
English consonant cluster pronunciation among Thai junior high school EFL students in an authentic classroom: Error patterns

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Abstract

This study examines English words containing consonant clusters that are most frequently mispronounced by Thai students learning English as a foreign language (EFL) and identifies the phonological patterns underlying these pronunciation errors. The study employs a descriptive qualitative design, supported by descriptive statistics to complement the phonological analysis. The study participants consisted of 21 junior high school students from Thailand who completed a speaking task comprising 15 target items (14 words and one phrase). The recordings were transcribed using the International Phonetic Alphabet (IPA) and analyzed to identify recurring pronunciation patterns. The findings indicate that words with initial consonant clusters posed the greatest difficulty in pronunciation. Specifically, all participants (100%) mispronounced five target words. Rather than making random errors, the learners consistently employed three phonological correction strategies: vowel insertion (epenthesis), consonant substitution, and modification of final consonants. This suggests the influence of Thai phonotactic constraints and first-language phonology on the production of consonant clusters in English. These findings provide classroom-based evidence of systematic transfer from the first language and highlight the need for explicit speech instruction focused on consonant clusters through activities such as auditory discrimination, minimal pair exercises, guided articulation practice, and contrastive analysis to improve students' speech clarity.

Keywords

Consonant clusters, English pronunciation teaching, pronunciation patterns, qualitative descriptive, Thai EFL learners

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Introduction

The ability to understand spoken language depends heavily on pronunciation, making it an essential component. Incorrect pronunciation even when learners are proficient in vocabulary and grammar can hinder communication due to reduced comprehension. Effective spoken communication involves the use of various elements, including vowel sounds and low-frequency speech sounds. As [Levis \(2018\)](#) points out, pronunciation instruction focuses on effective communication between the speaker and the listener, rather than solely on the speech of native speakers.

Although important, pronunciation remains one of the most challenging aspects of learning English as a Foreign Language (EFL). The influence of students' first language (L1) whose phonological system often differs significantly from that of English is one of the main causes of this problem. When English contains sounds or sound combinations that do not exist in students' native languages, they often use familiar phonological patterns to adapt them. Systematic pronunciation errors rather than random errors are often the result of these modifications, which reflect the influence of L1 phonological transfer ([Al-khresheh, 2024](#); [Fabre-Merchan et al., 2017](#)).

Consonant clusters pose a significant challenge for Thai language learners among the various features of English pronunciation. While Thai phonotactic rules allow for fewer consonant sequences, Thai language learners often simplify English consonant clusters by adding vowels, substituting unfamiliar consonants with more familiar sounds, or even omitting consonants entirely. Previous studies have shown that Thai learners have difficulty pronouncing English consonant clusters correctly. This leads to systematic deviations from expected pronunciation ([Charoenchai et al., 2022](#); [Lao-un & Khampusaen, 2025](#); [Whang, 2021](#)).

This study investigates English words containing consonant clusters that are most frequently mispronounced by Thai junior high school students learning English as a foreign language (EFL) in real-world classroom settings. In addition, this study examines the pronunciation patterns underlying these errors to identify the systematic phonological strategies used by the students. It is hoped that these findings will enhance understanding of first-language phonological transfer and have practical implications for teaching better pronunciation to Thai EFL students. Accordingly, this study addresses the following research questions: (1) Which English words containing consonant clusters are most commonly mispronounced by Thai secondary school students? (2) What pronunciation patterns emerge in Thai student's production of English consonant clusters?

Literature Review

Pronunciation is very important in spoken communication because it allows speakers to convey their ideas clearly and helps listeners understand the intended message. Speech sounds, word stress, intonation, and consonant clusters are some of the components of pronunciation that contribute to clarity and effective communication. According to recent research ([Chau & Huensch, 2025](#); [Jeong & Lindemann, 2025](#)), developing pronunciation that is understandable

to others is not the primary goal of pronunciation instruction. This perspective is consistent with Morley's (1991) view that the primary goal of pronunciation instruction is to develop learners' functional intelligibility and communicative effectiveness rather than to achieve a native like accent. Furthermore, it has been proven that clear pronunciation helps listeners understand what is being said and reduces misunderstandings in communication (Bent et al., 2024; Thir, 2023). Consequently, improving students' pronunciation particularly the clarity of their speech is a primary goal of English language instruction.

Pronunciation remains one of the most challenging aspects of learning English as a Foreign Language (EFL), even though it is extremely important. The differences between the phonological systems of English learners and their first language (L1) are the main cause of this difficulty. Systematic pronunciation errors rather than mere random mistakes occur when English learners apply familiar phonological patterns to sounds or sound combinations that do not exist in their native language. Previous studies have shown that learners frequently substitute unfamiliar English consonants, such as /θ/, /ð/, /ʒ/, and /v/, with similar sounds from their native language because these phonemes do not exist in their L1 (Wahyu Anjani et al., 2023). Because many languages do not have the complex syllable structure found in English, consonant clusters pose one of the greatest challenges in pronunciation. As a result, students typically simplify consonant clusters by inserting extra vowels, omitting consonants, or substituting difficult sounds (Altakhaineh et al., 2024). Overall, these results indicate that first-language phonology, phonotactic constraints, and differences in syllable structure significantly influence pronunciation difficulties.

Because the phonological systems of Thai and English are very different, Thai learners face particular difficulties in pronouncing consonant clusters in English. English allows for complex consonant combinations that are rarely found or do not exist at all in Thai. As a result, students must adapt unfamiliar sound sequences to conform to Thai phonotactic rules. Consequently, Thai students often employ strategies to correct their pronunciation, including syllable restructuring, consonant substitution, consonant reduction, and vowel insertion (epenthesis). For example, to simplify the initial consonant cluster of the English word "square," you can change it to "se-ku-er." Rather than representing a random pronunciation error, this modification indicates phonological transfer from the first language. In addition to reducing pronunciation accuracy, this correction technique can also affect speech clarity, as listeners may have difficulty understanding words whose sound structure differs significantly from standard English pronunciation. Previous studies consistently identify first-language transfer as a major factor shaping Thai learners' English pronunciation (Hayeesa-i, 2023; Le & Boonmoh, 2020; Makamthong & Hesmatantya, 2022; Salsabiil & Hasnah, 2026).

The theoretical framework known as the Contrastive Analysis Hypothesis (CAH) explains issues in second language learning. CAH does this by examining the differences and similarities between a learner's first language (L1) and the target language (L2). Lado (1957) first proposed this hypothesis, stating that similar linguistic features between two languages tend to be easier to learn, while differences between them can cause difficulties. These differences can lead to negative transfer. This occurs when students apply patterns, they are already familiar with from their native language when producing sounds or structures in the target language. As a result, the errors students make are often systematic because they are

influenced by the linguistic characteristics of their first language, rather than being random (Khansir & Pakdel, 2019).

CAH is very useful in pronunciation instruction because it explains how the phonological system of a learner's native language influences how they produce sounds they are unfamiliar with. In cases where certain sound combinations do not exist or are rare in their first language, learners may adjust their pronunciation to conform to the phonological rules they are familiar with. This perspective is relevant for Thai learners of English as a foreign language (EFL) because the phonological systems of Thai and English differ, particularly with regard to consonant clusters. Thai learners may have difficulty pronouncing English consonant clusters and may employ adaptation strategies such as vowel insertion (epenthesis). In addition to demonstrating the influence of first-language transfer, these patterns provide a theoretical basis for interpreting the pronunciation issues identified in this study.

The Sonority Sequencing principle (SSP), together with the Contrastive Analysis Hypothesis, provides learners with an additional phonological perspective to help them pronounce consonant clusters in English. According to the SSP, the relative sound-strength of each speech sound within a syllable determines its structure. In general, sound-strength increases around the vowel nucleus and decreases around it. Consonant clusters that conform to this sonority pattern are typically easier to pronounce than clusters with more complex sonority relationships. As a result, second-language learners often simplify complex consonant clusters by using repair strategies such as vowel insertion, consonant substitution, or consonant deletion (Wulfert et al., 2025). SSP, together with the Contrastive Analysis Hypothesis, provides a broader theoretical framework for explaining the influence of first-language phonology. It also offers a highly relevant perspective for interpreting the differences in the accuracy of English consonant cluster pronunciation found in this study.

Previous research has provided important insights into English pronunciation among Thai students learning English as a foreign language (EFL). However, current research has largely focused on general pronunciation difficulties, phonological transfer from the first language, or pronunciation under controlled conditions. Thai junior high school students routinely mispronounce English words containing consonant clusters when learning in real-world classroom settings. Furthermore, very few studies have investigated whether these pronunciation errors result from a systematic phonological correction approach applied to various lexical items, rather than simply being isolated pronunciation errors. To address these differences, this study investigates English words containing consonant clusters that are most frequently mispronounced by Thai junior school students. In addition, this study also examines the pronunciation patterns underlying these errors in a real classroom setting. The results are expected to enhance understanding of first-language phonological transfer and have pedagogical implications for more targeted pronunciation instruction for students learning English as a foreign language (EFL) in Thailand.

Methodology

Research design

Using a qualitative descriptive research design, this study identifies English words containing consonant clusters that are frequently mispronounced by Thai EFL learners. In

addition, this study also explains the phonological patterns responsible for these pronunciation errors. To gain a contextual understanding of the phonological challenges faced by Thai students, this study focuses on identifying recurring pronunciation patterns across various lexical items rather than evaluating each student's individual pronunciation ability. To complement the qualitative analysis, the distribution of pronunciation errors is described using descriptive statistics consisting of frequencies and percentages, also known as quasi-statistics. Although these descriptive statistics are not intended to test hypotheses or make statistical generalizations, they aim to highlight specific pronunciation patterns that are most common among the participants.

Participants

The participants consisted of 21 junior high school students at a junior high school in Thailand, including 13 ninth graders and 8 eighth graders. During the data collection period, the researcher was conducting a teaching practicum at the school, so a convenience sampling method was used to select the participants. To avoid selective participation in this study, all students in the classes were invited to participate. The principal, the English teacher, and the homeroom teachers gave their permission to conduct the study before it began. All participants were learning English as a foreign language and were working on pronunciation exercises. Since the study aimed to identify common pronunciation patterns rather than to compare conversations between students or between individuals, the students were treated as a single group. To protect the participants' privacy, no personal identifiable information was recorded.

Research instrument

This tool consists of a pronunciation task comprising fifteen target items, including fourteen English words and one phrase. English as a Foreign Language (EFL) learners from Thailand often have difficulty understanding common English words that contain consonant clusters and consonant sounds. The target items were purposively selected to represent these words. Rather than providing a comprehensive assessment of English pronunciation, the purpose of the selected items is to identify pronunciation characteristics relevant to the research objectives. Prior to the main data collection, the pronunciation task and selected items were reviewed and discussed with the research advisor to ensure that they aligned with the research focus and were appropriate for the participants. The target items were school, square, speak, street, stand up, watch, short, think, call, use, work, very, fine, cook, and drink.

Data collection

Each participant completed the pronunciation task independently. Participants were asked to pronounce each target item aloud after fifteen target items were presented in the same order on a printed worksheet. All responses were digitally recorded on a smartphone. Each participant provided one recording, resulting in a corpus of 21 pronunciation recordings for analysis. To ensure consistency during data collection, all participants received the target items

in the same order. Although this method ensures that each participant completed the same pronunciation task, there may be order effects or fatigue effects that should be taken into account when interpreting the results.

Data analysis

To record the participants' actual pronunciation as accurately as possible, the initial recordings were transcribed using the International Phonetic Alphabet (IPA). To identify errors, each transcription was compared with standard English pronunciation, which served as a reference. Recurring phonological processes, such as vowel insertion (epenthesis), consonant substitution, consonant deletion, and consonant cluster simplification, were used to code the deviations found. To identify broader pronunciation patterns across the dataset, similar codes were grouped together.

Next, the IPA transcription and coding of pronunciation patterns were reviewed and discussed with the research advisor to enhance the credibility and consistency of the analysis. Before the final analysis was completed, any necessary revisions to the transcription and coding were made based on the advisor's feedback. The number of pronunciation errors was calculated and presented as a percentage to support the qualitative analysis. Not used as inferential statistical evidence, these descriptive statistics merely indicate how frequently certain pronunciation patterns occurred among participants and were interpreted in conjunction with the qualitative phonological analysis.

Trustworthiness and ethical considerations

A series of measures have been taken to improve the reliability of this analysis. Each recording was reviewed multiple times to ensure accurate coding and transcription. To identify pronunciation features, the initial transcriptions were cross-checked against IPA transcriptions. In addition, the coding of pronunciation patterns was thoroughly reviewed to ensure that similar pronunciation variations were classified consistently across the dataset.

Although no independent second transcriber was used, the IPA transcriptions and coding decisions were reviewed and discussed by the research advisor to enhance the credibility and consistency of the analysis. Before the final analysis was completed, revisions were made based on the advisor's suggestions. Throughout the study, ethical principles were upheld. No personal information was collected or reported, and participants' identities were anonymized. The analysis did not aim to assess or compare the language abilities of individual students based on recurring pronunciation patterns. Pronunciation data was recorded using a smartphone voice recorder, which produced sufficient sound quality to identify general pronunciation patterns. However, the analysis of the data may be limited when it comes to more subtle phonetic characteristics, such as aspiration or vowel quality. These limitations should be taken into account when interpreting the findings.

Results

The results of a pronunciation task completed by 21 English as a Foreign Language (EFL) students from Thailand are presented in this section. All participants pronounced

fifteen target items consisting of fourteen words and one phrase which were recorded and transcribed using the International Phonetic Alphabet (IPA). The results address two research questions. First, this study identified words that were mispronounced in English. Second, this study examined the recurring phonological patterns underlying these pronunciation errors.

English words most mispronounced by Thai students

The pronunciation results for the 15 target items are presented in Table 1. This table shows the correct pronunciation, common mispronunciations, and the frequency and percentage of mispronunciations.

Table 1. *Frequency of mispronunciation and common non-target pronunciations*

No.	Target Item	Target IPA	Common Mispronounced IPA Forms*	Frequency	Students (n=21)	Mispronunciation (%)
1	<i>school</i>	/sku:l/	[sə.ku] [sə.kul] [sə.kun] [sə.kuz]	2 12 6 1	21	100.0%
2	<i>square</i>	/skwer/	[sə.kwe] [sə.kwek] [sə.kriŋ] [sə.ke] [sə.ken] [sə.kwel]	13 4 1 1 1 1	21	100.0%
3	<i>Speak</i>	/spi:k/	[sə.pit] [sə.pik] [spik] [sə.piŋ]	1 15 1 2	19	90.5%
4	<i>Street</i>	/stri:t/	[stri:k] [sə.tris] [sə.tri] [sə.tit] [sə.trip] [sə.rit] [sə.trit] [sə.ti] [sə.triŋ] [sə.trik]	1 1 1 5 1 1 5 1 1 1	18	85.7%
5	<i>stand up</i>	/stænd ʌp/	[ste ʌp] [sə.tən ʌp] [sə.tən.ip]	1 9 1	11	52.4%
6	<i>Watch</i>	/wɒtʃ/	[wɒʃ]	1	21	100.0%

			[weh]	1		
			[wes]	2		
			[wotʃ]	1		
			[wɔs]	9		
			[set]	1		
			[wɔt]	6		
7	<i>very</i>	/ˈvɛri/	[we.ri]	20	21	100.0%
			[kra:]	1		
8	<i>Think</i>	/θɪŋk/	[tɛŋ]	4	17	81.0%
			[tɪŋ]	8		
			[tɪn]	1		
			[dɪŋ]	1		
			[tɪt]	1		
			[tɛk]	1		
			[kɛt]	1		
9	<i>Call</i>	/kɔ:l/	[kal]	1	10	47.6%
			[klen]	2		
			[kel]	3		
			[ket]	1		
			[kweŋ]	1		
			[kotʃ]	1		
			[kot]	1		
10	<i>Cook</i>	/kʊk/	[kulk]	1	4	19.0%
			[kluk]	1		
			[kud]	1		
			[kruk]	1		
11	<i>Short</i>	/ʃɔ:t/	[wis]	1	18	85.7%
			[ʃɔt]	7		
			[strɔt]	1		
			[ʃɔ]	1		
			[wɔk]	1		
			[ʃɔk]	2		
			[tʃɔs]	1		
			[tʃɔt]	3		
			[səhɔrt]	1		
12	<i>Fine</i>	/faɪn/	[faɪ]	8	18	85.7%
			[faɪk]	6		
			[fɪn]	2		
			[paɪk]	1		
			[maɪ]	1		
13	<i>Use</i>	/ju:z/	[jut]	1	21	100.0%
			[jus]	19		
			[juɔ]	1		
14	<i>Work</i>	/wɜ:k/	[wrɔk]	1	17	81.0%

			[wɔtʃ]	1		
			[wɔk]	5		
			[wɔs]	1		
			[wɛrk]	1		
			[rɛk]	1		
			[twɛh]	1		
			[wɛk]	5		
			[brɪŋ]	1		
15	<i>drink</i>	/drɪŋk/	[tɪŋ]	2	3	14.3%
			[tɪn]	1		

Table 1 shows not only the total number of pronunciation errors for each target word, but also the number of pronunciation errors for each non-target IPA variant. This additional information provides a clearer picture of the pronunciation variants most frequently used by the participants and makes it possible to identify the dominant pronunciation patterns for each target word.

Overall, the findings show that the participants had more difficulty pronouncing words with consonant clusters and English sounds that are not commonly found in their first language. Five target words, school, square, watch, very, and use, were mispronounced by all 21 participants, giving an error rate of 100.0%. The word speak also showed a high error rate, with 90.5% of participants pronouncing it incorrectly. The words street, short, and fine were each mispronounced by 85.7% of the participants, while think and work had an error rate of 81.0%. Fewer errors were found for *stand up* (52.4%) and *call* (47.6%). In comparison, *cook* caused fewer pronunciation problems, with only 19.0% of participants mispronouncing the word. The lowest error rate was found for *drinks*, as only 14.3% of the participants pronounced it incorrectly.

Words beginning with consonant clusters, such as school, square, speak, street, and stand up, generally showed high error rates. Most participants changed these words by inserting extra vowels or simplifying the consonant clusters to make them easier to pronounce. This finding suggests that English initial consonant clusters are one of the main pronunciation difficulties for the Thai EFL students in this study.

Pronunciation difficulties were also found in words containing English consonants that do not exist in the Thai sound system. For example, all participants mispronounced very, which contains the labiodental fricative /v/, and many replaced it with the glide /w/. Similarly, the voiceless dental fricative /θ/ in think was often replaced with sounds such as /t/ or /d/. The word watches also showed a 100.0% error rate, indicating that unfamiliar English consonants were frequently replaced with sounds that were more familiar to the participants' first-language phonological system.

Some pronunciation errors were also related to word-final consonants. This pattern was found in words such as call, fine, cook, and drink, although the error rates were different across these words. Fine showed a relatively high error rate (85.7%), while call was mispronounced by 47.6% of the participants. In contrast, cook (19.0%) and drink (14.3%) had the lowest error rates in the dataset. Although drink begins with a consonant cluster, most participants pronounced it correctly. This result suggests that not all consonant clusters cause

the same level of difficulty, and some English sound combinations may be easier for Thai learners to produce than others.

Pronunciation patterns observed among Thai EFL Learners

An analysis of the speech data revealed three recurring phonological patterns that the participants used to adapt to the sound structures of English that were unfamiliar to them.

Pattern 1. Vowel Insertion (Epenthesis), the most common pronunciation pattern found in this study is vowel insertion (epenthesis). Based on the data in Table 1, many participants added a vowel between consonants when pronouncing English words that begin with consonant clusters. This pattern was found in words such as school, square, speak, street, and stand up. These words had high error rates, ranging from 52.4% to 100.0%, showing that consonant clusters were difficult for many participants.

Instead of pronouncing the consonant cluster directly, the participants often inserted an extra vowel to make the word easier to say. For example, school was commonly pronounced as [sə.kul], and street was often pronounced as [sə.trit]. Similar pronunciation patterns were also found in square, speak, and stand up. Adding a vowel helped the participants produce a pronunciation that was closer to the sound pattern of their first language. This finding suggests that vowel insertion was the main strategy used by the participants when they had difficulty pronouncing English initial consonant clusters.

Pattern 2. Consonant Substitution, the second pattern found in this study is consonant substitution. In this pattern, the participants replaced English consonants with sounds that are more familiar in Thai. This pattern was found in words such as very, think, watch, and short. For example, the /v/ sound in very was often changed to /w/, so the word was pronounced as [wəri]. The /θ/ sound in think was also difficult for many participants. They usually replaced it with /t/ or /d/, because these sounds are easier for them to produce. Similar changes were also found in watch and short, where participants replaced English consonants with sounds that are closer to those in Thai. These results suggest that when learners meet English sounds that are not part of their first language, they often use familiar Thai sounds instead.

Pattern 3. Final Consonant Modification, the third pattern found in this study is final consonant modification. In this pattern, the participants changed or deleted the final consonant of English words. This pattern was found in words such as call, fine, cook, and drink. However, the number of errors was different for each word. Fine had a high error rate (85.7%), while call had a lower error rate (47.6%). The words cook (19.0%) and drink (14.3%) had the lowest error rates, showing that many participants were able to pronounce these words correctly.

These results show that final consonants can still be difficult for Thai learners, especially when the final sounds are different from those in their first language. Overall, the results suggest that the pronunciation errors were not random. The participants showed the same pronunciation patterns in many words. They often added a vowel, changed English consonants to familiar Thai sounds, or changed the final consonant to make the word easier to pronounce. These patterns show that the sound system of the first language had a strong effect on the participants' English pronunciation.

Discussion

The findings of this study show that Thai EFL learners had the greatest difficulty with English words that contain initial consonant clusters and English consonant sounds that are not found in Thai. The participants did not make pronunciation errors by chance. Instead, they showed the same pronunciation patterns across many words. The three main patterns found in this study were vowel insertion, consonant substitution, and final consonant modification. These patterns suggest that the participants changed English words to make them easier to pronounce by following the sound system of their first language.

The results show that words with initial consonant clusters were the most difficult. The words *school* and *square* were mispronounced by all participants, while *speak* and *street* also had very high error rates. Although *stand up* had a lower error rate, more than half of the participants still had difficulty pronouncing it. In many cases, the participants added a vowel between the consonants to make the words easier to say. This happened because English allows more consonant clusters at the beginning of words than Thai. As a result, the participants changed the English word structure so that it was closer to the sound pattern of Thai.

These findings support the Contrastive Analysis Hypothesis (Lado, 1957), which explains that differences between the first language and the target language can affect second language pronunciation. When the participants found English consonant clusters difficult, they often added a vowel instead of producing the consonants together. This strategy made the words easier for them to pronounce, but it also changed the correct English pronunciation. The same influence of the first language was also found in consonant substitution and final consonant modification, showing that Thai sound patterns played an important role in the participants' English pronunciation.

The results of this study also confirm the conclusions of previous research, namely that vowel insertion is one of the most common correction strategies used by students of English as a foreign language (EFL) when pronouncing unfamiliar consonant clusters (Altakhaineh et al., 2024). Similar pronunciation patterns were observed among learners with different linguistic backgrounds, suggesting that vowel insertion is a general response to phonemic constraints and not a phenomenon specific to Thai learners. The consistency with which this correction strategy manifests across different groups of learners highlights the important role that first language phonology plays in shaping second-language pronunciation.

In addition to vowel insertion, consonant substitution is another notable pronunciation strategy. Participants often replace unfamiliar English consonants with phonemes found in Thai. For example, the labiodental fricative /v/ is typically pronounced as /w/, while the dental fricative /θ/ is often replaced by an alveolar plosive, such as /t/ or /d/. Similar substitutions also occurred with other target words containing consonants that do not appear in the Thai phonemic system. These findings are consistent with previous studies, which show that learners often substitute unfamiliar phonemes with the closest equivalent phoneme available in their native language (Wahyu Anjani et al., 2023). Although such substitutions make pronunciation easier, they simultaneously reduce pronunciation accuracy and can hinder the listener's comprehension.

The third pronunciation pattern found in this study is final consonant modification. In this pattern, the participants changed or deleted the final consonant of English words. This pattern was found in words such as call, fine, cook, and drink. However, the error rates were not the same. Fine had a high error rate, while call showed a moderate error rate. In contrast, cook and drink had much lower error rates. These results suggest that some English final consonants were more difficult than others.

The changes to final consonants also show the influence of the participants' first language. When the final consonant was difficult to produce, some participants changed or removed the sound to make the word easier to pronounce. Together with vowel insertion and consonant substitution, this pattern shows that the pronunciation errors followed the same sound patterns across many words. This suggests that the participants' English pronunciation was strongly influenced by the sound system of Thai rather than by random mistakes.

An interesting finding of this study is that the percentage of pronunciation errors for the word “drink” is significantly lower than for other words that begin with a consonant cluster. Although this word begins with the sound combination /dr/, participants scored higher on the accuracy of its pronunciation than for words beginning with /sk/, /sp/, and /st/. One possible explanation for this is that not all consonant clusters are equally difficult to pronounce. From a phonetic perspective, this pattern could be related to the “principle of sound sequence,” since the /dr/ cluster follows a more natural pronunciation sequence and is therefore relatively easier to pronounce than more complex clusters. Although this aspect was not specifically examined in this study, this finding suggests that the type of consonant combination and not just its presence may have influenced the participants' pronunciation accuracy. Further research is needed to investigate this possibility in more detail.

A number of limitations must be taken into account when interpreting the study results. The pronunciation data were transcribed by the researcher and then checked by the advisor' to improve the consistency of the transcription. However, since the analysis is based on auditory assessments, a certain degree of subjectivity cannot be completely ruled out. Furthermore, the pronunciation examples were recorded using a cell phone during classroom activities; differences in recording quality may have affected the intelligibility of some utterances. Furthermore, the study participants came from only one school and represent a relatively small group of EFL learners in Thailand. These limitations must be taken into account when interpreting the research results and applying them to other groups of learners.

The findings of this study are significant for the teaching of English pronunciation. Given that the pronunciation issues observed in this study are systematic in nature, they are difficult to address through exposure to spoken English alone. Instead, pronunciation instruction must be conducted through targeted learning activities, with a specific focus on pronunciation exercises for consonant clusters and unfamiliar English consonants. Such activities may include discriminative listening tasks, minimal pair exercises, targeted pronunciation drills, visualization of syllable structure, and comparative activities that contrast the phonological patterns of Thai and English. This approach helps students become more aware of their own pronunciation strategies and gradually reduces their reliance on phoneme transfer from their native language.

Overall, this study expands upon previous research findings regarding English pronunciation by Thai students as foreign language learners; it not only identifies English

words that are frequently mispronounced but also uncovers the systematic phonological mechanisms that cause these errors in a real classroom context. The results indicate that Thai language learners do not view pronunciation errors as isolated mistakes but rather systematically apply predictable correction strategies determined by the phonemic constraints of their native language. These findings contribute to a better understanding of the influence of the native language on English pronunciation and provide practical guidance for designing more targeted pronunciation instruction for Thai EFL learners.

Conclusion

This study aims to investigate the English words most frequently mispronounced by Thai learners of English as a Foreign Language (EFL) and to analyze the pronunciation patterns leading to these errors. The results indicate that English words containing unfamiliar initial consonant clusters and unfamiliar fricatives pose the greatest challenges in pronunciation. Students do not make errors randomly but systematically employ three phonemic correction strategies: vowel insertion, consonant substitution, and adjustment of final consonants. These findings suggest that Thai students systematically adjust unfamiliar English phonemic structures to conform to the phonemic constraints of their native language.

By providing classroom-based empirical evidence, this study elucidates how the native phonological system influences the pronunciation of English consonant clusters among Thai secondary school students, thereby advancing research on English as a Foreign Language (EFL) pronunciation. These findings further support the “native language transfer” theory, which suggests that students apply familiar phonological structures when pronouncing unfamiliar English phoneme combinations. Therefore, pronunciation errors should be viewed as systematic phonological adjustments rather than mere isolated mistakes.

From a pedagogical perspective, these findings suggest that pronunciation instruction should not rely solely on passive exposure but should also explicitly focus on English consonant clusters and unfamiliar consonants. Classroom activities such as phoneme discrimination exercises, minimal pair exercises, targeted pronunciation drills, and comparative analyses of Thai and English phonemic structures can help students better understand these challenging phonemic patterns and improve pronunciation clarity.

This study has several limitations. First, the findings are based on a relatively small sample of 21 students from a single secondary school and therefore cannot be generalized to all Thai students learning English as a Foreign Language (EFL). Second, the pronunciation tasks were limited to 15 target words, which were read individually; this may not fully represent students’ pronunciation in spontaneous communication.

Future research should encompass a larger and more diverse group of students and involve different instructional contexts. Examining a broader range of vocabulary, coherent speech, and spontaneous spoken interactions will contribute to a more comprehensive understanding of the development of Thai students’ pronunciation. Follow up studies could also incorporate acoustic analysis to obtain more objective measurements of pronunciation characteristics and further investigate the development of pronunciation patterns across different stages of English language learning.

Disclosure Statement

No potential conflicts of interest were reported by the authors.

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