbatim, translated into English, and thoroughly reviewed for accuracy. The transcripts were then systematically coded and organised into themes. To enhance the reliability of interpretation, an expert in qualitative research assessed the data for accuracy of the coding to ensure consistency and thematic validity.

Results

To investigate the pronunciation challenges of English word-final consonant sounds among Southern Thai EFL learners and the factors influencing these difficulties, the data were analysed both quantitatively and qualitatively. The findings are presented in two sections: pronunciation accuracy and contributing factors.
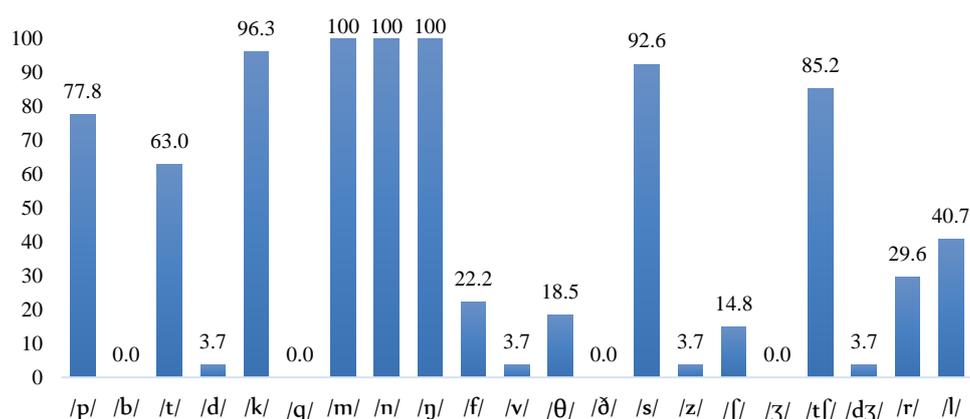
Figure 1 Percentages of accuracy by phonemes

Figure 1 illustrates the significant variation in pronunciation accuracy across phonemes, with learners exhibiting greater difficulty with voiced consonants. The nasal consonants /m/, /n/, and /ŋ/ were articulated

with 100% accuracy, followed by the voiceless velar stop /k/ (96.3%) and the voiceless alveolar fricative /s/ (92.6%), suggesting these sounds were produced with relative ease. In contrast, the voiced sounds—bilabial

stop /b/, velar stop /g/, interdental fricative /ð/, and post-alveolar fricative / ʒ/ — all recorded 0% accuracy, indicating considerable challenges in their production. Similarly, the alveolar stop /d/, labiodental fricative /v/, alveolar fricative / z /, and post-alveolar affricate / ʤ/ showed very low accuracy (3.7%) . Notably, the approximant / r/ in word-final position was often omitted, which may be influenced by British English pronunciation patterns.

The data in Table 3 highlight the relative difficulty levels of word-final consonants in English, with a specific focus on sound substitutions. The cases of omission are marked with the symbol ø. It should be noted that the data excluded mispronunciations that resulted in unintelligible words. The following section categorises the results according to manner of articulation to better illustrate phonological patterns in learner errors.

Table 3 Sound substitutions of English word-final consonants by order of difficulty

Manner of articulation	Word	Final sound	Accuracy (%)	Substitutions (%)
Stops	describe	/b/	0.0	[p](81.5), ø(11.1), [f](7.4)
	drug	/g/	0.0	[k](100)
	avoid	/d/	3.7	ø(70.4), [t](22.2), [s](3.7)
	result	/t/	63.0	ø(25.9), [s](11.1)
	help	/p/	77.8	ø(11.1), [t](7.4), [f](3.7)
	work	/k/	96.3	[t](3.7)
Nasals	custom	/m/	100	
	population	/n/	100	
	wedding	/ŋ/	100	
Fricatives	smooth	/ð/	0.0	[t](77.8), [s](14.8), [θ](7.4)
	garage	/ʒ/	0.0	[tʃ](77.8), [t](22.2)
	improve	/v/	3.7	[f](63.0), [p](33.3)
	quiz	/z/	3.7	[s](81.5), [t](7.4), [tʃ](7.4)
	finish	/ʃ/	14.8	[tʃ](66.7), [t](11.1), [s](7.4)
	death	/θ/	18.5	[t](66.7), [s](11.1), [ʃ](3.7)
	tough	/f/	22.2	[p](7.4), [t](3.7)
	success	/s/	92.6	[t](7.4)
Affricates	language	/ʤ/	3.7	[tʃ](63.0), [t](18.5)
	match	/tʃ/	85.2	[t](7.4), [ʃ](3.7), [s](3.7)
Approximant	discover	/r/	29.6 [ə]	[ɜ:](70.4)
Lateral	natural	/l/	40.7	[w](59.3)

Stops

Among the six stop sounds, voiced stops exhibited more difficulties. No learners accurately pronounced the final / b/ , substituting it primarily with the voiceless counterpart [p] (81.5%) and [f] (7.4%), while 11.1% of learners omitted the [b] entirely. Similarly, for the final / g/ , no learner produced it as a voiced sound; all substituted [g] in *drug* with the voiceless [k]. The final /d/ also proved particularly challenging, with only one learner (3.7%) producing it accurately. Most learners

omitted the [d] (70.4%), while some substituted it with [t] (22.2%) or [s] (3.7%).

In contrast, voiceless stops were generally produced with relatively high accuracy in word-final positions, compared to other consonant types. Among these, /t/ had an accuracy rate of 63.0%, with omissions in 25.9% of cases and substitutions with [s] (11.1%). The final /p/ was the second most accurately articulated by 77.8% of learners; inaccuracies involved omission (11.1%) and substitutions with [t] (7.4%) and [f] (3.7%). The most accurately articulated stop was / k/ , with a

correct production rate of 96.3%, and one learner substituted it with [t] (3.7%).

Nasals

Nasal sounds /m, n, ŋ/ did not pose any difficulty for the Southern Thai EFL learners. All participants pronounced them accurately, with no instances of substitution or omission.

Fricatives

Among the eight final fricatives analysed, the voiced sounds /ð/, /ʒ/, /v/, and /z/ appeared to be more problematic for the learners than the voiceless phonemes /ʃ/, /θ/, and /f/. The voiceless alveolar fricative /s/ was the least challenging, with 92.6% of learners producing it accurately.

For the final /ð/, most learners (77.8%) substituted it with [t], followed by [s] (14.8%), while two learners (7.4%) replaced it with the voiceless counterpart [θ]. Regarding the final /ʒ/, most learners substituted it with [tʃ] (77.8%), and the rest with [t] (22.2%).

The next most challenging sound, /v/, showed a very low accuracy rate of 3.7%. A majority of learners (63.0%) substituted it with its voiceless counterpart [f], while 33.3% used [p] as a replacement. Similarly, the final /z/ posed significant difficulty, with only 3.7% pronouncing it correctly. Most substituted it with the voiceless [s] (81.5%), while others used [t] and [tʃ].

The subsequent three problematic sounds were /ʃ/, /θ/, and /f/. For /ʃ/, only 14.8% of learners produced it correctly. Common substitutions included [tʃ] (66.7%), [t] (11.1%), and [s] (7.4%), indicating a tendency to replace fricatives with affricates or stops. The voiceless interdental fricative /θ/ was accurately produced by 18.5% of learners, while 66.7% substituted it with [t] and others with [s] or [ʃ].

The voiceless /f/ in *tough* was the least challenging of the three, with 22.2% of learners producing it accurately. Some substituted it with [p] (7.4%) or [t] (3.7%). A total of 66.7% mispronounced the word *tough*, producing errors, such as *tongue*, *dough*, *touch*, *too*, *talk*, and *taught*. Regarding the final /s/, this least

problematic final fricative was produced accurately by 92.6% of learners. The incorrect cases involved substitution with [t] (7.4%).

Affricates

Between the two affricates, the voiced /dʒ/ was significantly more problematic than its voiceless counterpart /tʃ/, which has a close equivalent in Thai. Only 3.7% of learners pronounced /dʒ/ correctly. The majority substituted it with [tʃ] (63.0%), while others used [t] (18.5%). In contrast, /tʃ/ was accurately produced by 85.2% of learners. Some errors occurred, with 7.4% substituting it with [t], and a few with [ʃ] or [s].

Approximant

The approximant /r/, as in *discover,* was not pronounced in any instance. Some learners (29.6%) followed the British non-rhotic pronunciation, producing a schwa [ə], while the remaining 70.4% realised it as a long vowel [ɜː].

Lateral

The lateral /l/ in *natural* was accurately produced by 40.7% of learners. The majority (59.3%) substituted it with the approximant [w], which cannot occur word-finally in English.

Overall, the most problematic word-final sounds for the learners were /b/, /g/, /ð/, and /ʒ/, which were not produced accurately by any participants. These were followed by /d/, /v/, /z/, and /dʒ/, all of which showed minimal accuracy. The data indicate that voiced stops, voiced fricatives, and the voiced affricate posed the greatest difficulty, while voiceless stops and nasal consonants were produced with greater ease.

The findings in Table 4 illustrate the patterns of errors in the pronunciation of English word-final consonants among Southern Thai EFL learners. These errors are categorised into three primary types: substitution, devoicing, and omission.

The following sections provide a detailed analysis of each error type identified in Table 4.

Table 4 Patterns of English word-final consonants errors in Southern Thai EFL learners

Features	Description	Produced sounds	Target sounds
Substitution	Replacing one sound with the closest approximation from Thai	[t]	[d], [p], [k], [ð], [ʒ], [z], [ʃ], [θ], [f], [s], [ʤ], [tʃ]
		[s]	[d], [t], [ð], [z], [ʃ], [θ], [tʃ]
		[p]	[b], [v], [f]
		[tʃ]	[ʒ]
		[w]	[l]
Devoicing	Converting a voiced sound to its voiceless counterpart	[p]	[b]
		[t]	[d]
		[k]	[g]
		[f]	[v]
		[θ]	[ð]
		[s]	[z]
		[tʃ]	[ʤ]
Omission	Omitting the final consonant sounds entirely	ø	[b], [d], [t], [p]

Substitution

The most common error pattern observed was substitution. Learners frequently replaced English word-final consonants with the closest approximations from Thai, particularly for sounds that do not exist in their native phonological system. The sound [t] was commonly produced in place of several target consonants, including [d], [p], [k], [ð], [ʒ], [z], [ʃ], [θ], [f], [s], [ʤ], and [tʃ]. Similarly, [s] was produced instead of [d], [t], [ð], [z], [ʃ], [θ], and [tʃ]. Additionally, [p] was substituted for [b], [v], and [f]. Furthermore, [tʃ] was substituted for [ʒ], and [w] for [l].

Devoicing

The Southern Thai EFL learners also exhibited a strong tendency toward devoicing, frequently replacing voiced final consonants with their voiceless counterparts. For example, [p] was produced instead of [b]; [t] for [d]; [k] for [g]; [f] for [v]; [θ] for [ð]; [s] for [z], and [tʃ] for [ʤ]. This pattern suggests a systematic simplification strategy influenced by the learners' L1 phonological constraints.

Omission

In some cases, final consonants were completely omitted. Table 4 shows that learners deleted the final [b], [d], [t], and [p] sounds, resulting in no audible sound [ø]. These deletion errors were most frequently associated with stop consonants. The omission of final consonants can lead to incomplete word forms, as in *describe, avoid, result, help*, potentially causing listener confusion and reducing overall intelligibility.

In addition to the analysis of pronunciation errors, the qualitative data from the semi-structured interviews provided further insights into the underlying factors contributing to pronunciation difficulties experienced by Southern Thai EFL learners.

Factors contributing to pronunciation problems

The analysis was based on interview data, coded and categorised using the thematic analysis approach proposed by Braun and Clarke (2006). Three themes emerged: (1) the perceived importance of pronunciation, (2) learning experiences and expectations, and (3) the role of technology in pronunciation improvement.

Perceived importance of pronunciation

The analysis indicated that participants realised the importance of pronunciation primarily for facilitating effective communication, rather than for sounding like native English speakers or achieving higher scores in assessments. The participants

emphasised intelligibility over accent, as illustrated in the following responses:

"I think it (English pronunciation) is important because it enables us to communicate with foreigners. They can understand us better." (Student 1)

"It is important at a certain level because if we pronounce it incorrectly, it can completely change into another word. The message we are trying to communicate may not be understood by others. " (Student 3)

"I think it (English pronunciation) is important because if we pronounce it incorrectly, the word will change. I once talked to a friend who was an exchange student. He asked for directions. I gave the wrong directions because I pronounced it incorrectly. " (Student 21)

These responses highlight the learners' awareness that pronunciation accuracy affects clarity, comprehension, and real-life communicative success.

Learning experiences and expectations

The interview findings showed that most students had not received formal instruction in English pronunciation before entering university. Many noted that their prior English education focused heavily on grammar and vocabulary memorisation. The following excerpts highlight this lack of instructional focus:

"I have never studied it before. In my secondary school, they taught grammar and we had to memorise the meanings of words." (Student 2)

"There was some teaching, but it wasn't very intensive. Mostly, they focused on grammar rather than pronunciation. I learned from Thai teachers." (Student 8)

When asked about their expectations for pronunciation instruction, most participants expressed a desire for more structured, interactive practice, particularly opportunities to speak with native speakers. They also preferred a step-by-step approach to pronunciation learning:

"I think it might be like starting from the basics—teaching pronunciation starting with each consonant and then speaking frequently. Talking to foreigners would help us develop. In the beginning, there might be some embarrassment, and we need to try to adjust." (Student 6)

"I think we should practise speaking a lot, maybe talking with foreigners, but I admit that to speak with foreigners, I might not be very confident." (Student 20)

"Perhaps, teachers should provide more pronunciation practice and ask students more questions. In my opinion, most students may not talk much with foreign teachers because they might feel that they don't know much. It would be good to have more opportunities to speak." (Student 21)

These views reflect both a perceived gap in their previous learning and a great desire for improvement, especially through increased speaking opportunities and more teacher support.

Role of technology in pronunciation improvement

As members of Generation Z, the participants are highly familiar with digital tools and technology. Several students stated that they used technology not only to correct pronunciation mistakes but also to improve their overall speaking ability. Google Translate was frequently mentioned as a tool for learning word pronunciation, along with applications, online games, and YouTube videos. The following comments illustrate their use of digital resources:

"Yes, I use an application. I can type a word like *school* and then the app will pronounce it." (Student 15)

"Not often, but I talk to friends in games because most of my in-game friends are foreigners." (Student 16)

"Yes, sometimes. I use an application. It gives out audio and then I can try to pronounce the words or sentences. It has phonetic representations to guide us both on words and sentences." (Student 17)

"Yes, there are some, but not often. Mostly, I listen and then speak along with videos on YouTube." (Student 24)

These excerpts show that students are resourceful and proactive in using technology for pronunciation improvement to compensate for the limited formal instruction they have received.

From the interview data, it is evident that English pronunciation instruction is often neglected in the Thai educational context, which may contribute to learners' limited proficiency in this area. Nonetheless, students value pronunciation for its vital role in effective

communication and express a strong interest for more speaking practice opportunities, especially with native speakers.

Discussion

This section interprets the findings in relation to the two research questions, identifies the key pronunciation challenges among Southern Thai EFL learners, and compares the results with previous studies.

To address the first research question concerning pronunciation difficulties with English word-final consonants, the findings were analysed based on English-Thai phonological differences.

First, pronunciation errors typically occurred when English phonemes were absent in Thai. The fricatives /ð/ and /ʒ/ were particularly problematic for Southern Thai learners, and the sounds were frequently substituted with the voiceless stop /t/, which is present in Thai. This pattern aligns with previous studies (Atthaphonphiphat, 2017; Makamthong & Hesmatantya, 2022; Plailek & Essien, 2021), which confirm that final fricatives pose challenges for Thai learners.

Second, our findings contrast with those of Sridahnyarat (2017), whose study indicated that low-proficiency undergraduates had difficulty pronouncing /s/, /f/, and /ʃ/ in final positions. In the present study, learners could pronounce /s/ accurately at 92.6%, while /f/, /θ/ and /ʃ/ showed comparatively low accuracy rates. This result aligns with Atthaphonphiphat (2017) who examined undergraduates at a university in southern Thailand and reported that final /s/ was the most accurately produced English fricative (47.4%). A plausible explanation for this finding is that final /s/ is commonly taught in the early stages of English instruction, and thus learners appear to be more familiar with /s/ in word-final position. This suggests that early exposure to certain sounds in pronunciation instruction is likely to influence the learners' ability to pronounce them accurately.

Third, a unique pattern among Southern Thai learners in this study was the frequent omission of final stops: /d/ (70.4%), /t/ (25.9%), /p/ (11.1%), /b/ (11.1%). This pattern seems to be a direct influence of the Southern Thai dialect, which tends to weaken or leave out final stops in fast speech (Kamalanavin, 2005).

While previous studies have noted Thai EFL learners often omit the final sounds (Muangphruek, 2017), our study discovered that this issue was even more prevalent among speakers of the Southern Thai dialect, as reflected by the high omission cases. This finding expands the literature by demonstrating that regional dialects can uniquely influence English pronunciation, creating different patterns from those observed in speakers of Standard Thai.

Fourth, this study confirms that final voiced sounds tend to be an important issue for Southern Thai learners. They frequently replaced the voiced sounds with their voiceless counterparts, such as /s/ for /z/ and /k/ for /g/. These are consistent with the findings of Jehma & Phoocharoensil (2014) and Suntornsawet (2022) which highlighted the devoicing tendency in Thai learners. However, this contrasts with Ruengkul's (2020) study, which reported that learners performed better with voiced final /d/, compared to voiceless /t/. Notably, our participants performed better for the voiceless fricatives /θ/ (18.5%) and /ʃ/ (14.8%), both of which are absent in Thai. This likely indicates that even unfamiliar voiceless sounds pose less difficulty for learners compared to voiced sounds. A possible reason for this may be that the /θ/ and /ʃ/ are commonly taught to students at the beginning levels of English instruction, apart from /s/ as mentioned earlier.

Furthermore, it is interesting to note that the approximant /r/, as in *discover* was not pronounced at all. While 29.6% of the learners realised it as a schwa [ə], the remaining 70.4% pronounced a long vowel [ɜː]. This means that the /r/ was not pronounced, following the pattern of British non-rhotic pronunciation. This finding appears to contradict several previous studies which reported that Thai speakers flavoured American English for being more familiar and more intelligible (e.g., Prakaianurat & Kangkun (2024)). Some possible explanations for this could be the influence of the British lecturer who taught their pronunciation course, as well as the phonological constraint in Thai, where /r/ cannot occur in word-final position.

In summary, participants pronounced word-final sounds correctly when they were similar in articulation and distribution in both English and Thai, as seen with nasals. Errors were most frequent with phonemes absent in Thai or those occurring in different positions. Unlike

previous studies (e.g., Jehma & Phoocharoensil, 2014; Makamthong & Hesmatantya, 2022; Sridahnyarat, 2017) that identify fricatives as the most problematic for Thai learners in general, our findings for Southern Thai EFL learners do not support this conclusion. In terms of accuracy, our participants have particular problems pronouncing final voiced consonants which are stops: /b/, /g/, and /d/; fricatives: /ð/, /ʒ/, /v/, /z/; and affricate: /dʒ/.

While some pronunciation challenges are common to all Thai EFL learners, others are deeply influenced by regional phonological features. Our findings indicated that the participants commonly omitted the stops /d/, /t/, /b/, and /p/, respectively. As noted by Kamalanavin (2005), this finding may reflect a distinctive feature of Southern Thai, which commonly drops final stop consonants, compared to Standard Thai speakers, who tend to produce the sounds more clearly. This distinction underscores the need to consider regional dialects when designing pronunciation instruction and deepens our understanding of how L1 transfer interacts with L2 phonology.

Regarding the second research question on the factors that determine pronunciation skills, interview data showed that the participants had little exposure to pronunciation instruction in their formal education. This goes in line with Kanoksilapatham's (2014) observation that the pronunciation of English is often not emphasised in the education system of Thailand. Most participants reported that their previous English lessons were based on memorising grammar rules and vocabulary, but little on pronunciation. Therefore, they were not aware of pronunciation patterns and phonetic contrasts, which contributed to their difficulty producing certain English sounds.

Despite these challenges, students realised that accurate pronunciation is the key to successful communication and expressed their desire to have more speaking opportunities, especially with native speakers. Many students said that they used technology along with mobile applications, online videos and Google Translate as a means of self-practice. However, these tools did not entirely substitute the lack of structured and explicit instruction. Without specific and targeted guidance that reflects on the exact phonological challenges faced by

Southern Thai learners, students are unlikely to overcome persistent L1 transfer.

As presented in Table 4, substitution, devoicing, and omission were the most common error categories, indicating that Southern Thai EFL learners tend to weaken or omit final stops and fricatives because of the open-syllable feature of Southern Thai. Based on these results and the interview findings revealing the learners' preferences for visual technology-supported pronunciation practice, it is recommended that English pronunciation instruction should: (1) use diagrams to show the positions of the articulatory organs and the manner of sound production; (2) feature individual word lists and minimal pairs to compare voiced and voiceless final sounds with contrastive word meanings; (3) employ AI tools to generate suitable texts and contextual dialogues containing targeted problematic final sounds for practice, and (4) create special exercises on closed syllable production (particularly word final stops and fricatives) are necessary to overcome L1 transfer and improve final consonant production.

Limitations and recommendations

This study was limited to a relatively small group of Southern Thai EFL learners, and the focus was narrowed down to word-final consonant pronunciation. Certain methodological limitations must also be acknowledged. Although a word-reading task enables a focused analysis of word-final consonant sounds, it is highly controlled and reflects careful speech. Thus. it may not fully represent the participants' pronunciation patterns in authentic communicative contexts.

To establish a deeper insight on the pronunciation of Southern Thai learners, further studies should go beyond isolated word-list reading to include sentence reading tasks and spontaneous speech. These additional tasks may reveal various patterns of pronunciation or difficulties of Southern Thai EFL learners. Furthermore, it is recommended that the interview session include questions on the participants' perceptions about final sounds they find most challenging and how they perceive the differences between voiced and voiceless sounds. Future studies on dialectal variation among Thai learners should compare across different regional dialect backgrounds to provide a more complete picture of how linguistic regions influence English pronunciation. This area of research can provide valuable insights into the

intra- linguistic factors shaping Thai EFL learners' phonological development.

Conclusion and implications

Our investigation of Southern Thai EFL learners' word-final consonant pronunciation demonstrates that regional dialect features considerably influence their L2 phonology. The unique pattern of final stop omission discovered in this study broadens our theoretical understanding of the L1 transfer indicating that it is not only predetermined by the norms of the standard language but also by the regional diversity. This finding leads us to question the assumption that considers learners from the same L1 language background as a homogenous group in terms of L2 pronunciation difficulties. The results suggest the need to be more specific and localised in terms of L2 pronunciation pedagogy and research.

This study has important implications on pronunciation teaching in EFL contexts where learners' L1 includes dialectal variation. The frequent omission of final stop consonants among Southern Thai EFL learners underscores the need to teach word-final consonants in an explicit, early, and guided listening and contextualised practise. Although exploratory in nature, our findings suggest that even learners who share the same first language may experience different pronunciation challenges due to dialectal variation. They encourage educators and curriculum designers to move beyond generalised L1 assumptions and incorporate adaptable methods addressing learners' particular needs and tailored practice according to the learners' linguistic background.

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CRediT author statement

Saranya Pathanasin: Conceptualization, Methodology, Investigation, Formal analysis, Writing Original Draft. **Richard Majellan Mansbridge**: Investigation, Formal analysis. **Rachada Pongprairat**: Writing – Original Draft, Writing – Review & Editing, Formal analysis, Visualization.

References

Abramson, A. S., & Tingsabadh, K. (1999). Thai final stops: Cross-language perception. *Phonetica, 56*(3-4), 111-122.

Ashby, P. (2005). *Speech sounds*. London, England: Routledge.

Atthaphonphiphat, S. C. (2017). *The production and perception for English consonant sounds of Thai students* (pp.182-191). In Proceedings of the 8th International Conference on Language, Innovation, Culture, and Education 2017. London, England: Interdisciplinary Circle of Science, Arts, & Innovation.

Awirutthiyothin, T. (2010). *A study of the acoustic characteristics of consonant, vowel and tone in Standard Thai with Southern accent in comparison with Standard Thai and Southern Thai* (Doctoral dissertations). Bangkok, Thailand: Chulalongkorn University.

Boonsuk, Y. (2025). "Oh, this person speaks English in this way. They 'must be Thai' or they 'must be Chinese'": Developing global Englishes awareness among Thai secondary ELT stakeholders. *System, 133*, 103733.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Chakma, S. (2014). Difficulty in pronunciation of certain English consonant sounds. *Sripatum Chonburi Journal, 10*(3), 110-118.

Hartmann, J., & Hudak, T.J. (2000). *A profile of the Thai language*. Retrieved from https://seasite.niu.edu/thai/LLF/profile.htm

Jaiprasong, S., & Pongpairoj, N. (2020). L2 production of English word stress by L1 Thai learners. *LEARN Journal: Language Education and Acquisition Research Network Journal, 13*(2), 142-157.

Jehma, H., & Phoocharoensil, S. (2014). L1 transfer in the production of fricatives and stops by Pattani-Malay learners of English in Thailand. *Asian Social Science, 10*(7), 67-78.

Jeong, H., & Lindemann, S. (2025). Beyond ideologies of nativeness in the intelligibility principle for L2 English Pronunciation: A corpus-supported review. *System, 129*, 103598.

Kachru, B. B. (1989). World Englishes and applied linguistics. *Studies in the Linguistic Sciences 19*(1), 127-152.

Kamalanavin, V. (2005). Phonetic features of Standard Thai spoken by Southern Thai speakers. *Journal of Liberal Arts, 5*(2), 201-240.

Kanokpermpoon, M. (2007). Thai and English consonantal sounds: A problem or a potential for EFL learning? *ABAC Journal, 27*(1), 57-66.

Kanoksilapatham, B. (2014). Thai elementary school teachers' English pronunciation and effects of teacher variables: Professional development. *TESL-EJ, 18*(1), 1-13.

Makamthong, N., & Hesmatantya, V. (2022). Investigating the English pronunciation deviation among Thai students. *ELLTER-J, 3*(2), 44-53.

Muangphruek, P. (2017). *Exploring pronunciation errors through a song: A case study of 3rd-year students, Thammasat University* (Master's thesis). Bangkok, Thailand: Thammasat University.

Narksompong, J. (2007). *A Study of Thai phonological features that cause pronunciation problems for Thai people* (Master's thesis). Bangkok, Thailand: Thammasat University.

Nguyen, T. M. H. (2023). *A Study on The Effectiveness of Group Work in English Majors' Pronunciation Classes at Ho Chi Minh City University of Food Industry* (pp. 58-63). In Proceedings of the 5ᵗʰ Conference on Language Teaching and Learning. Ho Chi Minh City, Vietnam: Ho Chi Minh City University of Food Industry.

Pathanasin, S. (2024). *Language policy: From international to Thai context*. Phuket, Thailand: Prince of Songkla University Publishing.

Peerachachayanee, S. (2022). Towards the phonology of Thai English. *Academic Journal of Humanities and Social Sciences, Burapha University, 3*(3), 64-92.

Phonyarit, R. (2025). Tonal geography of the Southern Thai dialects. *Journal of the Southeast Asian Linguistics Society, 18*(2), 23-45.

Plailek, T., & Essien, A.M. (2021). Pronunciation problems and factors affecting English pronunciation of EFL students. *Turkish Journal of Computer and Mathematics Education, 12*(12), 2026-2033.

Prakaianurat, P., & Kangkun, P. (2024). Global or local identities? How Thai learners in an English program project themselves through L2 pronunciation in ELF encounters. *LEARN Journal: Language Education and Acquisition Research Network, 17*(1), 333-368.

Raktham, C. (2018). *Understanding English pronunciation*. Great Britain: Independently published.

Ronnakiat, N., & Chitwiriyanon, S. (2022). *Phonetics: Theory and practice* (3ʳᵈ eds.). Bangkok, Thailand: Thammasat University Press.

Rose, P. (1997). *A seven-tone dialect in Southern Thai with super high: Pakphanang tonal acoustics and physiological Inferences*. In Abramson, A. (Ed.). Southeast Asian linguistic studies in honour of Vichin Panupong (pp.191-208). Bangkok, Thailand: Chulalongkorn University Press.

Ruengkul, A. (2020). The pronunciation problems of the English -ed ending sounds of Thai undergraduate students. *Journal of Humanities and Social Sciences, Udon Thani Rajabhat University*, 9(1), 39-55.

Sahatsathatsana, S. (2017). Pronunciation problems of Thai students learning English phonetics: A case study at Kalasin University. *Journal of Education, Mahasarakham University, 11*(4), 67-84.

Singhanuwananon, S. (2018). *Unintelligility: Problematic linguistic areas of pronunciation and their impact on self-confidence in English speaking among Thai engineering students* (Master's thesis). Bangkok, Thailand: Thammasat University.

Sridahnyarat, K. (2017). The acquisition of L2 fricatives in Thai learners' interlanguage. *3L: The Southeast Asian Journal of English Language Studies, 23*(1), 15-34.

Suntornsawet, J. (2019). Problematic phonological features of foreign accented English

pronunciation as threats to international
intelligibility: Thai EIL pronunciation core.
*Journal of English as an International Language,
14*(2), 72-93.

Suntornsawet, J. (2022). A systematic review of Thai-
accented English phonology. *PASAA*, 63(1), 348-
370.

Timyam, N. (2015). *A comparative study of English
and Thai: An introduction*. Bangkok, Thailand:
Kasetsart University Press.

Thongsongsee, J., & Watanapokakul, S. (2023). An
analysis of medical students' performance on the
word stress patterns in English polysyllabic
medical terms. *rEFLections, 30*(1), 12-36.

Tuaycharoen, P. (1990). *Phonetics and practical
phonetics*. Bangkok, Thailand: Thammasat
University Press.

Yule, G. (2006). *The study of language* (3rd eds.).
Cambridge, England: Cambridge University
Press.