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Sociolinguistic Variation of /r/ and /l/ in English: Investigation of Thai Speakers in the South

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Abstract

The present study has three primary objectives. In Thai, the use of prevocalic /r/ and /l/ represents a stylistic marker. The substitution of /r/ with the lateral [l] and cluster /r/ and /l/ deletion are considered non-standard. The first objective of the present study is to investigate how Thai learners produce the English prevocalic /r/ and /l/. The theoretical frameworks employed are Lado's Contrastive Analysis Hypothesis and Flege's Speech Learning Model. It ascertains which of the two most closely corresponds to the challenges encountered by learners when producing English orally. Secondly, it demonstrates how phonological context and extralinguistic variables of age, gender, and speech style constrain the sound variation of prevocalic /r/ and /l/ in L2 English. Thirdly, in terms of prevocalic /r/ and /l/, the present study aims to facilitate the forecasting of potential directions of linguistic change. A comparison is conducted of the speech production of the prevocalic /r/ and /l/ by L2 Thai learners of English. The research instruments used are minimal-pair reading and passage reading representing respectively the formal and informal styles. The speech data for the study was provided by 50 Thai undergraduate students, selected based on their age, gender, and the provinces in which they were born and raised using the friend-of-a-friend approach. A combination of quantitative and spectrographic analyses was employed in the examination of the data.

The results showed that the most preferred variants in the initial /r/ and cluster /r/ are the flap [ɾ] and /r/-cluster deletion [Ø] respectively. For the prevocalic /l/, the predominant sound in the initial and initial cluster positions are respectively the lateral [l] and /l/-cluster deletion [Ø]. Lado's Contrastive Analysis Hypothesis can better predict the oral production of the prevocalic /r/ and /l/. The linguistic factor of phonological context governs /r/-/l/ substitution in the prevocalic /r/, and age group and phonological context play a significant role in variation in the prevocalic /l/. The increased incidence of /r/-/l/ substitution in passage reading might confirm that a language change towards /r/-/l/ substitution in the prevocalic /r/ is ongoing.

Keywords: Contrastive Analysis Hypothesis; Speech Learning Model; L2; stylistic variation

Introduction

The skills required to learn a second language typically include speaking, writing, reading, and listening. Correct pronunciation is essential for effective speaking (Ellis, 1997). According to Gilakjani (2011), miscommunication can occur when speakers mispronounce words because listeners are unable to understand what the speakers are saying. As with Garrigues (1999), good pronunciation is the cornerstone of effective spoken communication. Speakers should be able to convey their ideas to their audience with ease if they communicate clearly and accurately. On the other hand, mispronounced words can often lead to misunderstandings. In light of Thep-Ackrapong's (2005) observation that there were differences between Thai and English in terms of pronunciation, vocabulary, grammar, and sentence structure, the present study aims to investigate the acquisition of the prevocalic /r/ and /l/ by L2 Thai learners of English.

In Thai, liquids are allowed to occur only prevocalically. There are two distinct liquid phonemes: a lateral [l] and a rhotic, which can be either a flap [ɾ] or a trill [r]. The flap [ɾ] is typically used in normal conversation, while the trill [r] is considered a prestigious variant, often used in emphatic or careful speech (Tingsabadh & Abramson, 1993; Harris, 1996). These variants have related to phonologically free variation and stylistic variation (Beebe, 1974; Treyakul, 1986; Phootirat, 2012; Pookkawes, 2014). It is not always the case that the use of the flap [ɾ] and trill [r] is a stylistic variation because Thai speakers still use these two rhotics /r/ interchangeably regardless of the degree of formality. In addition, the lateral [l] has an allophone [l] without variation. In other words, the initial /l/ does not show sociolinguistic variation (Treyakul, 1986; Chunsuvimol, 1996). However, /l/ can substitute for /r/, resulting in a non-standard used in informal situations. The Thai phoneme /r/ then consists of three allophones of the standard flap [ɾ], standard prestigious trill [r], and non-standard lateral [l]. The /r/ substitution for the prevocalic /l/ does not occur as often as /l/ replacement for /r/, which is also regarded as a non-standard variant. Nevertheless, Thai speakers still understand the meaning of words with /r/ and /l/ substitution depending on the context. Stylistically, the contrast between /r/ and /l/ prevocalically is expected to exist in formal contexts more than in colloquial speech.

Scholars who have already studied L1 Thai and L2 English focus on the stylistic sound variations of /r/ and /l/, taking into account the stylistic variation of prevocalic /r/ and /l/. However, no previous studies have examined the learning challenges associated with second language acquisition (SLA), particularly among individuals residing in southern Thailand, using Flege's (1995) SLM and Lado's (1957) CAH. In order to address this gap in the literature, the present study examines which theory - Lado's (1957) CAH or Flege's (1995) SLM - is more important in explaining how native Thai speakers in the south acquire the phonemes /r/ and /l/ when speaking L2 English.

The present study adopts Lado's (1957) CAH and Flege's (1995) SLM on the grounds that Thai and English have distinct rhotics but the same lateral. Its objective is to ascertain which theoretical framework may be more applicable to L2 Thai English learners' speech production with regard to the prevocalic /r/ and /l/. It examines Lado's (1957) CAH, which suggests that a) the productive and receptive skills of L2 learners are influenced by their L1; b) differences in the L1 and L2 result in difficulties in language learning but similarities lead to success; and c) there may be positive and negative transfer or interference. Positive transfer creates L2 learning success due to the similarities of the features in the two languages, whereas negative transfer generates difficulties owing to the differences between the L1 and L2. In the light of Lado's (1957) CAH, the rhotics /r/, which are different in L1 Thai and L2 English, are expected to produce more difficulties in learning than the lateral /l/, which is similar in the two languages. According to Jiang (2020), although contrastive analysis cannot account for all the problems L2 learners have, it is a powerful analytical method for language research.

Meanwhile, Flege's (1995) developed a Speech Learning Model which proposes that variants in an L1 and L2 sharing a similar IPA symbol include a 'new sound', 'similar sound', or 'identical sound'. A new L2 sound is different from the variant in L1, while a similar L2 sound is

phonemically similar to but phonetically different from the one in L1. An identical L2 sound is more similar and thus phonemically and phonetically identical in the two languages. For a similar sound, L2 speakers connect this feature to the one in L1, resulting in learning difficulties. The rhotic /r/ sound is thus considered to be a new sound due to the different IPA representations in Thai and English. The /l/ sound is a similar sound, since the English /l/ has actually two /l/ features, including the light and the dark /l/. In relation to Flege's (1995) SLM, a different sound is easier to learn than a similar sound. Consequently, it is predicted that the rhotic /r/ would lead to more successful learning than the lateral /l/, which is the contrary to the suggestion from Lado's (1956) CAH.

The objective of the present study is to enhance comprehension of the second language acquisition process with respect to L1 transfer and the generation of the prevocalic /r/ and /l/. Secondly, it is also possible that other linguistic and extralinguistic variables may exert an influence on the formation of L2 speech. It examines the pronunciation of the prevocalic /r/ and /l/ in L2 English in relation to the linguistic aspects of phonological context and the extralinguistic elements of age, gender, and speech style. Thirdly, it may indicate potential language change in terms of the alternation of /r/-/l/ among L2 Thai learners of English.

Objectives of the study

1. To explore how native speakers of Thai produce /r/ and /l/ in an initial position in English
2. To explore how factors of age, gender, speech style, and phonological context affect the oral production of /r/ and /l/ in English
3. To explore potential direction of language change expected in terms of the use of an initial /r/ and /l/ in the future

The present investigation is designed to address the following three research questions.

1. How do native speakers of Thai produce /r/ and /l/ in an initial position in English?
2. How do the factors of age, gender, speech style, and phonological context govern the oral production of /r/ and /l/ in English?
3. What is the potential direction of language change in terms of an initial /r/ and /l/ in the future?

Literature review

Previous studies have been conducted on the acquisition of second language phonology. This section presents an analysis of the existing research literature on their acquisition of L2 English /r/ and /l/. In a study conducted by Aoyama, Flege's, Guion, Yamada & Yamada (2004) on the perception of liquids in L2 English by Japanese speakers, it was found that the Japanese /r/ sound is more similar to the English lateral [l] than the English approximant [ɹ]. It has been demonstrated that learners are more successful in acquiring similar sounds at an earlier stage of learning. As a result of the greater difference of /r/ in English and Japanese, the learners eventually succeeded in obtaining the English approximant [ɹ]. Consequently, the probability of sound assimilation in both

L1 Japanese and L2 English is reduced. The study of the English language in later life indicates that learning difficulties are attributable to factors that are analogous in both the first and second languages. The findings can be linked to Flege's (1995) SLM, which posits that effective L2 acquisition is driven by discrepancies between L1 and L2, rather than similarities. In a study conducted by Osborne (2010), the speech output of three Brazilian English speakers was analyzed in order to gain insight into the use of the rhotic /r/. The study employed the use of free speech as its primary methodology. The results indicated that the informants encountered difficulties in learning complex onsets and codas with two and three cluster-members. It is possible that the native Brazilian speakers were aware that the rhotic /r/ in their first and second languages was the same when they produced the English /r/. In accordance with Flege's (1995) SLM, while the aforementioned distinct variants were more readily acquired, higher similarities between L1 and L2 sounds have been observed to give rise to greater difficulties. The perception of similarities between the rhotic /r/ in the L1 and L2 may have contributed to the difficulties encountered.

Among Thai learners of English, Senawong (1992) examined oral production in three speech styles of casual speech, reading short phrases and sentences, and word lists in initial cluster of the /bl, br, fl, fr, dr/. The study took into account the factors of age, gender, occupational class, and speech style. The findings revealed three variations, including the preservation of initial clusters, the deletion of clusters /Ø/, and substitute clusters or consonant alternation between /l/ and /r/. The data revealed that, when compared to females, males selected the standard initial cluster retention option less frequently. In addition, males deleted the initial cluster with greater frequency than females. The findings indicated that there was no significant influence of speech style on speech production. Chunsuvimol's (1993) study investigated the relationship between the pronunciation of prevocalic /r/ in Thai and English, as well as the influence of sociolinguistic factors of gender, occupational level, and English proficiency. A total of 58 Thai hotel employees in Bangkok participated in the study. As evidenced by the findings, the English approximant [ɹ] was the most prevalent form in both initial and initial cluster positions. Moreover, the study revealed that the standard English [ɹ] was produced with greater frequency by females, those in higher status positions at work, and subjects with greater English expertise. These findings are consistent with Flege's (1995) SLM hypothesis, as the L2 Thai English learners demonstrated a greater tendency to produce the approximant [ɹ] than the other /r/ variants.

The findings of previous research indicated that instances of impaired learning success may be attributable to the resemblance of sounds between the first and second languages. Moreover, learning performance is sometimes influenced by additional factors beyond the contrasts and similarities between L1 and L2, which are integral to the acquisition of a second language.

Methodology

1. Participants

In the present study, an auditory analysis was conducted of data gathered from 50 undergraduate Thai students selected on the basis of age, gender, and the Thai provinces in which the respondents were born and brought up. The 25 female and 25 male speakers aged between 19 to 23 years old were recruited using the friend-of-a-friend convenience sampling method for identifying contacts. The present study concentrated on undergraduate students enrolled in Thailand as they were required to develop proficiency in the four fundamental skills of the English: speaking, listening, reading, and writing. It concentrated on the participants' abilities to speak English, which was essential for them to utilize the language in an educational setting and subsequently in their professional lives. While previous research has investigated how people in Bangkok produced speech of prevocalic /r/ and /l/, students living in southern Thailand were chosen to participate in the present study. Therefore, the aim of the present study was to fill this gap as no previous research has examined how people in the south produce their prevocalic /r/ and /l/ sounds in speech. The findings can provide recommendations for colleges and schools in southern Thailand that teach English. Four criteria were employed to select the participants. Firstly, they were required to be undergraduate students at Suratthani Rajabhat University. Next, they had to be enrolled in the English for Communication course. Thirdly, they were required to be willing to volunteer to take part in the present study. Fourthly, all 50 informants originate from one of eight southern Thai provinces: Chumphon, Krabi, Nakhonsrithammarat, Pang-nga, Ranong, Satun, Surat Thani, and Trang.

2. Research tools

A stylistic variation of /r/-/l/ substitution and cluster deletion prevocalically were considered non-standard occurred in Thai. Accordingly, the methodology in the present study was designed to gather data in four phonological contexts and at two degrees of speech formality. The degree of formality was correlated with a speaker's attention to speech, as indicated by Labov's (1966) and Labov's (2011) attention-paid-to-speech model. This relationship was possibly observed in the variants that speakers selected. This model focused on two possibilities. Firstly, it suggested that the speakers' oral production was determined by the attention paid by speakers to their speech. Secondly, the level of formality was found to influence the degree of attention given to speech production. The research instrument for the present study was adapted from Noobutra (2019) investigation of L1 Thai learners of English at the postgraduate level in the UK and the manner in which they produced the prevocalic /r/ in speech.

To ensure the validity of the data, appropriate methods for data collection, and item objective congruence (IOC) analysis was conducted to confirm the validity of the research instruments. The IOC was confirmed by three English lecturers who have experience teaching and conducting research. A total of 3500 tokens was distributed in two different degrees of formality, including minimal pair reading (MP) and passage reading (RP) in order to investigate the speakers' attention paid to speech in four phonological contexts of the onset /r/, onset /l/, complex onset

/r/, and complex onset /l/. In this way, each respondent read 70 tokens. These words were distributed in two segments of the prevocalic /r/ and /l/, which included 2250 and 1250 tokens respectively.

3. Data collection

Prior to their involvement in the present study, participants were informed that their participation would have no impact upon their course grades or scores, and that their personal information would be treated with the utmost confidentiality. The subject's decision to participate in the present study was entirely voluntary. After reading the description sheet, the respondents were requested to sign the consent form. The informants agreed that voice recordings were audio recorded and that their involvement in the present study was voluntary in order to allay ethical concerns. At any time, they could choose to stop participating. Every speaker's audio recording was anonymised. Furthermore, the respondents were informed that they were not required to pronounce words correctly or incorrectly, but their speech should be produced in a natural manner. Sound recordings were conducted in quiet places to produce high-quality recordings by ensuring that the recordings were as loud and clear as possible. In the two speech styles of MP reading and RP, all of the words were presented on paper. The participants were instructed to read the passage first, followed by words in minimal pair. This was to ensure consistency in the recording session, which was set up by assigning the participants to read from less formal to more formal style. The objective of these two tasks, which encompassed varying degrees of formality, was to examine the extent to which the informants exhibited style shifts. Given that each pair of minimal pairs exhibited a distinct phonological contrast, passage reading was perceived as less formal than minimal pair reading, which was regarded as more formal and thus displayed a greater degree of self-conscious speech. The recordings were conducted in quiet places such as the informants' homes and the university language room.

4. Data analysis

The data were spectrographically and quantitatively analysed. Praat software (Boersma and Weenink, 2015) was adopted for the spectrographic auditory and acoustic analysis. All feasible variants were then categorised into two major groups of /r/-/l/ preservation and substitution so as to investigate which influential factors were statistically significant in influencing the use of /r/-/l/ substitution, with the analysis conducted using the R Studio statistical software program (Bates & Maechle 2014). The researcher, together with two additional assessors, both of whom were linguists and native speakers of Thai, evaluated the recorded sounds of the speakers' pronunciation. The three assessors had received training in the use of Praat software and possessed previous knowledge of phonetics and phonology. Subsequently, the data from the participants' speech was transcribed into the International Phonetic Alphabet (IPA), and the judgments of the variants heard were coded as follows: approximant [ɹ], flap [ɾ], trill [r], lateral [l], deletion [Ø], or other possible variants. The frequency of specific instances of each variant was determined through quantitative analysis and was typically presented as a graphical representation.

Results

1. Research question 1: How do native speakers of Thai produce /r/ and /l/ in an initial position in English?

Research question 1 focuses on the effectiveness of the theoretical framework of Lado's (1957) CAH in suggesting that L1 transfer takes place in L2 acquisition. Difficulties in L2 acquisition result from differences between the L1 and L2 and thus negative transfer will occur. Similarities in the variants in the two languages cause successful learning owing to positive transfer. On the other hand, the SLM proposed by Flege's (1995) predicts that similar sounds will generate learning difficulties, while differences between the L1 and L2 will lead to greater success.

Figure 1 demonstrates the overall distribution of the two variants of /r/ and /l/ in question. The respondents selected the Thai flap [ɾ] at the highest rate in the prevocalic /r/, whereas the lateral [l] followed by the flap [ɾ] and /l/ deletion were used most often in the prevocalic /l/.

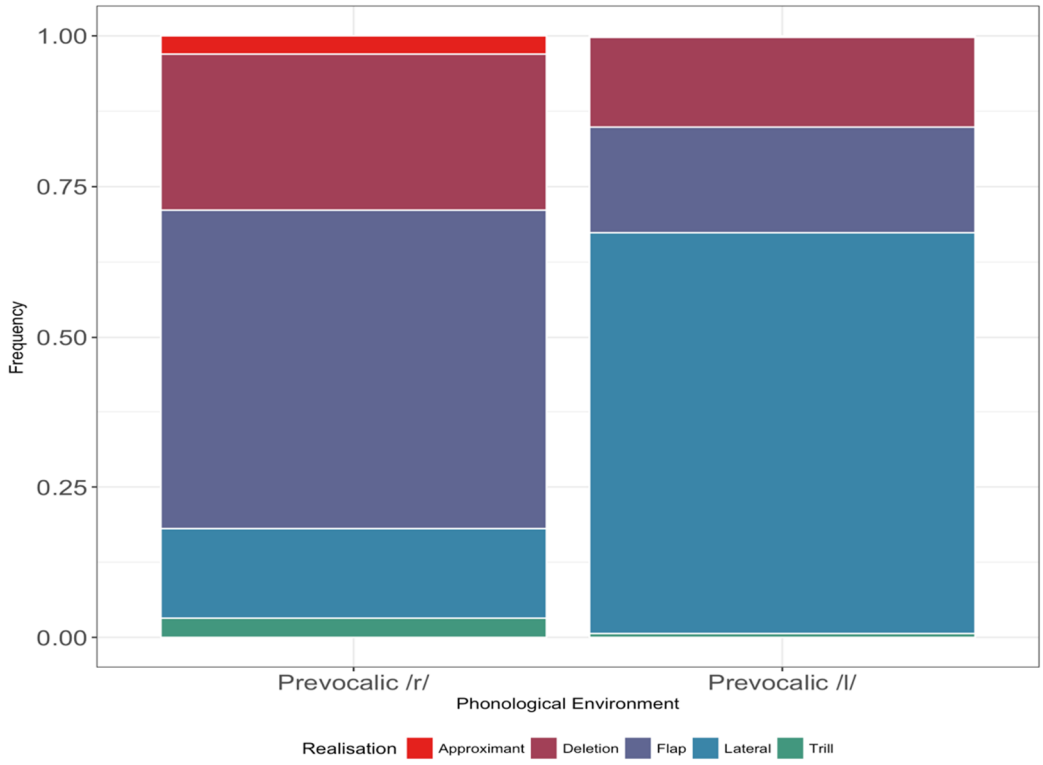

Figure 1: Overall distribution of variants

Figure 2 shows the use of /r/-/l/ distinction in the two phonological contexts of the prevocalic /r/ and /l/. As can be seen, the preservation of the /r/-/l/ contrast was heard at similar frequencies for the onset as well as complex onset /r/ and /l/. The respondents preferred to maintain the /r/-/l/ distinction at a higher rate with the onset than in the cluster position, wherein the /r/-/l/ substitution was adopted at a higher rate than /r/-/l/ distinction. These results thus perhaps support the hypothesis of implicational relations proposed by Greenberg (1978), which suggests that a shorter cluster is easier to deal with than a longer one. This could explain why the speakers had less difficulty and preserved the distinction more often with the simple onset.

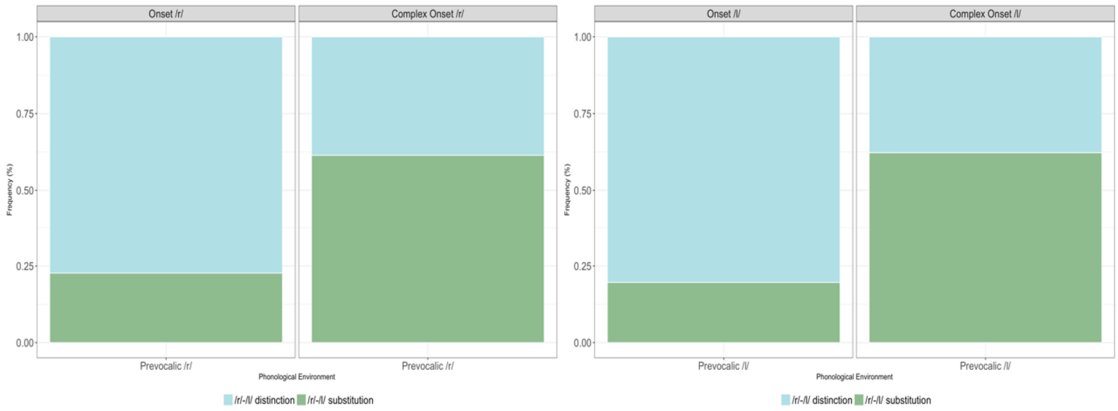

Figure 2: Distribution of /r/-/l/ preservation according to phonological context

To answer research question 1 concerning the overall oral production of /r/ and /l/, the Thai flap [ɾ] and lateral [l] were used most often in the onset /r/ and /l/ respectively, while the non-standard feature of deletion [Ø] was most favoured in the complex initial /r/ and /l/ positions. In cases of both initial /r/ and /l/, the preservation of the /r/-/l/ contrast was more frequently produced than /r/-/l/ substitution, whereas the converse was true in both initial clusters of /r/ and /l/. The respondents produced the English approximant [ɹ] much less often in all contexts. The findings in the present study seem to accord with the suggestions of Lado's (1957) CAH rather than Flege's (1995) SLM. So, speakers were more successful in learning the prevocalic /l/, which is similar in both the L1 Thai and L2 English, compared to their learning of /r/.

2. Research question 2: How do the factors of age, gender, speech style, and phonological context govern the oral production of /r/ and /l/ in English?

Research question 2 concerns how the factors of age, gender, speech style, and phonological context regulate the pronunciation of /r/ and /l/ in L2 English. A p-value of less than 0.05 in Table 1 indicates, based on generalised mixed effects logistic regression, that only the variable predictor of phonological context governs the use of /r/-/l/ distinction and /r/-/l/ substitution. The p-value of less than 0.001 indicates that the impact of a complex onset /r/ differed substantially from the baseline onset /r/ in relation to the phonological context effect. The influence of a complex onset /r/ was estimated at 2.4158, indicating a tendency towards the adoption of /r/-/l/ substitution.

Table 1: The best model including number of tokens (N). Positive values reflect more /r/-/l/ substitution; negative numbers more /r/-/l/ distinction. Random effects of the word (SD = 0.6141) and speaker (SD = 1.5294). AIC = 2180.

	Estimate	Std. Error	z value	Pr(>|z|)	N
(Intercept)	-1.685	0.2673	-6.304	≤ 0.001 ***	
Phonological context					
Onset /r/ (baseline)					1200
Complex Onset /r/	2.4158	0.2232	10.823	≤ 0.001 ***	1050

The distinction between /r/-/l/ and the substitution of /r/-/l/ from Table 1 above is reiterated in Figure 3. It can be observed that Thai native speakers have adopted a different approach to the /r/-/l/ distinction in the context of the onset and complex onset in the prevocalic /r/. The greater proportion of lateralisation [l] and /r/-deletion in a complex onset context indicates that the respondents were found to be likely to preserve /r/ in an onset position.

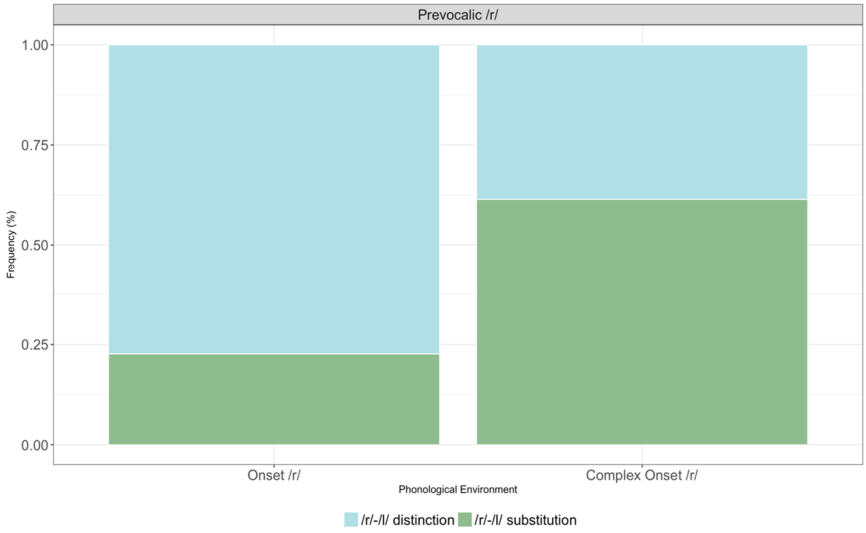

Figure 3: Preservation of the prevocalic /r/: /r/-/l/ according to phonological context

For prevocalic /l/, the baseline for the onset of /l/ in speakers who were 19 years old was not visible. Table 2 shows that the model's explanation of the use of either /r/-/l/ substitution or /r/-/l/ distinction is superior to any previous model when phonological context and age group are combined. The p-values in Table 2, which are less than 0.05 for onset /l/ in the age group of 22, complex onset /l/ in the age group of 19, and complex /l/ in the age group of 21, reveal that these three predictors have a significantly different impact from the baseline for the onset /l/ in the age group of 19. The results of the age group effect indicate that speakers in the 20 and 23 age group were more likely to preserve /r/-/l/ distinction in onset /l/ position, estimated at -0.609 and -0.8761, respectively. Speakers in the age of 21 and 22 in onset /l/ demonstrate a tendency towards /r/–/l/ substitution, estimated at 0.3948 and 1.1596, respectively. In contrast, these 21 and 22-year-old speakers demonstrated a tendency towards /l/-/r/ substitution in complex onset /l/, with estimates of -1.0701 and -0.5256, respectively. The informants, who were 19, 20, and 23 years old, however, returned to the use of substitution, with estimates of 2.545, 0.4736, and 17.2048, respectively.

Table 2 The best model including number of tokens (N). Positive numbers reflect more /r/-/l/ substitution, negative numbers reflect more /r/-/l/ distinction. Random effects of word (SD = 1.2044) and speaker (SD = 0.7969). AIC = 1169.8.

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	-1.8868	0.4318	-4.37	≤ 0.001 ***	
Phonological context: age group					
Onset /l/: Age 19 (baseline)					204
Onset /l/: Age 20	-0.609	0.3853	-1.581	0.114	425
Onset /l/: Age 21	0.3948	0.5009	0.788	0.4306	119
Onset /l/: Age 22	1.1596	0.5457	2.125	0.0336 *	85
Onset /l/: Age 23	-0.8761	1.2181	-0.719	0.472	17
Complex Onset /l/: Age 19	2.545	0.6085	4.183	≤ 0.001 ***	96
Complex onset /l/: Age 20	0.4736	0.3871	1.223	0.2212	200
Complex onset /l/: Age 21	-1.0701	0.4964	-2.155	0.0311 *	56
Complex onset /l/: Age 22	-0.5256	0.5757	-0.913	0.3613	40
Complex onset /l/: Age 23	17.2048	87.8075	0.196	0.8447	8

Figure 4 illustrates the preservation of /r/-/l/ distinction in each age group for both onset /l/ and complex onset /l/. It is evident that there was a higher likelihood of preserving the /r/-/l/ distinction among speakers in all age groups at the onset of /l/. The speakers who were 23 years old employed the /r/-/l/ distinction and substitution at the highest rates in the onsets of /l/ and complex onsets /l/. Consequently, the findings demonstrated that the oldest speakers exhibited a tendency for employing non-standard features in the complex position and standard variations in the onset position.

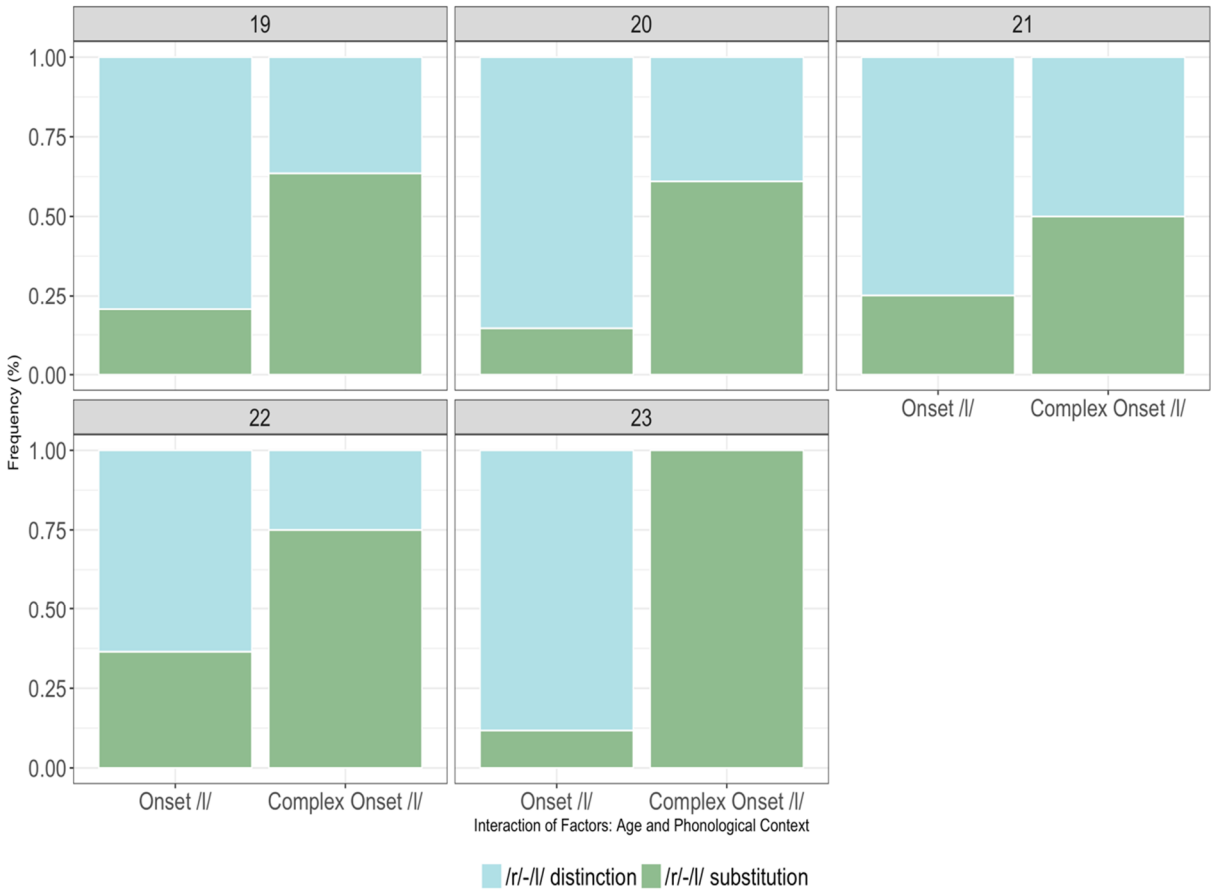

Figure 4: Preservation of the prevocalic /l/: /r/-/l/ according to age and phonological context

3. Research question 3: What is the potential direction of language change in terms of an initial /r/ and /l/ in the future?

Research question 3 considers the potential direction of language change in the future in relation to the initial /r/ and /l/. Figure 5 indicates that, in prevocalic /r/, native Thai speakers tend to maintain the /r/-/l/ contrast in formal contexts, which aligns with the MP context observed in the present study. The trend indicated in previous studies (Beebe 1974; Treyakul 1986; Chunsuvimol 1993; Pulsup 1993; Pookkawes 2014) appears to be supported by the increased use of /r/-/l/ substitution in an informal style of RP which confirms that, in the prevocalic /r/, language change towards /r/-/l/ substitution is ongoing. Consequently, the results demonstrate that, potentially as a consequence of L1 transfer, /r/-/l/ substitution also occurs when speakers acquire the prevocalic /r/ in L2 English. However, in the prevocalic /l/, the speakers preserved the /r/-/l/ contrast slightly less often in MP, wherein the Thai trill [r] and cluster /l/ deletion [Ø] were adopted more frequently. This was possibly in accord with Beebe (1980) suggestion that Thai speakers are adopting both variants and stylistic transfer from L1 Thai to L2 English.

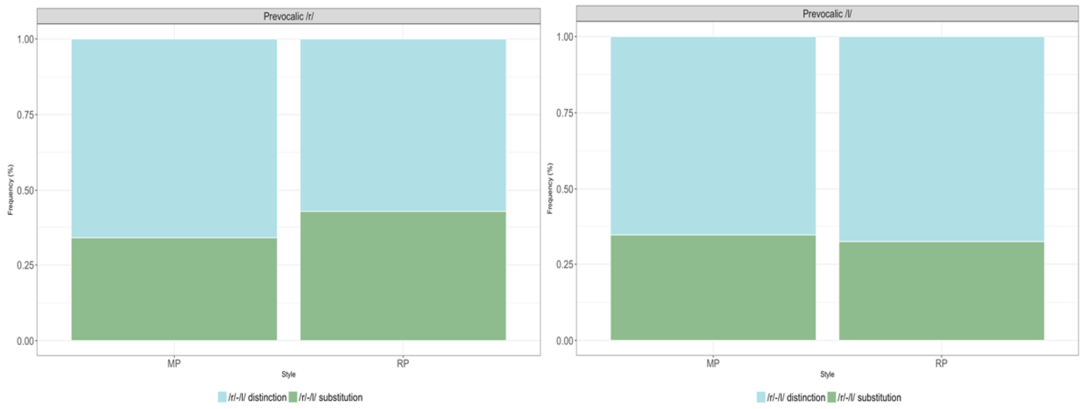

Figure 5: Distribution of /r/-/l/ preservation according to style

Discussion and conclusion

The present study primarily aims to investigate how L2 Thai learners of English produce the prevocalic /r/ and /l/. Individual informants read 70 target words, including 45 and 25 words with the prevocalic /r/ and /l/ respectively. It was found that the flap [ɾ] is the predominant sound in an initial /r/, with the lateral [l] being used most often in an initial /l/. Cluster deletion [Ø] was heard most often in both the initial cluster /r/ and /l/. L2 Thai learners of English, which is a language whose rhotic is the approximant [ɹ], produced it very minimally. Meanwhile the standard Thai flap [ɾ] was frequently transferred to L2 English. This indicates that L1 transfer to the L2 does occur.

Research question 1 explores the pronunciation of the prevocalic /r/ and /l/. Although the English approximant [ɹ] was heard at a low rate, realisation as /r/-/l/ substitution in an initial position makes up about one-quarter of cases, with a similar proportion being found in an initial /l/. In the initial cluster /r/ and /l/, /r/-/l/ substitution was produced in around three-quarter of cases from the overall pronunciation. This suggests that the speakers had less difficulties in producing the simple onset /r/ and /l/ than the cluster variants, thus supporting Greenberg (1978) notion of implicational markedness. Peerachachayanee (2022) also found cluster simplifications, which refers to the tendency for consonant clusters to be reduced to a single sound at both the initial and final positions. Comparing the syllable structures of English and Thai, it is clear that English has a more complex collection of clusters at both initial and final positions. Thai has the syllable structure CCVC, whereas English has the form CCCCCCC. English allows three clusters at the beginning and four clusters at the end. This may explain why the Thais have tended to simplify their clustering system at both positions. Therefore, most of these features such as consonant substitutions, consonant devoicing, and cluster simplification are the result of certain sounds being absent from the L1 phonology. Sangka (2020) posits that social behaviour is linked to the causes of pronunciation issues with /r/ and /l/ among Thai English language learners. The causes are as follows: speakers or teenagers who followed their peers, imitators who followed the pronunciation of their favourite stars, speakers or teenagers who followed their families, and those who engaged in quiet reading, which resulted in a lack of practice in reading aloud.

The two theoretical frameworks of Lado's (1957) CAH and Flege's (1995) SLM were examined to find out which theory was better in predicting the oral production of the L2 Thai learners of

English in the prevocalic /r/ and /l/. These two approaches are considered because L1 Thai and L2 English have different liquids. While Thai allows the flap [ɾ] and trill [r], English uses the approximant [ɹ]. These two languages share a voiced alveolar lateral approximant [l] in common. The flap [ɾ], trill [r], approximant [ɹ], or even the lateral can occur in the prevocalic position in Thai, with the cluster member /r/ and /l/ being omitted altogether. The present study explores whether or not the use of non-standard features is transferred to L2 English. According to Lado's (1957) CAH, the different sounds in the two languages would create learning difficulties. Flege's (1995) SLM, however, hypothesises that similar sounds will lead to learning problems in L2. The overall findings indicated a higher rate of /r/-/l/ substitution in the prevocalic /r/, suggesting that the speakers had less difficultiy in acquiring the prevocalic /l/. These findings accord with the Lado's (1957) CAH, where similar features in the L1 and L2 make L2 learning easier. Likewise, Rungruang (2017) investigated 34 English major participants' perception of English initial and final consonant clusters and found that the fourth-year university students slightly had more difficulty in acquiring the final clusters than initial clusters which were allowed in Thai. These students also believed that English Phonetics and Phonology was necessary to improve pronunciation and listening skills. In Yippikun's (2020) study of 42 first-year students who failed the English University Language Test and had the 10-week intensive English course, the results agreed that native speakers of Thai had difficulties in acquiring English /r/-/l/ in two and three-cluster in initial position. The possible reason why the findings of the present study contradicted those of Flege's SLM but aligned with those of Lado's CAH was attributed to learners' proficiency in English. As Flege's (1995) observed, the subjects in his study were highly experienced learners, whereas those in the present study were situated within L2 classrooms and at beginner or intermediate levels of proficiency. Due to the validity of Lado's (1957) CAH, it was recommended that, as the errors were found to be caused by the transfer of knowledge from the learners' native language, learners focus on the differences between the Thai and English. The learners' difficulties with English pronunciation may have been caused by their lack of awareness of the differences in pronunciation between the two languages.

To answer research question 2, the data was analysed using generalised mixed effects logistic regression in relation to the independent variables of phonology, age, gender, and speech style. The variants of approximant [ɹ], deletion [Ø], flap [ɾ], lateral [l], and trill [r] are categorised as representing either /r/-/l/ distinction or /r/-/l/ substitution. In the prevocalic /r/, the best-fit model suggests that only the predictor of phonological variable regulates the use of /r/-/l/ distinction, with /r/-/l/ substitution being heard more often in the complex onset /r/. As with the prevocalic /l/, the best-fit model suggests that an interaction of factors of phonological context and age group play a role in the realisation as /r/-/l/ distinction. Speakers in all age groups preferred to adopt /r/-/l/ distinction in a simple onset, with the use of /r/-/l/ substitution occurring more often in a cluster position. The informants aged 23 years old pronounced /r/-/l/ distinction and substitution at the highest rates in a simple initial and initial cluster /l/ respectively. From previous research, the linguistic factor of an implicational hierarchy (Greenberg 1978) and extralinguistic

factors of age, gender, and stylistic register are taken into consideration, so that the preservation of the /r/-/l/ contrast is expected to be heard in a cluster of length N-1 (Greenberg, 1978; Rungruang, 2017), in older speakers (Beebe, 1974; Pookkawes, 2014), in females (Senawong, 1992; Chunsuvimol, 1993), and when formal styles are used (Beebe, 1974; Treyakul, 1986; Chunsuvimol, 1993; Pulsup, 1993; Pookkawes, 2014). The effect of age found is the opposite of the prediction, possibly because the range of age groups of speakers in the present study is very narrow, and so no clear-cut differences could be identified. If there were a greater age range among the participants, from teenagers to the elderly, the results of the study might demonstrate a clear differentiation. As for the effect of gender, most of the female subjects were 19-20 years old and may have preferred to produce the non-standard feature.

In order to answer research question 3, the potential direction of language change in relation to the L2 English prevocalic /r/ and /l/ was investigated. The findings for the prevocalic /r/ reveal that the /r/-/l/ substitution rates occurring in the present study agree with the findings of previous research (Beebe, 1974; Treyakul, 1986; Chunsuvimol, 1993; Pulsup, 1993; Pookkawes, 2014) because the standard variant was adopted in the formal style of MP more often than in RP. For this reason, the findings indicate that language change towards /r/-/l/ substitution in the prevocalic /r/ may be ongoing. In the prevocalic /l/, the L2 learners used /r/-/l/ substitution slightly more often in the MP than in the RP. This might agree with the proposal of Beebe (1980) that Thai learners transfer both variant and stylistic variation from the L1 Thai to L2 English.

Recommendation

Recommendation from the study

The present study's recommendations suggest that its findings could contribute to better understanding of the second language acquisition (SLA) process, particularly in relation to the transfer of linguistic features from L1 during the prevocalic /r/ and /l/ phonemes. It may also indicate potential linguistic modifications among L2 Thai English language learners, including the alternation of /r/-/l/. The findings may be utilised by language teachers, particularly those specialising in phonetics and phonology, to assist Thai students of English in articulating English sounds, particularly /r/ and /l/. Next, the L2 learners themselves should be taught the differences between the sounds of Thai and English. This would then facilitate the development of learners' sound production with greater success.

Recommendation for the future study

It is proposed that the qualitative investigation of phonetic characteristics of the variants, coarticulation effects, other linguistic factors, and the effect of dialect possibly contribute to insightful results. The sample size number of participants should be increased. As with the methodological quality, interviews as the informal register might be more suitable than tasks such as reading a passage used in the present study. These limitations of the present study might be useful for further study focusing on phonological variation.

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