

## The Acquisition of L2 Fricatives in Thai Learners' Interlanguage

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### ABSTRACT

*This research examined how Thai undergraduates acquired English marked and unmarked fricatives in their interlanguage. It also determined what sounds the learners used to replace some fricatives and how variable they were. Based on the Markedness Differential Hypothesis (MDH), unmarked fricatives are /s/ and /f/, and marked ones are /ʃ/, /v/, /z/, /θ/, /ð/, and /ʒ/. The former are considered unmarked because they are available in Thai, whereas the latter are not. The participants included three groups: high, intermediate, and low proficiency students who were studied through three types of tasks: word list, sentence list, and oral interview. The word and sentence lists required the learners to produce the target fricatives in a formal situation, while the oral interview in a natural context. The results demonstrated that marked fricatives /v/, /z/, /θ/, /ð/, and /ʒ/ were difficult for the participants. Only the advanced informants could acquire unmarked /s/ and /f/ as well as marked /ʃ/ both initially and finally. According to the MDH, the learners produced /s/, /f/, and /ʃ/ before marked /v/, /z/, /θ/, /ð/, and /ʒ/. They also appeared to produce various substitutions for the problematic sounds. Plausible explanations to account for the Thai learners' difficulty of English fricatives involve the first language (L1) transfer, distribution of a particular sound, voicing, systematic variability, and design of a task. In pronunciation classes, teachers or educators may design tasks appropriate for their learners and employ strategies that suit their learning style preferences.*

*Keywords: English fricatives; interlanguage; L2 phonology; markedness; variability*

### INTRODUCTION

In second language (L2) phonology, a number of studies (Bada 2001, Dickerson 1975, Jehma & Phoocharoensil 2014, Flege 1995, Shahidi, Aman & Kechot 2012, Tarone 1979) have been conducted through various approaches to explain how learners acquire phonological structures in their interlanguage. The first modern approach investigating such an issue is the Contrastive Analysis Hypothesis (CAH), initially proposed by Lado (1957). Under this concept, linguistic features between two languages are systematically compared in order to determine potential errors in L2 learning contexts. The CAH predicts that linguistic differences between two languages would be difficult for L2 learners, whereas similarities would not. For example, English sounds such as /θ/ and /ð/ which are absent in Japanese are likely to pose considerable difficulty to Japanese learners (Bada 2001).

However, in many cases, such a prediction is not true. An Icelandic speaker, for example, does not have difficulty acquiring English /ʃ/ which is absent in his first language (L1) (Hecht & Mulford 1982). Clearly, this phenomenon suggests that the CAH cannot truly account for L2 errors (Davidson 2006, Flege 1995, Hansen 2004).

Accordingly, the Markedness Differential Hypothesis (MDH) developed by Eckman (1977), which takes into account the role of L1 transfer and the concept of markedness, is proposed. The MDH obviously differs from the CAH in the sense that it can predict whether a particular sound is acquired before another. For example, the MDH predicts that the initial /θ/ that is considered marked for Thai learners would be acquired after /s/, which is available in Thai.

Additionally, the concept of interlanguage variability, as proposed by Selinker (1972), is vitally important to L2 phonology research. By variability, Ellis (1985) means two or more linguistic rules are produced in a certain context where the only one accurate form is

required. For example, Japanese learners produce /s/ and /z/ interchangeably for the target /z/ in the interlanguage system (Dickerson 1975). This variability is a significant feature indicating that the learners have not achieved the desired goal yet. Once the target has been achieved, the variability will disappear. To ensure the acquisition of a certain sound, learners must show a high percentage of accuracy. In several L2 phonology studies (e.g. Andersen 1978, Carlisle 2006, Eckman 1991), 80% accuracy has been set as a threshold to determine whether a learner has fully acquired a particular sound.

As pointed out by Tarone (1983), variability can result from different types of tasks suggesting that L1 transfer may not be the only factor involved in interlanguage variability. Eckman (1981b) also postulates that voiced consonants rather than voiceless ones are likely to play a vital role in interlanguage variability. Furthermore, Denes (1963) proposes that the distribution of a particular sound may influence learners' interlanguage variability. Since this research mainly focuses on the difficult fricatives produced by Thai learners, these factors can be served as plausible explanations to account for the research results.

In the Thai context, the concept of the MDH tends to be neglected. It is likely that most previous related studies have not taken into account a certain criterion level of acquisition to identify the relative degree of difficulty and an order of phonological acquisition necessary for research on variability in L2 sound segments. Jehma and Phoocharoensil (2014), for example, investigated the acquisition of English fricatives to see whether L1 transfer was the major source of errors among Thai Pattani-Malay learners. Another relevant study was conducted by Chunsuvimol and Ronnakiat (2001), who determined whether different styles of tasks (conversation, reading text, and minimal pairs) affected the correct use of initial and final /v/ among Thai undergraduates. Kanokpermpoon (2007) also examined similarities and differences between Thai and English sounds among Thai informants.

In brief, since the CAH is not sufficient to account for the phonological structure in interlanguage, and the MDH, which helps predict the area of phonological difficulty and whether unmarked sounds are acquired before marked ones, is rarely discussed in most related studies in the Thai context, the present research aimed at investigating how Thai learners acquired L2 fricatives using the MDH as the main theoretical framework. Besides, variability in interlanguage was taken into account so that L2 phonological errors can be explained both theoretically and practically. As learners vary from one another in various ways (Song 2012), the findings obtained would definitely help shed some light on L2 teaching and on phonology research in practice.

## RESEARCH QUESTIONS AND HYPOTHESES

The present research aims to answer the following:

1) How do three groups of high, intermediate, and low proficiency participants produce marked and unmarked fricatives? Based on the question, two hypotheses are also formulated as follows:

1.1) According to the MDH, it is hypothesised that target language (TL) structures that are different or marked in their corresponding native language (NL) structures will be difficult. In other words, marked fricatives /z/, /v/, /ʃ/, /θ/, /ð/, and /ʒ/ will be difficult for the Thai informants, whereas unmarked /s/ and /f/ will not. The fricatives /z/, /v/, /ʃ/, /θ/, /ð/, and /ʒ/ are considered marked as they are absent in Thai phonology, while /s/ and /f/ are not.

In this present study, these marked and unmarked features are categorised and interpreted based on Kanokpermpoon (2007), who determined similarities and differences between Thai and English consonants. He proposed that English sounds that are absent in

Thai tend to be more difficult than those that are present in both Thai and English. This is considered a breakthrough study which has incorporated Kanokpermpoon's (2007) proposed idea into the notion of the MDH, established by Eckman (1977).

- 1) In terms of order of acquisition, it is also hypothesised that unmarked /s/ and /f/ will be acquired before marked /z/, /v/, /ʃ/, /θ/, /ð/, and /ʒ/. This is hypothesised based on the MDH.
- 2) In terms of variability, what sounds do the participants use to replace the English fricatives?

## LITERATURE REVIEW

Since the CAH cannot truly account for the phonological structure in interlanguage, the MDH, as a new theoretical framework, is proposed and discussed here. The MDH, as formulated by Eckman (1977), can be defined as follows. First, those areas of the TL which are different from the NL are considered more marked and will be difficult. For example, English sounds /θ/ and /ʒ/, which are not there in Thai, will be difficult for Thai learners. Second, those areas of the TL that are different from the NL and considered more marked than those of the NL will correspond to the relative degree of markedness. Since /θ/ is used in English only, whereas /f/ is used in both English and Thai, Thai students will acquire /f/ before /θ/.

The claim above is considered the first standard version of the MDH. Later, the hypothesis was reformulated by Eckman (1981a) calling it simply as typological markedness. Within this reformulated hypothesis, TL structures that are different from NL and are relatively more marked than NL structures will be difficult to be acquired.

In this research, the MDH is attempted as it takes into account the role of L1 transfer and the concept of markedness. In fact, the MDH is chosen because of two reasons. First, the notion of markedness would help us identify the area of difficulty in phonology. Second, it helps us explain why a particular sound is mastered before another. Anderson (1987) also proposes that NL interference alone cannot explain L2 phonological difficulty. Plausibly, other contributing factors closely associated with the TL cause L2 difficulty. The concept of interlanguage and the role of interlanguage variability, therefore, should be a better explanation for L2 phonology difficulty among Thai students.

## THE CONCEPT OF INTERLANGUAGE

One of the most interesting hypotheses to be put forth in second language acquisition (SLA) is the hypothesis of interlanguage which indicates that when acquiring the TL, learners internalise a system of rules which may be independent of both the NL and TL. Such a system is probably different from both the NL and TL.

As first established by Selinker (1972), interlanguage refers to unique linguistic features produced by L2 learners. In other words, interlanguage is the systematic knowledge of a language that is independent of both the NL and TL. Corder (1971) defines the notion of interlanguage as an idiosyncratic dialect, which means the nature of the dialect is unstable. He also points out that this dialect is transitional between the NL and TL. Nemser (1971) defines such a dialect as an approximative system. That is, at any given point of time, this approximative system is different from learners' NL and TL and is unstable as well. Even though the interlanguage is defined differently, it is attributable to a separate language system that is a dynamic continuum (Corder 1971). In an attempt to fully understand Thai speakers'

SLA process and their phonological development in the interlanguage, the concept of interlanguage variability is further discussed.

#### INTERLANGUAGE VARIABILITY

The concept of interlanguage has played a crucial role in SLA research (Song 2012). In the study of interlanguage, one of the characteristics included is the role of variability, one of the contributing factors probably affecting learners' learning process. This variability can be explained in both predictable and unpredictable ways. As defined by Ellis (1985), variability refers to a certain context where L2 learners apply two or more linguistic rules interchangeably to express a message in which the only one correct TL rule is required.

One of the interlanguage variability studies is provided by Dickerson (1975), who investigated the effect of linguistic contexts on variability. In the investigation, the production of English /z/ among ten Japanese learners was targeted. Tasks administered included free conversations, dialogue reading, and word list reading. It was found that the learners produced the /z/ variably; they used /s/ and /z/ interchangeably for the target /z/. The researcher proposed that there was a relationship between sounds and phonetic contexts of the target /z/. That is, the learners produced the target /z/ in the word list reading more easily than that in the free speech. In the dialogue reading, the percentage of accuracy was between the word list and free speaking. Dickerson also pointed out that variability in speech production is systematic for the same community of learners. For example, the Japanese speakers produced variables /θ/, /s/, /dʒ/, and /z/ for the /z/ targeted.

Abd Ghani (1995) also investigated variability in the interlanguage phonology of Malaysian learners of English using tasks in various contexts (e.g. casual conversation, reading of minimal pairs, reading of word lists, and reading of dialogues). The variables investigated were fricatives /θ/, /ð/, and /v/ in initial and final positions. The findings demonstrated that the Malaysian learners showed the highest score of the target fricatives in the reading of minimal pairs. This is followed by the word list reading, dialogue reading, and free speaking in which the learners revealed the lowest score. The learners were found to produce /t/ for /θ/ in word initial positions, whereas they used /tθ/, /s/, and /t/ for /θ/ in final positions. For initial /ð/, stop /d/ was produced, while sounds such as /θ/, /f/, /t/, /d/, and /z/ were used for /ð/ in final positions. The subjects also appeared to substitute voiceless /f/ for voiced /v/ finally, suggesting the learners produced the voiceless /f/ that was easy for the /v/ they found problematic. From the findings, it can be posited that attention paid to speech form could be employed to account for variability in the learners' speech performance of the TL phonemes.

Hecht and Mulford (1982) addressed whether L1 transfer reflected the acquisition of English fricatives /s/, /z/, /f/, /v/, /ʃ/, /θ/, /ð/, and /ʒ/ in initial and final positions by an Icelandic speaker. In Icelandic, phonemes /z/, /ʃ/, and /ʒ/ are absent. The subject's speech was recorded for approximately one hour weekly over a period of eight months. The findings revealed that the learner found /s/, /f/, and /ʃ/ easy in initial and final positions. The Icelandic speaker also found initial /θ/ and /ð/ easy. However, he experienced difficulty producing /z/, /v/, and /ʒ/ initially and finally as well as /θ/ finally. The results suggest that L1 transfer and the aspect of voicing might have played an essential role in the Icelandic speaker's difficulty of L2 fricatives. More specifically, the learner appeared to have difficulty with English /z/ and /ʒ/, which are absent in his L1. In terms of voicing, the subject substituted /f/ for problematic /v/, which suggests that voiceless /f/ is easier than voiced /v/ for L2 learners to pronounce.

According to Ellis (1985), there are two types of interlanguage variability: systematic and non-systematic. Interlanguage is systematic as it can be explained by predictable determinants in linguistic and situational contexts. By linguistic context, Song (2012) means

variable forms change according to the surrounding sounds. For instance, a language learner can produce the final fricative /z/ in the word *freeze* correctly, but he or she has difficulty pronouncing it in the word *cause*. This clearly indicates that the interlanguage changes in accordance with the linguistic context.

The other type of systematic variability involves situational contexts. This type of variability suggests that the learner's TL changes when the situational context changes. For example, a learner can produce the final fricative /s/ well in a word list reading task; however, he or she fails to use it correctly in an oral interview. Song (2012) posits that this phenomenon is due to the fact that the learner does not have enough time to make use of his or her linguistic competence. According to Tarone (1983), variability in situational contexts or style-shifting plays a role in the learner's linguistic performance. The style continuum can range from an informal to a careful style. In the careful style of task, variants are more accurate and target-like than those in the more natural style. However, Beebe (1980) argues that a target-like variant is not always found in formal language situations. She explains that the learner's production of the TL is probably affected by the NL. Situational contexts can be influenced by several factors such as learners' NL, their development stage, or their difficulty of TL forms. Song (2012) also proposes that style-shifting is aimed to study interlanguage from the socio-linguistic view, which helps explain why the learner's TL forms vary according to diverse language contexts. She concludes that linguistic and situational contexts are systematic even though a number of unforeseeable determinants may appear during the interlanguage continuum. That is, all the systematic variability can serve as one of the related aspects in describing L2 learners' production of the TL.

Also, interlanguage has non-systematic variability. There are two types of non-systematic variability in interlanguage: performance and free variability. Performance variability refers to the cause of some failures in producing linguistic forms, which include "slips of tongue, false starts, derivation from rules, changes of mind and so on" (Song 2012, p. 780). Chomsky (1965) believes that performance variability appears when a language learner cannot express his or her competence. By free variability, Song (2012) means the situation in which a language user produces two or more forms to convey the same meaning. For example, a native speaker of English may produce /aɪ/ and /i:/ for the word *either*. A number of free variability instances are generally found in interlanguage, which is an important characteristic to explain how linguistic features change during the interlanguage continuum.

In short, interlanguage can be systematic and non-systematic. In terms of systematic variability, linguistic and situational contexts are related. In non-systematic variability, performance and free variability are directly involved.

## METHODOLOGY

In this section, the participants and research instruments are presented. Then the choice of target fricatives, data collection procedures, and data analysis are explained.

### PARTICIPANTS

The data were collected from 45 Thai undergraduates divided into high (n = 15), intermediate (n = 15), and low proficiency (n = 15) according to their O-NET scores, administered as an English admission exam by the National Institute of Educational Testing Service twice a year. Students whose O-NET scores were between 30 and 49 were assigned as low proficiency participants. Those whose scores were between 50 and 69 were treated as



intermediate participants, whereas those between 70 and 89 were classified as advanced learners. The learners whose O-NET scores were lower than 30 were disregarded as they might not be able to produce the target fricatives in the oral interview task. Furthermore, those whose O-NET scores were between 90 and 100 were excluded as they were low in number.

#### RESEARCH INSTRUMENTS

According to Ellis (1985), types of tasks have played a vital role in interlanguage variability. Tarone (1979) also supports that the use of different types of tasks to elicit L2 speech data would result in different findings. To take a closer look at whether English fricatives would vary after a task type, word list reading, sentence list reading, and oral interview tasks were developed. This would help in seeing whether using different tasks would affect any variability in fricatives among Thai learners and would help in receiving actual speech data in a more natural context.

The three types of tasks are explained in detail as follows. The first task administered in the study is word list reading (see Appendix A), designed on the basis that using carefully planned utterances will probably result in more target-like forms (Ellis 1985). This type of research material is considered formal as it focuses on the amount of attention to form, which can be found in several studies (Chan 2010, Mousa 2015). The second type of task is sentence list reading (see Appendix B), which was also developed based on the idea proposed by Ellis (1985) that the use of different task types such as formal or informal could lead to different results. Specifically, careful styles of planned utterances could produce more native-like forms. The final task type developed for the study is oral interview (see Appendix C). The questions given in the task were mostly about the topics the learners would be more comfortable talking about. As suggested by Tarone (1979), topics considered in an oral interview task should be closely related to learners' daily conversations such as their past events, favourite subjects, and free-time activities. Tarone believes that the topics associated with everyday conversations would help L2 learners feel comfortable to talk about and they would not be reluctant to provide answers. Thus, the oral interview task with questions regarding daily conversations was developed.

Before the actual research, the three types of research materials were checked for content validity known as IOC (The Index of Item Objective Congruence) by three English lecturers. Then the tasks were piloted with 10 EFL students for test reliability known as Cronbach's Alpha Coefficient. The results demonstrated that the word list reading had reliability at the significant level  $r = 0.92$ , sentence list reading  $r = 0.89$ , and oral interview  $r = 0.85$ .

#### THE CHOICE OF TARGET FRICATIVES

This study aimed to see how the informants pronounced /s/, /f/, /z/, /v/, /ʃ/, /θ/, /ð/, and /ʒ/ initially and finally. These target variables were chosen based on the fact that the problematic sounds for Thai learners are mostly fricatives when compared with other sounds (Kanokpermpoon 2007). Additionally, the fricatives investigated in the study are restricted to initial and final positions. The choice of these word positions was decided on the basis of the concept of markedness.

Within the markedness hypothesis framework, unmarked and marked consonants can be divided into two ways. The first deals with the presence of a certain sound between Thai and English, while the second involves the word position where a certain segment is pronounced. More specifically, /s/ and /f/ are regarded as unmarked because of their presence in Thai, and /z/, /v/, /ʃ/, /θ/, /ð/, and /ʒ/ are marked due to their absence. Besides, fricatives /s/

and /f/ are pronounced initially only in Thai (Thep-Ackrapong 2005). According to the second interpretation of markedness, only two initial voiceless fricatives /s/ and /f/ are considered unmarked. In this research, the first notion of markedness is the main focus. As pointed out by Isarankura (2015) and Thep-Ackrapong (2005), the final consonant in English may be the most difficult aspect for Thai learners to pronounce. To see a clearer picture of how Thai learners develop their L2 phonology, the fricatives investigated in this study are restricted to initial and final positions.

#### DATA COLLECTION PROCEDURES

Before the participants were studied, they were asked to sign a consent form to make certain that they were not forced to take part in the research. The data were obtained in three sessions where the informants met the researcher individually in a language laboratory. Then the researcher explained the tasks. After the informants completed the word and sentence lists, the oral interview was administered. Each task lasted approximately five minutes, during which time each informant's speech was recorded using the Sony Sound Forge Programme. The speech data were then transcribed and transformed into statistical tests.

#### DATA ANALYSIS

To make the findings reliable, the researcher and two research associates were directly involved in the transcription. One was a native speaker of English who had experience teaching English listening and speaking in a Thai university for more than five years. This native speaker associate, holding a master's degree in English Language Teaching, was also familiar with English sound segments and problematic sounds among Thai EFL learners. The other research assistant was a Thai female professor of English who had experience teaching English phonetics and phonology for several years. Previously, she had been trained in English phonetics and phonology and graduated with a doctoral degree in English. Therefore, this research assistant was familiar with the sound system of English and highly qualified for the transcription. The researcher himself also transcribed the speech data. He previously had experience teaching and training in English phonetics and phonology.

In the transcription, the researcher selected all the recording files across the participants and tasks and sent them to the two research assistants. The recordings were analysed independently by the two raters and the researcher.

In the analysis, only human transcription was decided on the basis that difficult sounds can be identified by an experienced researcher without the aid of any instrument (Chan 2010). In transcribing the recordings, the research associates and the investigator took into account the production of each fricative segment. The transcription of the sounds obtained was determined by the IOC method in which there were three options: yes, no, and not sure given for each rater to choose. At least two raters agreed whether a particular target sound was difficult. In case the transcription of a certain sound could not be agreed by at least two raters, it was considered unreliable and therefore disregarded in the study. A reliability check among the three raters showed the agreement of 92%.

Following the transcription and reliability check, frequency of each variable was tallied and transformed into statistical methods known as Wilcoxon Signed Rank Test, Friedman Test, and percentage. The Wilcoxon Signed Rank Test was carried out to figure out what fricatives caused difficulty to the participants, whereas the Friedman Test to report their order of phonological acquisition. Finally, the percentage was calculated to see what sounds the learners replaced the target fricatives.

More specifically, to answer the first research question and Hypothesis 1.1, two hypotheses formulated based on the Wilcoxon Signed Rank Test are as follows: H0:  $\mu \leq 0.80$

and H1:  $\mu > 0.80$ . In H0 and H1,  $\mu$  refers to the estimated median of a particular variable, whereas number 0.80 refers to a criterion level of acquisition. This number was statistically calculated based on 80% accuracy, used in several L2 phonology studies (e.g. Andersen 1978, Carlisle 2006, Eckman 1991). In this study, the 80% accuracy of a particular fricative is regarded as the criterion level of acquisition among the Thai students. H0 is rejected if the p-value is lower than  $\alpha$  (0.05), which statistically confirms that the Thai learners find a particular sound easy and therefore can reach the interlanguage continuum.

In order to address the first research question and Hypothesis 1.2, formulated in light of the MDH, the data were analysed based on the Friedman Test. For the results, two hypotheses are formulated as follows: H0: the mean rank of each variable is equal across others, whereas H1: at least one mean rank of each variable is not equal across others. H0 is rejected if the Asymp.Sig in the Friedman Test is lower than the significant level  $\alpha = 0.05$ , indicating that H1 is statistically accepted. In other words, if H1 is accepted, each variable can be ranked according to its mean score.

## RESULTS

In this section, the findings for the research questions and hypotheses are presented. In Tables 1-3, difficult sounds are presented. In Tables 4-6, the order of phonological acquisition is reported, and in Tables 7-9, substitutions for problematic fricatives are revealed.

### DIFFICULTY OF TARGET FRICATIVES

TABLE 1. Results of advanced learners from WLT, SLT, and OIT

Fricative	WLT			SLT			OIT		
	Wilcoxon Statistics	Estimated Median	P-Value	Wilcoxon Statistics	Estimated Median	P-Value	Wilcoxon Statistics	Estimated Median	P-Value
Initial/s/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /s/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Initial /f/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /f/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Initial /v/	36.00	0.50	0.92	21.00	0.50	0.99	18.00	0.50	0.99
Final /v/	28.00	0.50	0.97	4.00	0.31	1.00	0.00	0.25	1.00
Initial /z/	45.00	0.75	0.81	21.00	0.50	0.99	6.00	0.00	1.00
Final /z/	0.00	0.25	1.00	0.00	0.14	1.00	1.00	0.00	1.00
Initial /θ/	45.00	0.50	0.81	45.00	0.50	0.81	27.00	0.50	0.97
Final /θ/	45.00	0.50	0.81	45.00	0.50	0.81	35.00	0.50	0.93
Initial /ð/	6.00	0.00	1.00	3.00	0.27	1.00	15.00	0.50	1.00
Final /ð/	6.00	0.00	1.00	3.00	0.25	1.00	15.00	0.50	1.00
Initial /ʃ/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /ʃ/	105.00	1.00	0.01*	105.00	1.00	0.01*	90.00	1.00	0.04*
Final /ʒ/	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00

\*P-Value < 0.05

In Table 1, the results from the word list task (henceforth WLT), sentence list task (hereafter SLT), and oral interview task (henceforth OIT) revealed that the advanced learners could acquire /s/, /f/, and /ʃ/ both initially and finally at the significant level  $\alpha = 0.05$ . However, they found /v/, /z/, /θ/, /ð/, and /ʒ/ difficult at the significant level  $\alpha = 0.05$ . Obviously, the result of /ʃ/ rejects Hypothesis 1.1, indicating that TL forms that are more marked than their corresponding NL ones will be difficult to acquire.



TABLE 2. Results of intermediate learners from WLT, SLT, and OIT

Fricative	WLT			SLT			OIT		
	Wilcoxon Statistics	Estimated Median	P-Value	Wilcoxon Statistics	Estimated Median	P-Value	Wilcoxon Statistics	Estimated Median	P-Value
Initial /s/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /s/	120.00	1.00	0.00*	120.00	1.00	0.00*	119.00	1.00	0.00*
Initial /f/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /f/	91.00	1.00	0.04*	105.00	1.00	0.01*	120.00	1.00	0.00*
Initial /v/	15.00	0.50	1.00	28.00	0.50	0.97	15.00	0.50	1.00
Final /v/	10.00	0.25	1.00	1.00	0.22	1.00	0.00	0.00	1.00
Initial /z/	15.00	0.50	1.00	28.00	0.50	0.97	15.00	0.50	1.00
Final /z/	0.00	0.00	1.00	0.00	0.14	1.00	1.00	0.17	1.00
Initial /θ/	10.00	0.00	1.00	6.00	0.00	1.00	6.00	0.00	1.00
Final /θ/	21.00	0.50	1.00	15.00	0.50	1.00	6.00	0.00	1.00
Initial /ð/	0.00	0.00	1.00	0.00	0.04	1.00	1.00	0.00	1.00
Final /ð/	15.00	0.50	1.00	3.00	0.25	1.00	1.00	0.00	1.00
Initial /ʃ/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /ʃ/	66.00	1.00	0.38	120.00	1.00	0.00*	105.00	1.00	0.01*
Final /z/	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00

\*P-Value < 0.05

In Table 2, the findings obtained from the SLT and OIT demonstrated that the average learners could acquire unmarked /s/ and /f/ as well as marked /ʃ/ initially and finally at the level of significance  $\alpha = 0.05$ . However, they were not able to acquire marked /v/, /z/, /θ/, /ð/, and /z/ at the level of significance  $\alpha = 0.05$ . In the WLT, the average learners could acquire /s/ and /f/ both initially and finally at the significant level  $\alpha = 0.05$ . The informants also found /ʃ/ in the initial position easy, whereas they found it difficult in the final position at the significant level  $\alpha = 0.05$ . The participants had considerable difficulty producing marked /v/, /z/, /θ/, /ð/, and /z/ both initially and finally at the significant level  $\alpha = 0.05$ .

Clearly, this evidence does not confirm Hypothesis 1.1 as the marked fricative /ʃ/ was not difficult for the intermediate informants.

TABLE 3. Results of beginner learners from WLT, SLT, and OIT

Fricative	WLT			SLT			OIT		
	Wilcoxon Statistics	Estimated Median	P-Value	Wilcoxon Statistics	Estimated Median	P-Value	Wilcoxon Statistics	Estimated Median	P-Value
Initial /s/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /s/	55.00	0.75	0.63	31.50	0.80	0.57	88.00	1.00	0.01*
Initial /f/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /f/	66.00	1.00	0.38	55.00	0.75	0.62	75.00	0.83	0.21
Initial /v/	0.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Final /v/	3.00	0.00	1.00	0.00	0.06	1.00	1.00	0.17	1.00
Initial /z/	1.00	0.25	1.00	3.00	0.00	1.00	3.00	0.00	1.00
Final /z/	0.00	0.00	1.00	0.00	0.14	1.00	5.00	0.00	1.00
Initial /θ/	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Final /θ/	3.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Initial /ð/	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Final /ð/	1.00	0.00	1.00	3.00	0.00	1.00	0.00	0.00	1.00
Initial /ʃ/	120.00	1.00	0.00*	120.00	1.00	0.00*	120.00	1.00	0.00*
Final /ʃ/	45.00	0.75	0.81	45.00	0.50	0.81	66.00	1.00	0.36
Final /z/	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00

\*P-Value < 0.05

In Table 3, the findings from the WLT and SLT revealed that the least proficient learners could acquire unmarked /s/ and /f/ as well as marked /ʃ/ initially, while they had problems using these sounds finally at the significant level  $\alpha = 0.05$ . The students had difficulty learning /v/, /z/, /θ/, /ð/, and /z/ at the significant level  $\alpha = 0.05$ . In the OIT, the learners could acquire /s/, /f/, and /ʃ/ initially at the significant level  $\alpha = 0.05$ . The students could also acquire /s/ finally. However, they had problems using /f/ and /ʃ/ finally and /v/, /z/,

/θ/, /ð/, and /ʒ/ both initially and finally at the level of significance  $\alpha = 0.05$ . From the results, Hypothesis 1.1 is not supported because the beginners found /f/ in the initial position easy.

In short, the advanced learners could produce unmarked /s/ and /f/ as well as marked /ʃ/ both initially and finally in the WLT, SLT, and OIT. The average informants could also acquire unmarked /s/ and /f/ as well as marked /ʃ/ both initially and finally. In the WLT, the intermediate participants found final /ʃ/ difficult. The beginners could acquire /s/ both initially and finally in the OIT. They could also produce /f/ and /ʃ/ initially across the tasks.

#### ORDER OF PHONOLOGICAL ACQUISITION

In Tables 4-6, the findings for the first research question and Hypothesis 1.2 are reported. It should be noted here that the number indicated after each fricative refers to its order of acquisition.

TABLE 4. Acquisition order from WLT, SLT, and OIT by advanced learners

Rank	WLT		Rank	SLT		Rank	OIT	
	Mean	Asymp.Sig		Mean	Asymp.Sig		Mean	Asymp.Sig
<b>Initial</b>	11.40	0.00*	Initial	12.07	0.00*	Initial	12.03	0.00*
<b>/f/(1)</b>			<b>/f/(1)</b>			<b>/f/(1)</b>		
<b>Final</b>	11.40	0.00*	Final	12.07	0.00*	Final	12.03	0.00*
<b>/f/(1)</b>			<b>/f/(1)</b>			<b>/f/(1)</b>		
<b>Initial</b>	11.40	0.00*	Initial	12.07	0.00*	Initial	12.03	0.00*
<b>/s/(1)</b>			<b>/s/(1)</b>			<b>/s/(1)</b>		
<b>Final</b>	11.40	0.00*	Final	12.07	0.00*	Final	12.03	0.00*
<b>/s/(1)</b>			<b>/s/(1)</b>			<b>/s/(1)</b>		
<b>Initial</b>	11.40	0.00*	Initial	12.07	0.00*	Initial	12.03	0.00*
<b>/ʃ/(1)</b>			<b>/ʃ/(1)</b>			<b>/ʃ/(1)</b>		
<b>Final</b>	10.80	0.00*	Final	11.40	0.00*	Final	10.87	0.00*
<b>/ʃ/(6)</b>			<b>/ʃ/(6)</b>			<b>/ʃ/(6)</b>		
<b>Initial</b>	8.43	0.00*	Initial	8.17	0.00*	Final	7.83	0.00*
<b>/z/(7)</b>			<b>/z/(7)</b>			<b>/θ/(7)</b>		
<b>Final</b>	8.23	0.00*	Final	8.17	0.00*	Initial	7.60	0.00*
<b>/θ/(8)</b>			<b>/θ/(7)</b>			<b>/θ/(8)</b>		
<b>Initial</b>	8.17	0.00*	Initial	6.37	0.00*	Initial	6.50	0.00*
<b>/θ/(9)</b>			<b>/θ/(9)</b>			<b>/v/(9)</b>		
<b>Initial</b>	7.73	0.00*	Initial	6.27	0.00*	Final	6.33	0.00*
<b>/v/(10)</b>			<b>/v/(10)</b>			<b>/ð/(10)</b>		
<b>Final</b>	7.00	0.00*	Final	6.27	0.00*	Initial	6.27	0.00*
<b>/v/(11)</b>			<b>/v/(10)</b>			<b>/ð/(11)</b>		
<b>Initial</b>	4.70	0.00*	Initial	5.73	0.00*	Initial	5.07	0.00*
<b>/ð/(12)</b>			<b>/ð/(12)</b>			<b>/z/(12)</b>		
<b>Final</b>	4.60	0.00*	Final	5.23	0.00*	Final	4.87	0.00*
<b>/ð/(13)</b>			<b>/ð/(13)</b>			<b>/v/(13)</b>		
<b>Final</b>	4.47	0.00*	Final	4.97	0.00*	Final	4.57	0.00*
<b>/z/(14)</b>			<b>/z/(14)</b>			<b>/z/(14)</b>		
<b>Final</b>	3.37	0.00*	Final	2.33	0.00*	Final	3.90	0.00*
<b>/ʒ/(15)</b>			<b>/ʒ/(15)</b>			<b>/ʒ/(15)</b>		

\*Asymp.Sig < 0.05

As revealed by the WLT, SLT, and OIT, the advanced learners acquired /f/ and /s/ initially and finally as well as /ʃ/ initially in the earliest stage of acquisition at the significant level  $\alpha 0.05$ . The learners acquired /ʃ/ finally and /v/, /z/, /θ/, and /ð/ both initially and finally in the later stage. They appeared to acquire final /ʒ/ in the latest stage.

Clearly, since initial /ʃ/ was mastered in the same stage as initial and final /f/ and /s/, Hypothesis 1.2 is rejected. Hypothesis 1.2 indicates that unmarked fricatives /s/ and /f/ will be acquired before marked /v/, /z/, /ʃ/, /θ/, /ð/, and /ʒ/. In Table 5, the results of the intermediate learners are revealed.

TABLE 5. Acquisition order from WLT, SLT, and OIT by intermediate learners

Rank	WLT		Rank	SLT		Rank	OIT	
	Mean	Asymp.Sig		Mean	Asymp.Sig		Mean	Asymp.Sig
Initial /f/(1)	12.23	0.00*	Initial /f/(1)	12.23	0.00*	Initial /f/(1)	12.40	0.00*
Initial /s/(1)	12.23	0.00*	Initial /s/(1)	12.23	0.00*	Final /f/(1)	12.40	0.00*
Final /s/(1)	12.23	0.00*	Final /s/(1)	12.23	0.00*	Initial /s/(1)	12.40	0.00*
Initial /ʃ/(1)	12.23	0.00*	Initial /ʃ/(1)	12.23	0.00*	Initial /ʃ/(1)	12.40	0.00*
Final /f/(5)	11.43	0.00*	Final /ʃ/(1)	12.23	0.00*	Final /ʃ/(1)	12.13	0.00*
Final /ʃ/(6)	10.30	0.00*	Final /ʃ/(1)	11.90	0.00*	Final /s/(5)	11.87	0.00*
Final /θ/(7)	7.63	0.00*	Initial /f/(6)	7.47	0.00*	Final /ʃ/(6)	6.80	0.00*
Final /ð/(8)	6.93	0.00*	Initial /v/(7)	7.43	0.00*	Initial /z/(7)	6.77	0.00*
Initial /z/(9)	6.83	0.00*	Initial /z/(8)	6.33	0.00*	Initial /v/(8)	6.13	0.00*
Initial /v/(10)	6.73	0.00*	Final /θ/(9)	6.07	0.00*	Final /z/(9)	5.73	0.00*
Final /v/(11)	6.40	0.00*	Final /v/(10)	5.53	0.00*	Final /θ/(10)	5.73	0.00*
Initial /θ/(12)	6.00	0.00*	Final /ð/(11)	5.40	0.00*	Final /θ/(10)	5.10	0.00*
Final /z/(13)	4.70	0.00*	Final /z/(12)	5.03	0.00*	Final /ð/(12)	4.83	0.00*
Initial /ð/(14)	4.13	0.00*	Initial /θ/(13)	4.33	0.00*	Final /v/(13)	4.57	0.00*
Final /z/(15)	3.73	0.00*	Initial /ð/(14)	3.10	0.00*	Initial /ð/(14)	4.03	0.00*
			Final /z/(15)			Final /z/(15)		

\*Asymp.Sig < 0.05

The findings derived from the WLT showed that the average students acquired /s/ both initially and finally as well as /f/ and /ʃ/ initially in the first stage of acquisition. The learners were found to produce /f/ and /ʃ/ finally as well as /z/, /v/, /θ/, and /ð/ both initially and finally in the later stage. They produced final /z/ in the latest rank.

Regarding the SLT, the findings demonstrated the learners used /f/ initially as well as /s/ and /ʃ/ both initially and finally in the first order of acquisition. In the latter sequence, the learners produced /f/ finally as well as /z/, /v/, /θ/, and /ð/ both initially and finally. In the latest ranking, they used final /z/.

In the OIT, the intermediate students produced /s/ and /ʃ/ initially as well as /f/ both initially and finally in the earliest order of acquisition. The learners used /s/ and /ʃ/ finally as well as /z/, /v/, /θ/, and /ð/ both initially and finally in the latter stage. In the latest stage, the learners produced final /z/. Since the average learners did not acquire marked /ʃ/ after unmarked /s/ and /f/ in initial positions, Hypothesis 1.2 is not supported.

TABLE 6. Acquisition order from WLT, SLT, and OIT by beginner learners

Rank	WLT		Rank	SLT		Rank	OIT	
	Mean	Asymp.Sig		Mean	Asymp.Sig		Mean	Asymp.Sig
Initial /f/(1)	13.27	0.00*	Initial /f/(1)	13.43	0.00*	Initial /f/(1)	13.23	0.00*
Initial /s/(1)	13.27	0.00*	Initial /s/(1)	13.43	0.00*	Initial /s/(1)	13.23	0.00*
Initial /ʃ/(1)	13.27	0.00*	Initial /ʃ/(1)	13.43	0.00*	Initial /ʃ/(1)	13.23	0.00*
Final /ʃ/(1)	12.33	0.00*	Final /ʃ/(1)	11.70	0.00*	Final /ʃ/(1)	11.91	0.00*

/f/(4)			/f/(4)			/s/(4)		
Final	11.13	0.00*	Final	11.57	0.00*	Final	11.63	0.00*
/s/(5)			/s/(5)			/f/(5)		
Final	10.43	0.00*	Final	9.70	0.00*	Final	11.60	0.00*
/ʃ/(6)			/ʃ/(6)			/ʃ/(6)		
Initial	6.47	0.00*	Final	7.30	0.00*	Final	6.77	0.00*
/z/(7)			/z/(7)			/v/(7)		
Final	6.27	0.00*	Final	6.80	0.00*	Final	6.47	0.00*
/v/(8)			/v/(8)			/z/(8)		
Final	5.93	0.00*	Final	5.73	0.00*	Initial	5.87	0.00*
/θ/(9)			/ð/(9)			/z/(9)		
Final	5.60	0.00*	Initial	5.63	0.00*	Final	5.30	0.00*
/ð/(10)			/z/(10)			/θ/(10)		
Initial	5.33	0.00*	Initial	5.10	0.00*	Initial	4.70	0.00*
/θ/(11)			/v/(11)			/v/(11)		
Final	5.23	0.00*	Final	5.07	0.00*	Initial	4.70	0.00*
/z/(12)			/θ/(12)			/θ/(11)		
Initial	4.73	0.00*	Initial	4.80	0.00*	Initial	4.70	0.00*
/v/(13)			/ð/(13)			/ð/(11)		
Initial	4.73	0.00*	Initial	4.43	0.00*	Final	4.70	0.00*
/ð/(13)			/θ/(14)			/ð/(11)		
Final	4.73	0.00*	Final	4.43	0.00*	Final	4.70	0.00*
/ʒ/(13)			/ʒ/(14)			/ʒ/(11)		

\*Asymp.Sig < 0.05

The results from the WLT showed that the least proficient learners used /f/, /s/, and /ʃ/ initially in the first stage of acquisition. They produced final /f/, /s/, and /ʃ/ in Ranks 4, 5, and 6, respectively. In the latter stage, they produced /z/, /v/, /θ/, and /ð/ both initially and finally as well as /ʒ/ finally. The results taken from the SLT indicated that the beginners used initial /f/, /s/, and /ʃ/ in the first stage of acquisition. They produced final /f/, /s/, and /ʃ/ in the latter order of acquisition. The learners also appeared to use /z/, /v/, /θ/, and /ð/ in both initial and final positions as well as /ʒ/ in the final position in the latter stage. In the OIT, the beginners produced initial /f/, /s/, and /ʃ/ in the first stage of acquisition. The learners used final /s/, /f/, and /ʃ/ in the latter order of acquisition. They produced /z/, /v/, /θ/, and /ð/ both initially and finally as well as /ʒ/ finally in the latter stage. Obviously, the beginners acquired marked /ʃ/ as well as unmarked /s/ and /f/ initially in the same stage of acquisition; therefore, Hypothesis 1.2 is rejected.

In brief, the Thai learners' order of phonological acquisition did not conform to Hypothesis 1.2 formulated based on the MDH, indicating that L2 learners will master unmarked before marked forms. This is because the Thai students appeared to acquire /ʃ/ initially in the same stage of acquisition as /s/ and /f/ at the significant level  $\alpha = 0.05$ .

#### SUBSTITUTIONS FOR TARGET FRICATIVES

In this section, the results for the second research question are presented. Only substitutions for the problematic sounds are targeted. The results revealed that the Thai learners produced systematic substitutions for the difficult sounds.

TABLE 7. Substitution by advanced learners from WLT, SLT, and OIT

Fricative	WLT	SLT	OIT
	Substitution	Substitution	Substitution
<b>Initial</b> /v/	/w/(100%)	/w/(100%)	/w/(100%)
<b>Final</b> /v/	/f/(100%)	/f/(63.38%) /b/(36.62%)	/f/(100%)
<b>Initial</b> /z/	/s/(100%)	/s/(100%)	/s/(100%)
<b>Final</b> /z/	/s/(100%)	/s/(100%)	/s/(100%)
<b>Initial</b> /θ/	/t/(100%)	/t/(100%)	/t/(100%)
<b>Final</b> /θ/	/t/(72.73%)	/t/(66.67%)	/t/(57.14%)

	/d/(27.27%)	/d/(33.33%)	/d/(42.86%)
<b>Initial /ð/</b>	/d/(100%)	/d/(100%)	/d/(100%)
<b>Final /ð/</b>	/θ/(45.84%)	/θ/(50%)	/θ/(55.56%)
	/t/(33.33%)	/t/(30%)	/t/(22.22%)
	/d/(20.83%)	/d/(20%)	/d/22.22%
<b>Final /z/</b>	/dʒ/(66.67%)	/dʒ/(50%)	/dʒ/(47.62%)
	/tʃ/(26.67%)	/tʃ/(40%)	/tʃ/(33.33%)
	/ʃ/(6.66%)	/ʃ/(6.67%)	/ʃ/(19.05%)
		/k/(3.33%)	

In Table 7, the findings demonstrated that the advanced participants tended to produce similar substitutions for a particular sound. For example, they used /w/ (100%) for initial /v/ across the tasks given. The students used /s/ (100%) for /z/ in both initial and final positions. They produced /t/ (100%) for initial /θ/ among the research materials.

TABLE 8. Substitution by intermediate learners from WLT, SLT, and OIT

Fricative	WLT	SLT	OIT
	Substitution	Substitution	Substitution
<b>Initial /v/</b>	/w/(100%)	/w/(100%)	/w/(100%)
<b>Final /v/</b>	/f/(80%)	/f/(80.49%)	/f/(76.92%)
	/b/(20%)	/b/(19.51%)	/b/(23.08%)
<b>Initial /z/</b>	/s/(100%)	/s/(100%)	/s/(100%)
<b>Final /z/</b>	/s/(92.31%)	/s/(100%)	/s/(100%)
	/ʃ/(7.69%)		
<b>Initial /θ/</b>	/t/(100%)	/t/(100%)	/t/(100%)
<b>Final /θ/</b>	/t/(56.25%)	/t/(60%)	/t/(80%)
	/d/(43.75%)	/d/(40%)	/d/(20%)
<b>Initial /ð/</b>	/d/(100%)	/d/(100%)	/d/(100%)
<b>Final /ð/</b>	/θ/(36.84%)	/θ/(45.45%)	/θ/(37.21%)
	/d/(31.58%)	/t/(27.27%)	/t/(25.58%)
	/t/(15.79%)	/tʃ/(18.18%)	/tʃ/(20.93%)
	/tʃ/(15.79%)	/d/(9.10%)	/d/(16.28%)
<b>Final /ʃ/</b>	/tʃ/(100%)	-	-
<b>Final /z/</b>	/dʒ/(60%)	/dʒ/(56.67%)	/dʒ/(56.67%)
	/tʃ/(20%)	/tʃ/(26.66%)	/tʃ/(30%)
	/ʃ/(16.67%)	/d/(10%)	/ʃ/(13.33%)
	/s/(3.33%)	/ʃ/(6.67%)	

In Table 8, the results showed that the intermediate informants tended to produce systematic substitutions. They produced 100% /w/ for initial /v/ across the tests. The students also substituted 100% /s/ for initial /z/. The informants used /t/ (100%) for /θ/ initially across the tasks, while they replaced /θ/ finally with /t/ (56.25%) and /d/ (43.75%) in the WLT, (60%) and (40%) in the SLT, and (80%) and (20%) in the OIT. They appeared to use 100% /d/ for /ð/ initially. The average students were also found to replace /z/ with /dʒ/ (60%) in the WLT and (56.67%) in both the SLT and OIT.

TABLE 9. Substitution by beginner learners from WLT, SLT, and OIT

Fricative	WLT	SLT	OIT
	Substitution	Substitution	Substitution
<b>Final /s/</b>	/d/(75%)	/d/(53.33%)	-
	/t/(25%)	/t/(46.67%)	
<b>Final /f/</b>	/b/(78.95%)	/b/(85.71%)	/b/(100%)
	/ʃ/(21.05%)	/t/(14.29)	
<b>Initial /v/</b>	/w/(100%)	/w/(100%)	/w/ (100%)
<b>Final /v/</b>	/f/(66.67%)	/f/(75.24%)	/f/ (53.33%)
	/b/(25%)	/b/(24.76%)	/b/ (46.67%)
	/s/(8.33%)		
<b>Initial /z/</b>	/s/(100%)	/s/(100%)	/s/ (100%)



<b>Final /z/</b>	/s/(79.31%) /d/(13.79%) /t/(6.90%)	/s/(65.22%) /d/(34.78%)	/s/(83.33%) /d/(16.67%)
<b>Initial /θ/</b>	/t/(100%)	/t/(100%)	/t/(100%)
<b>Final /θ/</b>	/t/(56%) /d/(44%)	/t/(57.14%) /d/(42.86%)	/t/(61.54%) /d/(38.46%)
<b>Initial /ð/</b>	/d/(100%)	/d/(100%)	/d/(100%)
<b>Final /ð/</b>	/t/(50%) /d/(34.62%) /θ/(7.69%) /tʃ/(7.69%)	/t/(61.54%) /d/(23.08%) /tʃ/(15.38%)	/t/(50%) /d/(29.17%) /tʃ/(20.83%)
<b>Final /ʃ/</b>	/s/(36.36%) /d/(31.82%) /tʃ/(31.82%)	/tʃ/(100%)	/tʃ/(100%)
<b>Final /ʒ/</b>	/dʒ/(36.67%) /ʃ/(20%) /tʃ/(20%) /s/(13.33%) /d/(10%)	/dʒ/(46.67%) /tʃ/(23.33%) /t/(13.33%) /d/(10%) /k/(6.67%)	/dʒ/(52.38%) /tʃ/(33.33%) /d/(14.29%)

Table 9 reveals that the beginners produced systematic substitutions for the difficult sounds. For example, they used /d/ (75%) and /t/ (25%) for the final /s/ in the WLT, and they produced /d/ (53.33%) and /t/ (46.67%) in the SLT. The learners appeared to substitute /w/ for the initial /v/ with 100% across the tasks.

In summary, the present study aimed to answer how the Thai EFL learners acquired English fricatives in their interlanguage and what sounds they replaced some fricatives. The findings demonstrated that they had considerable difficulty using marked fricatives /v/, /z/, /θ/, /ð/, and /ʒ/. They also produced the marked /ʃ/, predicted to be acquired after unmarked sounds, in the same stage as unmarked /s/ and /f/. In terms of variability, they seemed to produce consistent substitutions for the target sounds.

## DISCUSSION

The findings of this study have revealed that Thai learners have difficulty with English fricatives. Only the advanced informants can fully acquire unmarked /s/ and /f/ as well as marked /ʃ/ both initially and finally. In terms of acquisition order, the learners produced /s/, /f/, and /ʃ/ before marked /z/, /v/, /θ/, /ð/, and /ʒ/. Furthermore, they appear to produce various substitutions for some difficult sounds. Plausible explanations to account for the difficulty of L2 fricatives among these Thai participants involve the L1 transfer, distribution of an individual sound, voicing, systematic variability, and task design.

The first plausible determinant is NL interference. According to Selinker (1972), language transfer refers to the learner's NL affecting the interlanguage development. He believes that during the interlanguage continuum, the learner transfers some linguistic rules in the NL to the TL. For example, a Thai learner may produce /s/ available in his or her NL for English initial /z/ as in the word *zoo*. Jehma and Phoocharoensil (2014) also point out that L2 phonological errors are mainly attributable to interference from the NL. The notion that L1 transfer produces an effect on the acquisition of L2 phonology has been supported by several scholars. Eckman (1977), for example, supports that NL interference affects the acquisition of sound segments by L2 speakers. Bada (2001) explains that L2 sounds such as /θ/ and /ð/ tend to pose considerable difficulty to Japanese learners. Hecht and Mulford (1982) further propose that L1 transfer reflects the acquisition of fricatives among L2 learners. They discovered that an Icelandic subject had difficulty with L2 fricatives /z/ and /ʒ/, absent in the L1. In the present research results, the advanced and average learners have shown to have acquired unmarked /s/ and /f/ initially and finally more easily than marked /z/, /v/, /θ/, /ð/, and

/ʒ/. The beginner learners have also found unmarked /s/ and /f/ in initial and final positions easier than /z/, /v/, /θ/, /ð/, and /ʒ/. As the /s/ and /f/ are less marked than /z/, /v/, /θ/, /ð/, and /ʒ/, they are not difficult for the participants. This evidence clearly suggests that L1 transfer is one of the most outstanding plausible explanations for the acquisition of unmarked fricatives /s/ and /f/ in the interlanguage of Thai learners.

The second plausible factor affecting the learners' difficulty of L2 fricatives is the distribution of a certain sound. As the present findings have shown, the final fricative /ʒ/ is the most difficult among the informants. Denes (1963) and Roach (2009) suggest that the final fricative /ʒ/ is the most difficult among most L2 learners probably due to the fact that the fricative /ʒ/ is rare in English. A few words are pronounced with this sound and most of them are borrowed from French. Gimson (1962) also explains that in English there are not many words carrying the /ʒ/ sound. Obviously, the discussion above suggests that the Thai learners find fricative /ʒ/ the most difficult because the occurrence of such a sound is low in English. For this reason, Thais may not have a chance to practise the TL sound very often and therefore find this sound very difficult.

The third plausible explanation in determining the Thai learners' acquisition of L2 phonology involves the aspect of voicing. It is found that the result of marked /ʃ/ fricative does not support the concept of L1 transfer. As shown in the findings, the advanced learners do not have difficulty producing marked /ʃ/ initially and finally. The average learners have difficulty acquiring final /ʃ/, as revealed by the WLT, whereas the least proficient learners find it difficult in the final position across the tasks. This evidence demonstrates that the MDH, which predicts that sounds absent in the NL would be difficult, is not fully supported. A plausible explanation for this is that marked /ʃ/ is voiceless in comparison with other marked /ð/, /ʒ/, /v/, and /z/. This is probably due to the fact that voiced consonants are more difficult than voiceless for Thai speakers. As Eckman (1981b) has indicated, word-final voiced consonants are difficult for L2 speakers to learn. His area of investigation was word-final voiceless and voiced consonants between Spanish and Mandarin Chinese speakers. The results obtained revealed that both Spanish and Chinese learners had difficulty only with word-final voiced consonants. Kawahara (2005), who has studied aspects of voicing in Japanese singletons and geminates, also supports that voiced forms are difficult to pronounce. Clearly, the advanced learners in the current research do not experience difficulty with voiceless /ʃ/ either initially or finally. This fact is likely to be true for the average and beginner learners as well. Another instance that helps support the aspect of voicing is the substitution of voiceless for voiced sounds. According to Isarankura (2015), Thai learners tend to find voiced /v/ more difficult than voiceless /f/, and they appear to replace voiced /v/ with voiceless /f/ finally. Abd Ghani (1995), who has investigated variability in interlanguage phonology, further supports that Malaysian learners of English tend to substitute voiceless /f/ for voiced /v/ in the final position. In addition, Hecht and Mulford (1982) have reported that an Icelandic speaker of English substituted /f/ for /v/, suggesting that voiceless /f/ is easier than voiced /v/ for L2 learners. As the present findings have demonstrated, the three groups of learners tend to produce /s/ for /z/ and /f/ for /v/ finally. From the evidence, it can be posited that the Thai learners are likely to substitute easy TL sounds for the sounds they find difficult. They also appear to master marked voiceless /ʃ/ more easily than marked voiced /ð/, /ʒ/, /v/, and /z/.

The fourth plausible explanation is the concept of systematic variability in linguistic contexts. By linguistic context, Song (2012) means variables change according to the surrounding sounds. For example, a language learner can master the fricative /ʃ/ in the word *shop* accurately; however, he or she cannot produce it correctly in the word *cash*. As the findings obtained from the WLT have demonstrated, the intermediate proficiency learners can master marked /ʃ/ initially, but they cannot do it finally. It is also found that the least

proficient participants can produce only marked /ʃ/ initially across the tasks given. Apparently the intermediate and low proficiency informants tend to have difficulty only with final /ʃ/. The evidence suggests that the difficulty of final /ʃ/ among these learners is probably due to the linguistic context.

Finally, it is likely that the design of a task has an effect on the Thai speakers' acquisition of L2 fricatives. As indicated by Lobov (1966), style-shifting occurs according to the type of task the learner pays attention to. Major (1987) also proposes that native-like sounds can be traceable in more formal speech such as reading of minimal pairs and word lists. He further explains that non-native sounds are more obvious in casual speech because the speaker pays more attention to content and less attention to form. Dickerson (1975), for example, has examined the L2 pronunciation of fricative /z/ among Japanese learners. In her longitudinal study, the subjects' utterances derived from three different types of research materials have been analysed. The investigator has pointed out that the Japanese speakers produce more target-like features in a more formal task. Abd Ghani (1995) additionally supports that L2 fricatives in formal tasks such as minimal pairs and word list reading are more native-like than those in less formal ones such as dialogue reading and free conversations. As pointed out by Ellis (1985), the evidence discussed is part of systematic variability in situational contexts. This variability suggests that the learner's TL changes in accordance with a situation context. For example, a language learner can master the final fricative /s/ in a word list reading task; nevertheless, he or she fails to produce it accurately in an oral interview. Song (2012) believes that this phenomenon is due to the fact that the learner does not have sufficient time to use his or her linguistic competence. As postulated by Tarone (1983), variability in situational contexts or style-shifting plays a dominant role in L2 learners' linguistic performance. The style continuum can range from a casual to a formal style. In the careful style of task, variables are more accurate and native-like than those in the more casual style. Interestingly, the results of this study have revealed that the production of /ʃ/ is more native-like in a more natural task. The intermediate learners produce the final /ʃ/ in the oral interview more easily than that in the word list reading. The evidence argues against the claim that formal rather than informal speech contexts encourage the participants to produce more native-like sounds. This suggests that the role of formal or informal tasks alone is not sufficient in determining L2 phonology errors. A more plausible explanation for this is that the design of a task is likely to affect the variability among the intermediate informants. In the current research, the questions in the OIT are related to the learners' everyday life such as their favourite subjects, food, or leisure activities. The concept behind the task construction is based on the assumption of Tarone (1979), who believes that topics closely related to everyday life would be easy for L2 speakers to talk about. Accordingly, the average learners' correct pronunciation of the final /ʃ/ in the oral interview suggests that they produce the sounds closely associated with their knowledge in daily life rather than formal or informal speech situations.

In short, plausible explanations to determine the acquisition of L2 fricatives among the Thai speakers include the NL interference, distribution of a certain sound, voicing, systematic variability, and task designed.

### PEDAGOGICAL IMPLICATIONS

According to Mousa (2015), learners have difficulty with English sounds because they may have less exposure to the correct pronunciation through formal teaching and native speaking contexts. In order to help L2 learners improve their English pronunciation, teachers may do the following. First, teachers or educators may pay special attention to the most difficult

sounds. In the present research results, the most difficult fricative is /ʒ/. This is followed by /v/, /z/, /θ/, and /ð/ both in initial and final positions. Thus, teachers may teach /ʒ/, /v/, /z/, /θ/, and /ð/ before /s/, /f/, and /ʃ/. As the findings have revealed, the least proficient learners tend to have difficulty using /s/, /f/, and /ʃ/ word finally. Therefore, in English listening and speaking classes, teachers may pay more special attention to poor learners and could teach /s/, /f/, and /ʃ/ in final positions first. Furthermore, teachers should place an emphasis on the role of voicing in their L2 classes. Teachers may encourage learners to distinguish between voiced and voiceless consonants so that they can communicate better in English.

In the present study, the advanced students can master /s/, /f/, and /ʃ/ both initially and finally. The intermediate learners have problems with final /ʃ/ in their reading of word lists, and the low proficiency learners cannot produce /s/, /f/, and /ʃ/ finally in their reading of word and sentence lists. It is likely that the learners from different proficiency groups acquire sounds differently and prefer different tasks to master L2 sounds. Based on the findings, it is assumed that some students prefer casual conversation to learn L2 sounds, while others may enjoy reading word and sentence lists. For this reason, teachers may apply learners' learning strategies to teaching L2 pronunciation. Some teachers and researchers may help students learn how to employ more powerful learning strategies to increase language proficiency. They may design tasks appropriate for their learners and use strategies that suit learners' learning style preferences to make L2 learning easier, more effective, and more transferable to new learning environments (Bidabadi & Yamat 2012, Oxford 1990, 2003). For example, teachers may use English songs or minimal pairs to increase their learners' L2 pronunciation. In L2 classes, some teachers may implement casual conversation so that learners are exposed to a natural learning context.

## CONCLUSION AND RECOMMENDATIONS FOR FURTHER STUDIES

The present study investigated how Thai university students acquired English marked and unmarked fricatives in their interlanguage. The research also examined what sounds the students used to replace some fricatives and how variable those fricatives were. Three types of research materials: WLT, SLT, and OIT were administered to collect data from the learners.

The findings have revealed that the participants have serious difficulty producing marked fricatives. Only the marked /ʃ/ tends to be easy for them. With respect to the MDH, the learners have appeared to produce unmarked /s/ and /f/ as well as marked /ʃ/ before marked /ʒ/, /v/, /z/, /θ/, and /ð/. They have also used various substitutions for some difficult sounds. For example, the informants have produced /f/ and /b/ for final /v/. The plausible explanations given for this involve the L1 transfer, occurrence of an individual sound, role of voicing, systematic variability, and design of research materials.

This research has relied largely on segmental phonology. Research on L2 phonology at the supra-segmental level is recommended. Also, the speech data of the present research have been on fricatives. In further studies, L2 researchers who are interested in interlanguage phonology may study the acquisition of affricates such as /dʒ/ or English consonant clusters by learners from various proficiency levels. They may investigate the acquisition of L2 vowel sounds, suggested in Al-Abdely and Yap's (2016) research. As revealed in the discussion, in further studies, the relevant factors (e.g. L1 transfer, distribution of an individual sound, voicing, systematic variability, and task design) should be investigated to see whether they significantly affect learners' L2 phonology acquisition. According to Chen and Wang (2016), L2 researchers should also explore how socio-psychological factors and motivation affect pronunciation achievement.

In the present study, the very good students can acquire /s/, /f/, and /ʃ/ both initially and finally. The intermediate participants have problems with final /ʃ/ in their reading of word lists, and the low proficiency learners cannot produce /s/, /f/, and /ʃ/ finally in their reading of word and sentence lists. The evidence clearly shows that the high proficiency learners tend to be more successful in learning final /s/, /f/, and /ʃ/ than the other two groups, suggesting that the three groups of participants have employed different learning strategies by which Scarcella and Oxford (1992) refer to specific actions or techniques learners use to enhance their L2 learning in order to achieve their learning L2 sounds. Further relevant studies should take into account this potential variable by controlling learners' learning strategies by means of classroom experimental research.

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#### REFERENCES

- Abd Ghani, A. (1995). Variability in interlanguage phonology of Malaysian learners of English. Unpublished PhD Thesis, University of Leeds, UK.
- Al-Abdely, A. & Yap, N. T. (2016). Learning English vowels by Iraqi EFL learners: perceived difficulty versus actual performance. *3L: The Southeast Asian Journal of English Language Studies*. Vol. 22(1), 1-18.
- Andersen, R. (1978). An implication model for second language research. *Language Learning*. Vol. 28, 221-281.
- Anderson, J. (1987). The markedness differential hypothesis and syllable structure difficulty. In G. Ioup & W. Weinberger (Eds.), *Interlanguage Phonology: The Acquisition of a Second Language Sound System* (pp. 279-291). Cambridge, MA: Newbury House.
- Bada, E. (2001). Native language influence on the production of English sounds by Japanese learners. *The Reading Matrix*. Vol. 1(2), 1-15.
- Beebe, L. (1980). Sociolinguistic variation and style shifting in second language acquisition. *Language Learning*. Vol. 30(2), 433-447.
- Bidabadi, F. S. & Yamat, H. (2012). The relationship between English listening proficiency levels and learning styles. *GEMA Online<sup>®</sup> Journal of Language Studies*. Vol. 12(4), 1041-1055.
- Carlisle, R. S. (2006). The sonority cycle and the acquisition of complex onsets. In B.O. Baptista & M.A. Watkins (Eds.), *English with a Latin Beat: Studies in Portuguese/Spanish-English Interphonology* (pp. 105-137). Amsterdam: John Benjamins Publishing Co.
- Chan, A. Y. W. (2010). An investigation into Cantonese ESL learners' acquisition of English initial consonant clusters. *Linguistics*. Vol. 48(1), 99-141.
- Chen, H. C. & Wang, Q. (2016). The effects of Chinese learners' English acoustic-prosodic patterns on listeners' attitudinal judgments. *3L: The Southeast Asian Journal of English Language Studies*. Vol. 22(2), 91-108.
- Chomsky, N. (1965). *Aspects of the Theory of Syntax*. Cambridge, Mass: MIT Press.
- Chunsuvimol, B. & Ronnakiat, N. (2001). (v) is really a problem sound for Thai speakers. *Thammasat Review*. Vol. 2(1), 177-195.
- Corder, S. P. (1971). Idiosyncratic dialects and error analysis. *IRAL*. Vol. 9, 147-159.
- Davidson, L. (2006). Phonology, phonetics, or frequency: Influences on the production of non-native sequences. *Journal of Phonetics*. Vol. 34(1), 104-137.
- Denes, P. B. (1963). On the statistics of spoken English. *Journal of the Acoustical Society of America*. Vol. 35, 892-904.
- Dickerson, L. (1975). The learner's interlanguage as a system of variable rules. *TESOL Quarterly*. Vol. 9(4), 401-407.
- Eckman, F. R. (1977). Markedness and the contrastive analysis hypothesis. *Language Learning*. Vol. 27, 315-330.



- Eckman, F. R. (1981a). On predicting phonological difficulty in second language acquisition. *Studies in Second Language Acquisition*. Vol. 4, 18-30.
- Eckman, F. R. (1981b). On the naturalness of interlanguage phonological rules. *Language Learning*. Vol. 31(1), 195-216.
- Eckman, F. R. (1991). The structural conformity hypothesis and the acquisition of consonant clusters in the interlanguage of ESL learners. *Studies in Second Language Acquisition*. Vol. 13, 23-41.
- Ellis, R. (1985). Sources of variability in interlanguage. *Applied Linguistics*. Vol. 6(2), 118-131.
- Flege, J. E. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech Perception and Linguistic Experience: Issues in Cross-Language Research* (pp. 233-277). Baltimore: York Press.
- Gimson, A. C. (1962). *An Introduction to the Pronunciation of English*. London: Edward Arnold.
- Hansen, J. G. (2004). Developmental sequences in the acquisition of English L2 syllable codas: A preliminary study. *Studies in Second Language Acquisition*. Vol. 26, 85-124.
- Hecht, B. F. & Mulford, R. (1982). The acquisition of a second language phonology: Interaction of transfer and developmental factors. *Applied Psycholinguistics*. Vol. 3, 313-328.
- Isarankura, S. (2015). Using the audio-articulation method to improve EFL learners' pronunciation of the English /v/ sound. *Thammasat Review*. Vol. 18(2), 116-137.
- 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*. Vol. 10(7), 67-78.
- Kanokpermpoon, M. (2007). Thai and English consonantal sounds: A problem or a potential for EFL learning? *ABAC Journal*. Vol. 27(1), 57-66.
- Kawahara, S. (2005). Voicing and geminacy in Japanese: An acoustic and perceptual study. In K. Flack & S. Kawahara (Eds.), *University of Massachusetts Occasional Papers in Linguistics 31: Papers in Experimental Phonetics and Phonology* (pp. 87-120). Amherst: Graduate Linguistic Student Association Publications.
- Labov, W. (1966). *The Social Stratification of English in New York City*. Washington, D.C.: Center for Applied Linguistics.
- Lado, R. (1957). *Linguistics across Cultures*. Ann Arbor: University of Michigan Press.
- Major, R. (1987). A model of interlanguage phonology. In G. Ioup & W. Weinberger (Eds.), *Interlanguage Phonology: The Acquisition of a Second Language Sound System* (pp. 101-124). Cambridge, Mass: Newbury House.
- Mousa, A. (2015). Acquisition of the alveo-palatal fricative /ʒ/ in L2 English and Jamaican Creole: A comparative study. *Open Journal of Modern Linguistics*. Vol. 5, 238-249.
- Nemser, W. (1971). Approximative systems of foreign language learners. *IRAL*. Vol. 9, 115-124.
- Oxford, R. L. (1990). *Language Learning Strategies: What Every Teacher Should Know*. Boston: Heinle & Heinle.
- Oxford, R. L. (2003). *Language Learning Styles and Strategies*. Mouton de Gruyter.
- Roach, P. (2009). *English Phonetics and Phonology*. Cambridge: Cambridge University Press.
- Scarcella, R. C. & Oxford, R. L. (1992). *The Tapestry of Language Learning: The Individual in the Communicative Classroom*. Boston: Heinle & Heinle.
- Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics*. Vol. 10(3), 209-231.
- Shahidi, A. H., Aman, R., & Kechot, A. S. (2012). Production and perception of English word final stops by Malay speakers. *GEMA Online<sup>®</sup> Journal of Language Studies*. Vol. 12(4), 1109-1125.
- Song, L. (2012). On the variability of interlanguage. *Theory and Practice in Language Studies*. Vol. 2(4), 778-783.
- Tarone, E. (1979). Interlanguage as chameleon. *Language Learning*. Vol. 29(1), 181-191.
- Tarone, E. (1983). On the variability of interlanguage systems. *Applied Linguistics*. Vol. 4(2), 142-164.
- Thep-Ackrapong, T. (2005). Teaching English in Thailand: An uphill battle. *MANUTSAT PARITAT: Journal of Humanities*. Vol. 27(1), 51-62.

## APPENDIX A

### WORD LIST READING TASK

- |            |             |            |            |
|------------|-------------|------------|------------|
| 1. Food    | 9. Theme    | 17. See    | 25. Share  |
| 2. Fan     | 10. Think   | 18. Sand   | 26. Shop   |
| 3. Leaf    | 11. Death   | 19. Bus    | 27. Crush  |
| 4. Laugh   | 12. Truth   | 20. Place  | 28. Cash   |
| 5. Van     | 13. They    | 21. Zoo    | 29. Garage |
| 6. View    | 14. Then    | 22. Zed    | 30. Beige  |
| 7. Deserve | 15. Breathe | 23. Freeze |            |
| 8. Prove   | 16. With    | 24. Cause  |            |

## APPENDIX B

### SENTENCE LIST READING TASK

1. There was a lot of food and drinks at the party.
2. Life is too short for you to worry about money.
3. The view from your window is gorgeous.
4. Laura doesn't deserve this kind of treatment.
5. Phuket lies to the south of Thailand.
6. Please remind me of that tomorrow. I'll give it some thought.
7. It is so stuffy here – I can hardly breathe.
8. I don't want to go there.
9. Guess what? I've passed my driving test!
10. In some cities, you don't feel safe going out alone at night.
11. My son often plays with the kids next door.
12. The former dockyard has been zoned for tourist use.
13. Will you pay by credit card or in cash?
14. The carpet is beige, and the wall is pastel.
15. No one would go into this sort of work for the prestige.

## APPENDIX C

### ORAL INTERVIEW TASK

1. What would you like to be in the future?
2. What is your favourite dish?
3. What is your favourite subject?
4. How often do you practise your English?
5. How often do you go shopping?
6. How often do you get a massage?
7. What do you usually have for dinner?
8. Who do think of when you are sad?
9. Do you have any brother or sister? What does he/she do? What do they do?
10. How long can you hold your breath?
11. Have you ever been to the zoo?
12. Do you use a pen when you take notes?