The Effects of Stress and Tones in Thai on the Pronunciation of English Polysyllabic Loanwords among Thai EFL Students

Soisithorn Isarankura
Dhurakij Pundit University, Bangkok, Thailand
soisithorn55@gmail.com

Abstract

This paper reports the qualitative analysis of an interlanguage study investigating Thai EFL students' pronunciation of English loanwords used in the Thai language. It aims to analyze the extent to which the stress and tonal systems in Thai affect the stress placement of English polysyllabic loanwords in the pronunciation of Thai students, as perceived by a native English listener. Participants were 30 English majors studying in a private university, classified into two groups: high and low, based on their relative English proficiency. Three tasks were used to collect data. Two oral-reading tasks included (1) reading the target English loanwords in English sentences, and (2) reading those words in isolation, which is regarded as a more formal style of oral-reading. The third task required the students to mark the primary stress symbol on the stressed syllable of each target word to assess their knowledge of the English stress patterns. The 30 target loanwords were classified into 3 categories: loanwords with two syllables, three syllables, and four syllables. The results show the transfer of the students' first language (L1) to the greatest extent when performing the oral reading of two-syllable loanwords in sentences. The use of full vowel length on the final syllable of the many two-syllable loanwords, presumably resulting from the carryover of the Thai stress system, led the native English listener to perceive the final syllable as being stressed. Interestingly, for loanwords with three and four syllables, it was found that although it appeared that the students placed stress quite randomly, only a small number of students misplaced stress on the final syllable. It could be hypothesized that many students became aware, from their learning experience, that stress does not usually fall on the last syllable of loanwords containing certain suffixes that they were familiar with. Thus, they avoided placing stress on the last syllable of these loanwords. The findings suggest that transfer of the stress and tonal systems in Thai plays a crucial role in the pronunciation of frequently-used loanwords with two syllables when the students read these words in English sentences.

Keywords: Loanwords, syllable, word stress, lexical tones

Introduction

Globalization and the increasing contact between countries have made words from other languages enter into another. English words have currently entered into languages of several countries worldwide and they have played an important role in the Thai lexicon, both in writing and in conversation. Normally, the borrowing language will adapt borrowed words (or loanwords) to fit into its phonological system to a greater or lesser extent. The longer a borrowed word has been in the language and the more frequently it is used, the more it resembles the native words of the borrowing language (Kemmer, 2007: online).

The study of loanword phonology has received considerable attention by many linguists and language educators. There have been a number of studies examining the assignment of Thai tones to monosyllabic and polysyllabic English loanwords and the role of stress in Thai on English loanwords (e.g. Gandour, 1976; Nacasakul, 1979; Vairojanavong,

1983; Bickner, 1986; Peyasantiwong, 1986; Kenstowicz & Suchato, 2006). There has also been an interest in studying stress patterns of English polysyllabic words used specifically in some professions like terminologies for medical terms among medical students in the Thai context (Vairojanavong, 1983; Watanapokakul, 2009). The findings of these studies suggest that errors in the stress placement of these terms were likely to result from the negative transfer of the students' L1. Although these students realized the importance of using stress correctly, they admitted that they had difficulty with stress placement, and they felt that the more syllables a medical term had, the more difficult it was for them to pronounce the word with the correct stress.

As this paper aims at examining the extent to which lexical tones and stress patterns in Thai give an impact on word stress of English loanwords, the two key terms should firstly be explained.

Lexical tone is a fixed underlying pitch pattern carried by a syllable of a word that can distinguish the meaning or grammatical function of that word in a language. A language that uses pitch patterns to distinguish words is often referred to as a tone language, such as Thai, Mandarin, Cantonese, and Japanese. In the Standard Thai language, there are five contrastive lexical tones: mid ( ), low (◌̀), high (◌́), falling (◌̂), and rising (◌̌). The distribution of lexical tones in Thai is constrained by syllable type and syllable structure (Gandour, 1979).

Word stress refers to the relative emphasis placed on one syllable of an individual word of two or more syllables. Stress is typically signaled by such properties as increased loudness, longer vowel duration, full articulation of the vowel sound, and the rapid change in pitch from a low or mid-level to a high pitch. Unstressed syllable, by contrast, are normally said more quietly and with reduced vowels. The position of stress in a word depends on certain general rules applicable in the language. Word stress can be categorized into: *fixed stress* and *free stress*. The *free-stress* system applies to languages where the primary stress is not fixed to a particular syllable. English and Russian are examples of free-stress languages. The *fixed-stress* system, on the other hand, applies to languages where all (or the majority of) words bear the primary stress on the same syllable. Examples of fixed-stress languages are: Czech (1st syllable stressed), Welsh and Polish (penultimate syllable stressed). In Standard Thai, many linguists (e.g. Luksaneeyanawin, 1983; Vairojanavong, 1984; Peyasantiwong, 1986), though differing in their approaches and opinions, seem to agree that the syllable in word-final position is the most prominent and has the strongest stress. In other words, stress is fixed in Thai words and it always falls on the last syllable, irrespective of the number of syllable within a word.

Due to the different stress systems between English and Thai, English word stress can be said to be one of the major problems in the pronunciation of English among Thai EFL learners. Since the position of stress in English words is not fixed, Thai speakers of English often find it hard to place stress on the right syllables of English polysyllabic words. Incorrect stress placement on English words can affect prosodic structures at the sentence level, resulting in the obstruction of understanding and communication.

Apart from the difference in stress position, it is well-noted that English syllables are not similar in length. Stressed syllables are long and prominent, while unstressed syllables are said more softly with short reduced vowels. This important feature of stress in English is often ignored by Thai EFL learners who tend to be more concerned with enunciating each English syllable clearly, assuming that they will be well understood.

Added to these factors, the fact that Thai syllables also carry tones tends to exacerbate the Thai EFL learners' difficulty in using correct pitch levels for primary and secondary stresses, as well as unstressed syllables in different positions of English polysyllabic words. While stress is an important feature in English words, lexical tones are important for the pronunciation of Thai words. When English words are borrowed into Thai, they undergo

particular modification in the mapping process of stress patterns in English and tonal categories in Thai. Familiarity with the use of tones assigned to these words, as well as the stress system in Thai itself, often causes Thai speakers to say these words in the 'Thai way' even when they are used in English sentences. The transfer of Thai stress on English loanwords can yield either a positive or negative effect depending on the extent to which the pitch pattern of a particular word between the two languages resembles or differs. Therefore, in order to investigate the impacts of stress and tones in Thai on stress placement of English words, we need to consider a few crucial points with regard to similarities and differences of English stress patterns and the stress and tonal systems in Thai.

Firstly, a stressed syllable in Thai and English has similar characteristics, that is, it is perceived as louder than the other syllables in the word and the vowel appears to be longer than when the same vowel occurs in unstressed syllables. However, despite the common characteristics of stress shared by both languages, there is a slight difference in the main feature that characterizes a stressed syllable in English and that in Thai. A stressed syllable in English is perceived by the rapid change of pitch from a mid or low level to a prominently higher pitch. Comparatively, a syllable with strong stress in Thai is clearly noticeable by the vowel sound which is longer in duration than when it is in a syllable with weak or reduced stress (Vairojanawong, 1983). The pitch patterns in Thai words are fixed and are characterized as tones.

Secondly, the stress systems of English and Thai are different. As discussed earlier, Thai is classified as a fixed-stress language; the primary stress always falls on the last syllable of Thai polysyllabic words regardless of the speech types: whether it is fast, normal, or carefully spoken. On the contrary, as a free-stress language, the position of stress in English is not fixed in relation to the word. Although there are a few general rules that provide a 'rough guide' to tendencies of stressed syllables, exceptions to those rules also exist. This causes the stress placement in English words to be comparatively unpredictable.

Thirdly, due to the fact that Thai is a tone language, each syllable within a Thai word is assigned a fixed pitch level based on the syllable structure, syllable type and syllable position. Unlike Thai, English has no lexical tones on syllables. Only a stressed syllable in English is perceived as having a prominently higher pitch than the surrounding syllables within a word. As regards such different systems, when English words are borrowed into Thai, these borrowed words will be assigned tonal categories based on both phonetic and non-phonetic factors. There are cases when a high tone is assigned to unstressed syllables of English loanwords, resulting in such syllables being pronounced in a high pitch. When a Thai speaker pronounces an unstressed syllable in a high tone, a native English listener tends to perceive it as a stressed syllable.

Objective of the Study

Motivated by such competing strategies in the application of suprasegmental features between the two different systems, this study seeks to investigate the extent to which tone assignment and stress patterns in Thai affect the stress placement on English polysyllabic loanwords in the speech of Thai students with relatively high and low English proficiency levels, as perceived by a native English listener. In light of the objective of the study, the results presented in this paper are based mainly on the qualitative analyses of the data collected from the participants. It is hoped that the findings will help teachers and students to become more aware that using the correct stress patterns when pronouncing loanwords in the English language context is important for speech intelligibility. The author also hopes that the study will provide some insights into the similarities and differences of the stress system

between English and Thai, which will help teachers to develop an informed method to teach word stress to Thai students.

Methodology

Participants

The participants consisted of 30 students drawn from a pool of 82 third-year English major students of a private university in Bangkok, Thailand. These students had prior basic knowledge in English Phonetics from a course they took in the previous semester. The selection process was based on the students' relative English proficiency as measured by scores on an in-house test of English proficiency at the beginning of the semester. The students' GPAs of English courses were used to support the proficiency test results. Fifteen students with the highest English proficiency scores and whose GPAs were above 3.00, and 15 students with the lowest proficiency scores and whose GPAs were below 2.50, were selected and classified as the high group and low group, respectively.

Research Instruments

First, the 30 target loanwords were selected based on the following criteria.

(1) They are frequently-used loanwords in spoken and written Thai.

(2) They are not included in the phonetic lessons that the students learned in the previous semester. This is to prevent the situation where the students' errors could be caused by what Selinker (1972) refers to as 'transfer of training'.

(3) These words do not have the primary stress on the last syllable. This criterion aims at preventing the participants to have correct stress by default, due to the fact that stress in Thai always falls on the last syllable irrespective of the number of syllable within a word. The selected loanwords are classified into three groups: loanwords with two syllables, three syllables, and four syllables, with 10 words in each group, distributed randomly in the research instruments. The process of selection of these loanwords was carried out according to the following steps.

(1) The researcher selected the following 3 websites that provide information about English loanwords frequently used in the Thai language with a large number of examples:

http://www.rta.mi.th/chukiat/story/thai_engl.htm
http://www.english-room.com/borrowed_words.html
http://thairo501.tripod.com/information/ThaiOfEngl.htm

Twenty-five each of the two-syllables-, three-syllable, and four-syllable loanwords, totaling 75 words, were chosen from these websites. As mentioned in the third criterion of the target word selection above, none of the 75 chosen words had the primary stress on the last syllable.

(2) An expert in English phonetics was asked to choose 15 frequently-used loanwords from each category, totaling 45 words.

(3) To obtain the frequency of use in the spoken and written Thai language, each of these 45 words was checked against the Thai National Corpus (TNC), developed by Chulalongkorn University's Department of Linguistics.

(4) Ten frequently-used words from each category were then selected. These words have the following English stress patterns, where 'O' represents a stressed syllable, and 'o' an unstressed syllable:

Two-Syllable Words: O o = 10 words

Three-Syllable Words:	O o o	=	5 words	o O o	=	5 words
Four-Syllable words:	O o o o	=	3 words	o O o o	=	3 words
	o o O o	=	4 words			

Following the selection of the target loanwords, the instruments were developed which consisted of three tasks. The first task was an oral-reading of thirty English sentences, each of which contained one target loanword. These sentences were written in simple structures, ranging in number of words from six to ten. They were edited by a native English-speaking teacher to ensure correctness. The 30 sentences were arranged in a random order so that the target words could not be easily recognized by the participants while performing the task. Since the participants were not informed of the specific objective of the study prior to the experiment, they had no knowledge of what element is being investigated. This task represents a less formal style of oral-reading.

The second task was an oral-reading of these 30 target loanwords listed in isolation in a random manner. Word reading is a more formal style of reading, as the participants are immediately aware of the words being tested, and therefore pronounce these words more carefully in terms of articulation and stress placement.

The third task was a written test which required the participants to mark the primary stress on each of the target loanwords as listed in the second task. This task aims at assessing the participants' underlying knowledge of the English stress patterns of the target words.

Data collection

The data collection process was conducted in a language laboratory with all the 30 participants present simultaneously at one time so that no participant had a chance to know about the test or the words on the test before actually performing the three tasks. Prior to the distribution of the test, the participants were briefed on the procedures of the three tasks and the method of recording their speech using the Sound Forge 9 software. After the task introduction, the participants were given the 30 sentences and were told to read these sentences silently for a few minutes to familiarize themselves with the words in the sentences, but not to ask any questions about the pronunciation of words, nor to use a dictionary of any types. Following the familiarization period, the participants individually recorded their oral-reading of the sentences at their normal speech rate, and saved their files as Task R1. After the first task, the list of loanwords was given for the participants to read and record their speech on a separate file, which was saved as Task R2. Following the two oral-reading tasks, the participants were asked to mark the symbol (') in front of the syllable that carries the primary stress on the written test, referred to as Task W1.

Data analysis

The analysis of the data was conducted in 5 stages. First, a native English speaking teacher (NEST) was asked to listen to Task R1 and Task R2 from each recording and mark stress on the target loanwords which corresponded to the student's pronunciation. To attain reliability in the identification of stress, 3 out of 15 recordings were randomly selected from each group as representative samples. These randomly selected samples, representing 20% of the students in each group, were listened to by the NEST and another native speaker of English. The percentage of agreement of the primary stress identification between the two raters was 99.5% for the high group and 99.0% for the low group. The Kappa coefficient of the randomly selected samples was calculated and the values attained were .992 and .985 for the high and low groups respectively. This was considered as a sufficient degree of agreement between the two raters for the present study. In the second stage, the students'

word stress patterns transcribed from the audio recording were checked, and categorized. In the third stage, the students' stress-marking written test-task (Task W1) was checked by the researcher and compared against the students' oral-reading performance in Task R1 and Task R2. In the fourth stage, the data was compiled and analyzed using descriptive statistics. Based on the results, qualitative analysis was conducted in the final stage to investigate the extent to which stress and tones in Thai as well as tone adaptation of English loanwords have an effect on the resultant stress placement of English loanwords pronounced by Thai EFL students with relatively high and low English proficiency levels, as perceived by a native English listener.

Results

In this section, the students' performance on each of the two-syllable English loanwords will be presented and qualitatively discussed first, followed by the pronunciation of each of the three-syllable loanwords. Then, the students' performance on the four-syllable loanwords will be presented.

I. Students' Stress Placement of Two-Syllable English Loanwords

Table 1: *Students' Correct and Incorrect Stress on Two-Syllable Loanwords*

	Word	Transcription & Thai tones	Words in Sentences (R1)		Words in Isolation (R2)		Marking (W1)
			☑ **O o**	☒ o O	☑ **O o**	☒ o O	Correct
High Group (n=15)	ˈsandwich	sɛn wít	3 (20.0%)	12 (80.0%)	13 (86.7%)	2 (13.3%)	15 (100%)
	ˈtennis	tʰen nít	6 (40.0%)	9 (60.0%)	14 (93.3%)	1 (6.7%)	12 (80.0%)
	ˈoffice	ʔɔ́p fít	9 (60.0%)	6 (40.0%)	14 (93.3%)	1 (6.7%)	14 (93.3%)
	ˈvirus	waj rát	10 (66.7%)	5 (33.3%)	15 (100%)	0 (0%)	15 (100%)
	ˈbonus	boo nát	13 (86.7%)	2 (13.3%)	14 (93.3%)	1 (6.7%)	14 (93.3%)
	ˈquota	kʰwoo tâa	8 (53.3%)	7 (46.7%)	15 (100%)	0 (0%)	15 (100%)
	ˈtaxi	tʰɛ́k sîi	10 (66.7%)	5 (33.3%)	15 (100%)	0 (0%)	15 (100%)
	ˈdollar	dɔn lâa	11 (73.3%)	4 (26.7%)	15 (100%)	0 (0%)	15 (100%)
	ˈfashion	fɛɛ cʰân	11 (73.3%)	4 (26.7%)	15 (100%)	0 (0%)	15 (100%)
	ˈlaser	lee sə̂ə	14 (93.3%)	1 (6.7%)	15 (100%)	0 (0%)	15 (100%)
Mean			63.3%	36.7%	96.7%	3.3%	
	Word	Transcription & Thai tones	Words in Sentences (R1)		Words in Isolation (R2)		Marking (W1)
			☑ **O o**	☒ o O	☑ **O o**	☒ o O	Correct
Low Group (n=15)	ˈsandwich	sɛn wít	3 (20.0%)	12 (80.0%)	11 (73.3%)	4 (26.7%)	14 (93.3%)
	ˈtennis	tʰen nít	3 (20.0%)	12 (80.0%)	10 (66.7%)	5 (33.3%)	12 (80.0%)
	ˈoffice	ʔɔ́p fít	7 (46.7%)	8 (53.3%)	11 (73.3%)	4 (26.7%)	13 (86.7%)
	ˈvirus	waj rát	5 (33.3%)	10 (66.7%)	12 (80.0%)	3 (20.0%)	15 (100%)
	ˈbonus	boo nát	8 (53.3%)	7 (46.7%)	9 (60.0%)	6 (40.0%)	10 (66.7%)
	ˈquota	kʰwoo tâa	6 (40.0%)	9 (60.0%)	15 (100%)	0 (0%)	15 (100%)
	ˈtaxi	tʰɛ́k sîi	9 (60.0%)	6 (40.0%)	15 (100%)	0 (0%)	15 (100%)
	ˈdollar	dɔn lâa	5 (33.3%)	10 (66.7%)	15 (100%)	0 (0%)	12 (80.0%)
	ˈfashion	fɛɛ cʰân	10 (66.7%)	5 (33.3%)	15 (100%)	0 (0%)	14 (93.3%)
	ˈlaser	lee sə̂ə	12 (80.0%)	3 (20.0%)	15 (100%)	0 (0%)	13 (86.7%)
Mean			45.3%	54.7%	85.3%	14.7%	

Table 1 shows the stress placement of students in the high group and low group on each of the two-syllable loanwords in two oral-reading tasks: reading loanwords in English sentences (R1) and reading loanwords in isolation (R2). As there are 15 students in each sample group, the value in each column demonstrates the number of students pronouncing each word in the oral-reading tasks across two stress patterns: O o (where the primary is on the first syllable), and o O (where the primary is on the second syllable). For ease of

understanding, the tokens were calculated into percentages. English words listed in the left column are marked with the primary stress symbol; transcriptions for the Thai pronunciation are marked with lexical tones in Thai, where (ˋ) represents the low tone, (ˆ) represents the falling tone, (ˊ) represents the high tone, (ˇ) represents the rising tone, and the mid tone is not marked by any symbol. In the last column of Table 5.1, the students' correct responses of stress marking task (W1) are shown to indicate the students' cognitive awareness of stress placement of a particular word. In order to analyze and discuss the use of stress in the two groups of students in greater depth, the performance of each group will be presented separately in the following sub-sections.

Performance of the High Group on Two-Syllable Loanwords

From the result of the stress marking test (W1) in Table 1, one can observe that most high-group students located stress correctly, suggesting that they had knowledge of the stress patterns of most words. This result is supported by the high percentages of the students' correct responses on the oral-reading of words in isolation (R2). However, the data shows that when the students were asked to perform the first task of reading these loanwords in English sentences without knowledge of what was being investigated, they mispronounced these words substantially. As the main goal of the analyses in this paper is to explore effects of the transfer of L1 system on the use of stress patterns on English loanwords in a natural speech, the focus will be placed mainly on the students' oral-reading in Task R1.

Results from Table 1 indicate that the use of stress in the students' pronunciation of two-syllable loanwords in Task R1 varied substantially. It may be assumed that the use of the pattern 'o O' in the students' mispronunciation of the words can be caused either by the 'rule of stress on the final syllable' or by a high tone being assigned to the final syllable, according to the stress and tonal patterns in Thai. From the data presented, *sandwich* /sɛn wít/ is the word mispronounced most by the high-group students, followed by *tennis* /t^{h}en nít/. As can be observed, both loanwords are assigned the high tone on the final syllable according to the syllable structure constraints in Thai (Gandour, 1979). Due to the fact that high pitch is the main characteristic of English stress, when a Thai speaker pronounces a syllable in a high tone, there is a high potential that a native English listener perceives the syllable as having stress. Similarly, the final syllable of another two loanwords *office* /ʔɔ́p fít/ and *virus* /waj rát/, which carries the high tone, were also perceived as having stress in the speech of many high-group students.

A possible reason that explains the native English listener's perception of the pattern 'o O' in the words *quota, taxi,* and *dollar* concerns the long vowel sounds that the Thai participants used when pronouncing the final syllable of these words (i.e. /k^{h}woo tâa/, /t^{h}ɛ́k sîi/ and /dɔn lâa/). As full vowel length is regarded as a common feature underlying the perception of stress, a syllable pronounced with a long vowel sound is likely to be interpreted by a native English listener as a stressed syllable. In addition to the vowel length, the final syllable of these three words is assigned the falling tone (or the rising-falling pitch contour), which correlates with the stressed-unstressed English pattern. The point of the rising in the pitch contour on the second syllable could be perceived as the stress position. This hypothesis could possibly apply to the use of 'o O' in the word *fashion* /fɛɛ c^{h}ân/ as its final syllable also carries the rising-falling pitch contour.

Let us consider the loanwords *office* /ʔɔ́p fít/ and *taxi* /t^{h}ɛ́k sîi/, which have the high tone on the first syllable. As stated earlier, high pitch is the principal feature of a stressed syllable in English. Thus, when a stressed syllable in English happens to be assigned the high tone, as is the case of *office* and *taxi*, a native English listener tends to perceive the syllable

pronounced in a high tone as a stressed syllable. If this is the case, we may presume a positive L1 transfer effect. However, it cannot be the whole story, as evidenced by the fact that, in this study, these two words were perceived to be pronounced by many Thai students in the pattern 'o O' instead of 'O o'. A possible explanation could be that not only is an English stressed syllable spoken in a high pitch, an unstressed syllable in that word needs to be pronounced softly with a reduced vowel. Thus, although the first syllable is spoken in a high pitch (high tone in Thai), it may not be perceived by a native English listener as a stressed syllable if a long duration of vowel is still maintained on the final syllable in a typical Thai stress pattern. This means that the high pitch is not a sole factor for the perception of a stressed syllable.

In comparing the students' performance on task R1 with tasks R2 and W1, we find substantially different results. While many students misplaced stress of two-syllable words in R1, almost all students located stress correctly in R2 and W1. The results suggest that most students were aware of correct stress placement on these loanwords, but they pronounced them differently. Considering the rule of 'stress on the final syllable' applicable to all polysyllabic Thai words (Peyasantiwong, 1986: 224), it may be assumed that the use of the pattern 'o O' in the students' mispronunciation of the two-syllable loanwords could be caused to a large extent by the transfer of the stress pattern on the final syllable in Thai, and the assignment of high tone on an unstressed English syllable.

Performance of the Low Group on Two-Syllable Loanwords

In the pronunciation of two-syllable loanwords in Task R1, the words *sandwich* and *tennis* are those that the low-group students could least pronounce correctly. If one may recall, these two loanwords are also the words least pronounced correctly by the high-group students due to the hypothesis that the final syllable carries the high tone. Other loanwords which are assigned the high tone on the second syllable (i.e. *virus, office,* and *bonus*) were perceived as being mispronounced at substantially high percentages among students in the low group. Again, the results from the written test (W1) and the oral-reading of words in isolation (R2) show that most students were in fact aware of the correct stress position of these words.

Let us next consider another set of loanwords whose second syllable carries a long vowel: *dollar, quota,* and *taxi*. For these words, vowel length is hypothesized to cause the native English listener to mark many low-group students for placing stress on the second syllable. Interestingly, when the students reread these words in isolation in Task R2, we find that they were able to locate stress correctly at 100%. This suggests that they had cognitive knowledge of where the stress is actually located on these words. We may also observe the results from the stress marking task (W1) which show that only a small number of students misplaced stress on two-syllable loanwords. The findings reveal that nearly all students were likely to have high competence in stress placement on this category of loanwords. But their performance in less careful speech (R1) did not accord with their competence. The students' mispronunciation of words tended to be influenced to a great extent by the transfer of stress and tone assignment in their L1, and the influence appeared to be greater among less proficient students than those with relatively higher English proficiency.

II. Students' Stress Placement of Three-Syllable English Loanwords

Table 2 displays the stress patterns of the high-group and low-group students on three-syllable loanwords in the oral-reading tasks R1 and R2. The students' correct stress marking in the written test (W1) is also displayed in the last column. The 10 loanwords in this category are divided into two sets. The first set consists of five loanwords which carry the primary stress on the first syllable and are represented by the pattern O o o. The remaining

five loanwords are those that have stress on the second syllable and are marked by o O o. Students' correct responses for each set of words are shown in bold type. The performance of the high group will be presented first, followed by that of the low group.

Table 2: *Students' Correct and Incorrect Stress on Three-Syllable Loanwords*

	Word	Transcription & Thai tones	Words in Sentences (R1)			Words in Isolation (R2)			W1
			☑ **O o o**	☒ o O o	☒ o o O	☑ **O o o**	☒ o O o	☒ o o O	Correct
High Group (n=15)	ˈmicrowave	maj kʰroo wéep	**8 (53.3%)**	1 (6.7%)	6 (40.0%)	**10 (66.7%)**	1 (6.7%)	4 (26.7%)	14 (93.3%)
	ˈalcohol	ʔɛɛn kɔɔ hɔɔ	**8 (53.3%)**	3 (20.0%)	4 (26.7%)	**11 (73.3%)**	1 (6.7%)	3 (20.0%)	14 (93.3%)
	ˈbattery	bɛ̀t tə rîi	**10 (66.7%)**	2 (13.3%)	3 (20.0%)	**10 (66.7%)**	5 (33.3%)	0 (0%)	13 (86.7%)
	ˈcalorie	kʰɛɛ lɔ rîi	**11 (73.3%)**	2 (13.3%)	2 (13.3%)	**13 (86.7%)**	2 (13.3%)	0 (0%)	12 (80.0%)
	ˈfurniture	fəə ni cə̂ə	**10 (66.7%)**	5 (33.3%)	0 (0%)	**11 (73.3%)**	4 (26.7%)	0 (0%)	11 (73.3%)
	Mean		**62.7**	17.3	20.0	**73.4**	17.3	9.3	85.3
			☒ O o o	☑ **o O o**	☒ o o O	☒ O o o	☑ **o O o**	☒ o o O	
	corˈruption	kʰɔɔ ráp cʰân	0 (0%)	**15 (100%)**	0 (0%)	1 (6.7%)	**14 (93.3%)**	0 (0%)	14 (93.3%)
	peˈtroleum	pi tro lîam	3 (20.0%)	**12 (80.0%)**	0 (0%)	3 (20.0%)	**12 (80.0%)**	0 (0%)	15 (100%)
	comˈputer	kʰɔm piw tə̂ə	7 (46.7%)	**8 (53.3%)**	0 (0%)	2 (13.3%)	**13 (86.7%)**	0 (0%)	14 (93.3%)
	bacˈteria	bɛ́k ti ria	5 (33.3%)	**10 (66.7%)**	0 (0%)	3 (20.0%)	**11 (73.3%)**	1 (6.7%)	13 (86.7%)
	roˈmantic	roo mɛn tìk	8 (53.3%)	**7 (46.7%)**	0 (0%)	0 (0%)	**14 (93.3%)**	1 (6.7%)	15 (100%)
	Mean		30.7	**69.3**	0	12.0	**85.3**	2.7	94.7
	Word	Transcription & Thai tones	Words in Sentences (R1)			Words in Isolation (R2)			W1
			☑ **O o o**	☒ o O o	☒ o o O	☑ **O o o**	☒ o O o	☒ o o O	Correct
Low Group (n=15)	ˈmicrowave	maj kʰroo wéep	**6 (40.0%)**	0 (0%)	9 (60.0%)	**6 (40.0%)**	2 (13.3%)	7 (46.7%)	10 (66.7%)
	ˈalcohol	ʔɛɛn kɔɔ hɔɔ	**7 (46.7%)**	2 (13.3%)	6 (40.0%)	**9 (60.0%)**	3 (20.0%)	3 (20.0%)	11 (73.3%)
	ˈbattery	bɛ̀t tə rîi	**9 (60.0%)**	3 (20.0%)	3 (20.0%)	**11 (73.3%)**	4 (26.7%)	0 (0%)	10 (66.7%)
	ˈcalorie	kʰɛɛ lɔ rîi	**8 (53.3%)**	1 (6.7%)	6 (40.0%)	**9 (60.0%)**	4 (26.7%)	2 (13.3%)	9 (60.0%)
	ˈfurniture	fəə ni cə̂ə	**9 (60.0%)**	6 (40.0%)	0 (0%)	**8 (53.3%)**	7 (46.7%)	0 (0%)	6 (40.0%)
	Mean		**52.0**	16.0	32.0	**57.3**	26.7	16.0	61.3
			☒ O o o	☑ **o O o**	☒ o o O	☒ O o o	☑ **o O o**	☒ o o O	
	corˈruption	kʰɔɔ ráp cʰân	1 (6.7%)	**13 (86.7%)**	1 (6.7%)	0 (0%)	**15 (100%)**	0 (0%)	13 (86.7%)
	peˈtroleum	pi tro lîam	1 (6.7%)	**13 (86.7%)**	1 (6.7%)	0 (0%)	**15 (100%)**	0 (0%)	15 (100%)
	comˈputer	kʰɔm piw tə̂ə	3 (20.0%)	**11 (73.3%)**	1 (6.7%)	1 (6.7%)	**14 (93.3%)**	0 (0%)	15 (100%)
	bacˈteria	bɛ̀k ti ria	5 (33.3%)	**9 (60.0%)**	1 (6.7%)	5 (33.3%)	**10 (66.7%)**	0 (0%)	12 (80.0%)
	roˈmantic	roo mɛn tìk	8 (53.3%)	**6 (40.0%)**	1 (6.7%)	1 (6.7%)	**14 (93.3%)**	0 (0%)	15 (100%)
			24.0	**69.3**	6.7	9.3	**90.7**	0	93.3

Performance of the High Group on Three-Syllable Loanwords

In the first set of three-syllable loanwords having stress on the first syllable, the high-group students placed stress correctly in Task R1 at 62.7% on average. Misplacement of stress on the final syllable was found at 20%, while the students misplaced stress on the second syllable at 17.3%. In Task R2—reading words in isolation, misplacement of stress on the last syllable reduced remarkably from 20% to 9.3%, suggesting that the effect of L1 transfer decreased to a great extent in more careful speech. The word *microwave* /maj kʰroo wéep/ was perceived to have stress on the final syllable at the highest percentage (40%). This could be due to the fact that not only does the final syllable of the word *microwave* carry a long vowel, it is also assigned the high tone in the Thai pronunciation. These two factors contribute to the effect of L1 transfer as earlier discussed. If we check the students' response in Task W1, we find that only 1 student (6.7%) marked stress on *microwave* incorrectly, suggesting that most students had knowledge of where stress should be placed.

The word *alcohol* was found to have stress on the final syllable in the speech of 4 students (26.7%) in R1. This stress pattern was also found in the speech of 3 students (20.0%) in R2. It is observable that this word normally takes a long vowel on the final syllable in the Thai pronunciation. It may be hypothesized that the vowel length could be a major factor causing the native English listener to perceive the final syllable as having strong stress in R1 and R2. Again, if we check the students' response in Task W1, we find only 1 student (6.7%) marked stress incorrectly on *alcohol*, suggesting that most students had knowledge of the correct stress pattern.

For the words *battery* and *calorie*, misplacement of stress on the final syllable in R1 was found in the speech of 3 students (20%) and 2 students (13.3%) respectively. Two possible reasons could explain why the native English listener perceived the last syllable as carrying stress. First, the last syllable of the two words is assigned the falling tone in the Thai pronunciation. As earlier pointed out, the rising-falling pitch contour of the falling tone in Thai correlates with the stress-unstressed English pattern. Second, the final syllable is pronounced in Thai with a long vowel, which is also one crucial characteristic of a stressed syllable in English. It may be hypothesized then that L1 transfer effect is accountable for the perception of stress on the final syllable of these two loanwords. It may be observed, however, that when the words *battery* and *calorie* were read in isolation in Task R2, none of the students pronounced the two words with strong stress on the final syllable. This suggests that L1 transfer effect plays a more crucial role in a natural speech than when the words are carefully spoken.

In the students' performance on the second set of three-syllable loanwords with stress on the second syllable: *corruption, petroleum, computer, bacteria*, and *romantic*, it was found that all misplacement of stress in these five words occurred only on the first syllable. The word *corruption* was pronounced correctly by all high-group students (100%). This is probably because the second syllable, which is a stressed syllable, is assigned the high tone and is thus pronounced with a high pitch. It is observable that in the second group of loanwords, none of the students placed the primary stress on the final syllable although some of these words end in a long vowel. The reason for this situation is rather unclear, but a possible explanation could be that the students were aware, from their learning experience, that these five words end in a suffix and that most suffixes do not take stress. Thus, they decided to place stress on either the second or first syllable, rather than the final syllable.

Considering the mean values of correct stress on five words in the second set in Task R1, 69.3%, as opposed to those of words in the first set, 62.7%, we find that the students placed stress more correctly on the latter set of loanwords. Such results are confirmed by the students' performance in R2 and W1, whereby the mean values of correct stress on words in the second set are 85.3% and 94.7% respectively. In the first set, the mean values of correct stress on words in R2 and W1 are 73.4% and 85.3% respectively. The fact that most students to located stress correctly in careful speech and in the stress marking task suggest that learners had knowledge of the stress position on words with certain suffixes, such as *–tion, –ic*, and *–er*, from their learning experience.

Performance of the Low Group on Three-Syllable Loanwords

Of the five three-syllable loanwords having stress on the first syllable, the low-group students placed stress correctly in Task R1 at 52% on average. Incorrect placement of stress on the second syllable and final syllable was found at 16% and 32%, respectively. As shown in Table 5.2, *microwave* was pronounced with stress on the last syllable at 60% (9 students), followed by *alcohol* and *calorie* at 40% (6 students), and *battery* at 20% (3 students).

When comparing stress misplacement in R1 and R2, one can see that the average percentage of students' placement of stress on the final syllable in R1 reduced by half in R2, that is, from 32% to 16%. On the contrary, misplacement of stress on the second syllable increased from 16% in R1 to 26.7% in R2. The change of stress location in the second task suggests that many students could be aware, when they read the words more carefully, that most English words are less likely to have stress on the final syllable.

In the performance on the second set of three-syllable loanwords in R1 among the low-group students, stress was placed correctly on the second syllable by the majority of the students in almost all words, except for the word *romantic*, which was pronounced correctly

by lower than 50% of the students. In this set of words, it was found that misplacement of stress on the last syllable was produced by only 1 student (6.7%) for each of the five words. Moreover, when reading the words in isolation in Task R2, none of the low-group students placed stress on the last syllable in any of these five loanwords. The result suggests that L1 transfer did not occur when words were carefully spoken.

Comparing the mean value of correct stress for loanwords in the first set in Task R1 (52.0%) with that of the second set (69.3%), we find that the low-group students placed stress more correctly on words having stress on the second syllable. This phenomenon is consistent with that of the high-group students. The result supports the aforementioned hypothesis that the students might be aware of the rules of stress on words with suffixes from the course in phonetics they studied in the previous semester. This is evidenced by the fact that when reading words in isolation, the students placed stress correctly on the second set of words at 90.7% on average.

Students' Stress Placement of Four-Syllable English Loanwords

Table 3: *Students' Correct and Incorrect Stress on Four-Syllable Words*

	Word	Transcription & Thai tones	Words in Sentences (R1)				Words in Isolation (R2)				W1
			☑ **O o o o**	☒ o O o o	☒ o o O o	☒ o o o O	☑ **O o o o**	☒ o O o o	☒ o o O o	☒ o o o O	Correct
High Group (n=15)	ˈhelicopter	hee li kʰɔ́p tâə	**5 (33.3%)**	0 (0%)	10 (66.7%)	0 (0%)	**6 (40.0%)**	0 (0%)	9 (60.0%)	0 (0%)	6 (40.0%)
	ˈmissionary	mít cʰan na rîi	**5 (33.3%)**	4 (26.7%)	6 (40.0%)	0 (0%)	**3 (20.0%)**	6 (40.0%)	6 (40.0%)	0 (0%)	7 (46.7%)
	ˈsupermarket	súu pâə maa kèt	**1 (6.7%)**	0 (0%)	11 (73.3%)	3 (20.0%)	**3 (20.0%)**	0 (0%)	12 (80.0%)	0 (0%)	5 (33.3%)
	Mean		**24.4**	8.9	60.0	6.7	**26.7**	13.3	60.0	0	40.0
			☒ O o o o	☑ **o O o o**	☒ o o O o	☒ o o o O	☒ O o o o	☑ **o O o o**	☒ o o O o	☒ o o o O	
	techˈnology	tʰék noo loo jîi	8 (53.3%)	**6 (40.0%)**	0 (0%)	1 (6.7%)	0 (0%)	**11 (73.3%)**	4 (26.7%)	0 (0%)	12 (80.0%)
	therˈmometer	tʰəə moo mi tâə	4 (26.7%)	**4 (26.7%)**	6 (40.0%)	1 (6.7%)	0 (0%)	**8 (53.3%)**	7 (46.7%)	0 (0%)	13 (86.7%)
	choˈlesterol	kʰɔɔ rét təə rôn	0 (0%)	**15 (100%)**	0 (0%)	0 (0%)	0 (0%)	**15 (100%)**	0 (0%)	0 (0%)	14 (93.3%)
	Mean		26.7	**55.5**	13.3	4.5	0	**75.5**	24.5	0	86.7
			☒ O o o o	☒ o O o o	☑ **o o O o**	☒ o o o O	☒ O o o o	☒ o O o o	☑ **o o O o**	☒ o o o O	
	aluˈminium	a luu mi nîam	0 (0%)	9 (60.0%)	**6 (40.0%)**	0 (0%)	0 (0%)	8 (53.3%)	**7 (46.7%)**	0 (0%)	7 (46.7%)
	elecˈtronics	i lék tʰrɔ nìk	4 (26.7%)	2 (13.3%)	**8 (53.3%)**	1 (6.7%)	0 (0%)	4 (26.7%)	**10 (66.7%)**	1 (6.7%)	12 (80.0%)
	carboˈhydrate	kʰaa boo hai drèet	3 (20.0%)	0 (0%)	**9 (60.0%)**	3 (20.0%)	0 (0%)	1 (6.7%)	**14 (93.3%)**	0 (0%)	10 (66.7%)
	condoˈminium	kʰɔn doo mi nîam	3 (20.0%)	1 (6.7%)	**10 (66.7%)**	1 (6.7%)	0 (0%)	7 (46.7%)	**8 (53.3%)**	0 (0%)	10 (66.7%)
	Mean		16.7	20.0	**55.0**	8.3	0	33.3	**65.0**	1.7	65.0
	Word	Transcription & Thai tones	Words in Sentences (R1)				Words in Isolation (R2)				W1
			☑ **O o o o**	☒ o O o o	☒ o o O o	☒ o o o O	☑ **O o o o**	☒ o O o o	☒ o o O o	☒ o o o O	Correct
Low Group (n=15)	ˈhelicopter	hee li kʰɔ́p tâə	**4 (26.7%)**	0 (0%)	10 (66.7%)	1 (6.7%)	**3 (20.0%)**	0 (0%)	12 (80.0%)	0 (0%)	6 (40.0%)
	ˈmissionary	mít cʰan na rîi	**6 (40.0%)**	3 (20.0%)	6 (40.0%)	0 (0%)	**5 (33.3%)**	2 (13.3%)	7 (46.7%)	1 (6.7%)	7 (46.7%)
	ˈsupermarket	súu pâə maa kèt	**0 (0%)**	0 (0%)	10 (66.7%)	5 (33.3%)	**3 (20.0%)**	2 (13.3%)	9 (60.0%)	1 (6.7%)	3 (20.0%)
	Mean		**22.2**	6.7	57.8	13.3	**24.4**	8.9	62.2	4.5	35.6
			☒ O o o o	☑ **o O o o**	☒ o o O o	☒ o o o O	☒ O o o o	☑ **o O o o**	☒ o o O o	☒ o o o O	
	techˈnology	tʰék noo loo jîi	3 (20.0%)	**3 (20.0%)**	3 (20.0%)	6 (40.0%)	0 (0%)	**8 (53.3%)**	7 (46.7%)	0 (0%)	10 (66.7%)
	therˈmometer	tʰəə moo mi tâə	4 (26.7%)	**2 (13.3%)**	7 (46.7%)	2 (13.3%)	2 (13.3%)	**3 (20.0%)**	10 (66.7%)	0 (0%)	10 (66.7%)
	choˈlesterol	kʰɔɔ rét təə rôn	1 (6.7%)	**10 (66.7%)**	0 (0%)	4 (26.7%)	0 (0%)	**15 (100%)**	0 (0%)	0 (0%)	13 (86.7%)
	Mean		17.8	**33.3**	22.2	26.7	4.4	**57.8**	37.8	0	73.4
			☒ O o o o	☒ o O o o	☑ **o o O o**	☒ o o o O	☒ O o o o	☒ o O o o	☑ **o o O o**	☒ o o o O	
	aluˈminium	a luu mi nîam	1 (6.7%)	7 (46.7%)	**7 (46.7%)**	0 (0%)	1 (6.7%)	9 (60.0%)	**4 (26.7%)**	1 (6.7%)	8 (53.3%)
	elecˈtronics	i lék tʰrɔ nìk	5 (33.3%)	3 (20.0%)	**7 (46.7%)**	0 (0%)	1 (6.7%)	6 (40.0%)	**8 (53.3%)**	0 (0%)	9 (60.0%)
	carboˈhydrate	kʰaa boo hai drèet	4 (26.7%)	0 (0%)	**9 (60.0%)**	2 (13.3%)	0 (0%)	2 (13.3%)	**13 (86.7%)**	0 (0%)	8 (53.3%)
	condoˈminium	kʰɔn doo mi nîam	0 (0%)	2 (13.3%)	**10 (66.7%)**	3 (20.0%)	0 (0%)	3 (20.0%)	**12 (80.0%)**	0 (0%)	8 (53.3%)
			16.7	20.0	**55.0**	8.3	3.3	33.3	**61.7**	1.7	55.0

Table 3 shows the students' correct and incorrect stress placement on four-syllable loanwords in tasks R1 and R2. The students' correct stress marking in the written test (W1) is also displayed in the last column. The 10 loanwords in this category are divided into three sets of words. The first set consists of three loanwords which carry the primary stress on the first syllable and are represented by the pattern O o o o. The second set contains three loanwords having stress on the second syllable marked by o O o o. The remaining four loanwords are those that have stress on the third syllable and are marked by o o O o. Students' correct responses for each set of words are shown in bold type with mean values provided. In the following sub-sections, the performance of the high group and that of the low group will be presented and discussed.

Performance of the High Group on Four-Syllable Loanwords

As shown in Table 3, the high-group students placed stress correctly on the first set of four-syllable loanwords in Task R1 at only 24.4% on average. Misplacement of stress was found on the third syllable at the highest percentage, 60%. In the word *helicopter* /hee li k^hɔ́p tə̂ə/, the third syllable carries the high tone, which correlates a high pitch in an English stressed syllable. This could be a reason why the third syllable was perceived as having strong stress in the speech of 10 students (66.7%) in R1. It is observable that in R2 the same incorrect pattern was perceived in the speech of 9 students (60%). This situation suggests that, in addition to the L1 transfer effect, words with four syllables are difficult for the students to locate stress correctly. As one can see from the result of W1, only 6 students (40%) marked stress correctly for the word *helicopter*.

Supermarket is another word that 11 students (73.3%) placed stress on the third syllable in R1, and 12 students (80%) did so in R2. It could be hypothesized that the students believed that stress should fall on the stressed syllable of the root word, which is the noun *market*. The students possibly thought that the prefix *super* should not take strong stress. Thus, they chose to place stress on the first syllable of the word *market*. As earlier presented and discussed in Chapter 4, most students had insufficient knowledge of the correct stress patterns in four-syllable loanwords. It appears that stress was placed on these words at random. One can see that even when the students read words more carefully in Task R2, or when they had more time to recall stress rules when performing Task W1, the mean values of correct stress placement in both tasks were still low.

In the second set of four-syllable loanwords having stress on the second syllable, the word *cholesterol* was pronounced with correct stress by all 15 high-group students (100%) in R1. This situation could be due to the fact that the second syllable of this word, which carries the primary stress in English, is assigned the high tone in the Thai pronunciation, and thus was perceived as a stressed syllable in the speech of all students. By contrast, the students' stress placement on the other two words in the same set, *technology* and *thermometer*, appeared to be at random. Interestingly, however, it is observable that in R2 the students chose to place stress on the second or third syllable; stress placement did not occur on the first or last syllable of the word in the second set. This probably concerns their awareness that it is unlikely for stress to fall on the first or last syllable of these words, as evidenced by the high mean value of correct responses in the stress marking task (W1) at 86.7%.

In the third set of four-syllable loanwords, the students tended to place stress at random in R1, but one may observe that the use of stress on the last syllable was minimal. Only the word *carbohydrate* /k^haa boo hai drèet/ was heard to have stress on the final syllable by 3 students (20%). It is assumed that the mispronunciation of this word could be caused by the Thai stress pattern and the long vowel in the final syllable. When the students read this word in Task R2, however, they did not place stress on the last syllable. Another interesting point found in the results for this set of words is that in R2 the students chose to place stress on the third or second syllable. None of the students placed stress on the first syllable. Moreover, stress on the last syllable was found in only one word *electronics*, pronounced by only one student.

Performance of the Low Group on Four-Syllable Loanwords

Of the three loanwords having stress on the first syllable, the low-group students placed stress correctly in Task R1 at 22.2% on average, suggesting that this group of words is difficult to pronounce with correct stress. Like the high group, the words *helicopter* and *supermarket* were pronounced with stress on the third syllable at the highest percentage, 66.7%. On

average, the students placed stress on the third syllable of the words in the first set at 57.8%. When reading these words more carefully in R2, students made only minimal improvement, as evidenced by a slightly higher mean value of correct stress in R2 at 24.4%, as opposed to 22.2% in R1. In addition, misplacement of stress on the third syllable increased from 57.8% in R1 to 62.2% in R2. In the stress marking task (W1), the average percentage of correct mark of stress is only 35.6%. This result suggests that most low-group students' randomly placed stress on this set of loanwords.

In the second set of four-syllable loanwords having stress on the second syllable, the students used stress correctly in R1 at 33.3% on average. The word *cholesterol* shows the highest percentage of correct stress placement at 66.7% (10 students). The percentage increased to 100% in R2 and decreased to 86.7% in W1. As a whole, the students had more correct stress placement for this set of words than they did for words in the first set. This result is consistent with that of the high group, which suggests that stress on the second syllable of four-syllable loanwords could be more accessible to the students than stress placement in other positions in a word.

In the third set of loanwords having stress on the third syllable, the students had correct stress placement in R1 at 55% on average, which is the highest mean value among the three sets. In this set of words, stress was misplaced on the final syllable at 8.3%, while misplacement of stress on the first and second syllables was averaged at 16.7% and 20% respectively. In R2, stress on the final syllable reduced to only 1.7% on average, suggesting that the students were aware that stress on the final syllable is not a typical pattern for four-syllable English words. Likewise, misplacement of stress on the first syllable also decreased from 16.7% in R1 to 3.3% in R2. On the other hand, stress on the second syllable increased from 20% in R1 to 33.3% in R2. Considering the students' correct stress placement in W1 at only 55%, we may hypothesize that the students did not have sufficient knowledge in the stress patterns of four-syllable words. On a whole, the students' use of stress on four-syllable loanwords tended to be at random.

Summary

This paper has presented results of the qualitative analyses, which aims at investigating the effect of stress patterns and tones in Thai on the resultant stress patterns of English polysyllabic loanwords in the speech of Thai students, particularly when they read these words with no knowledge of what phonological element was being investigated. The following hypotheses can be assumed from the results of the study.

(1) Full vowel length is the main characteristic of a stressed syllable in both English and Thai. In Thai, the final syllable of a word always carries the strongest stress, and it is normally said with a long duration of vowel. In English, stress is not fixed on a certain syllable. However, it is a fact that not so many English words have stress on the final syllable. Thus, when Thai speakers pronounce English words with a long vowel on the final syllable in a typical Thai pattern, native English listeners tend to perceive it as a misplacement of stress. This phenomenon may be claimed to result from a negative L1 transfer. It could be hypothesized then that the transfer possibly yields a positive effect when Thai speakers pronounce English words that carry strong stress on the final syllable, such as many two-syllable verbs in English which normally take stress on the final syllable.

(2) Due to the fact that high pitch is the principal feature of stress in English, the syllable which is assigned the high tone in the Thai pronunciation tended to be perceived as having strong stress. When the high tone is assigned to an unstressed English syllable, such a syllable tends to be perceived as a stressed syllable when said in the Thai pronunciation. In this case, the L1 transfer tends to yield a negative effect. On the contrary, if the high tone is

assigned to a stressed syllable in English, such a syllable is likely to be perceived as having strong stress. As such, the use of the high tone in Thai tends to yield a positive effect. However, in English when one syllable is stressed, the surrounding syllables need to be unstressed, which means that a reduced vowel will be used in unstressed syllables. In this case, if Thai speakers apply the 'rule of stress on the final syllable' in Thai to English words and they still maintain the long duration of vowel sound on the last syllable, strong stress is likely to be perceived on the last syllable. In such a case, the influence of the stress system in Thai will yield a negative L1 transfer effect.

(3) A syllable that is assigned the falling tone, or the rising-falling pitch contour, tends to correlates with the stressed-unstressed English pattern. It appears that the rising point in the pitch contour of the syllable is perceived as the position of stress in English.

The analyses of the students' performance according to the number of syllables of English loanwords reveal that the students' use of stress in two-syllable loanwords varied considerably across the tasks. Evidence from the high percentages of correct stress marking in Task W1 indicates that the majority of students in both high and low groups were aware of the correct stress patterns in two-syllable words. However, their performance in reading these words in sentences tended to be influenced to a great extent by the transfer of their L1 phonological system. Students appeared to be more careful when pronouncing words with three syllables, particularly those that contain familiar suffixes such as *–tion, –ic,* and *–er*. The results show that students hardly placed stress on these suffixes as they were aware from their learning experience that most suffixes do not take stress.

In four-syllable loanwords, the results reveal that students in both groups appeared to place stress more randomly. It is hypothesized that they had insufficient knowledge of the stress patterns of English words containing a larger number of syllables. However, the results show that only a small number of students chose to place stress on the last syllable. One possible reason could be due to the students' awareness that stress does not usually fall on the last syllable in English words containing many syllables.

From the data presented thus far, it may be concluded that the students' pronunciation of two-syllabic loanwords seems to be largely affected by stress patterns and tones in Thai. The students made fewer mistakes in pronouncing words with three syllables. It is hypothesized that students may not pay much attention to the English stress patterns when saying frequently-used loanwords with a small number of syllables, resulting in their resorting to the Thai way of pronouncing those words in a natural speech.

Implications of the Study

The findings of this study offer some pedagogical implications. Firstly, since word stress is an important element in English for rendering communication intelligibility, students should always be careful in pronouncing English words with correct stress placement if an acceptable mastery of spoken English is a learning goal. The researcher hopes that the findings of the study will help both teachers and students to become more aware of the problems of word stress and thus give greater importance to using correct stress when pronouncing loanwords in spoken English. It is also hoped that knowing the similarities and differences between the two suprasegmental systems may help teachers to develop an informed method to teach word stress patterns in English polysyllabic words. It is important for teachers to help their students to practice using full vowels in stressed syllables and reduced vowel in unstressed syllables of English words, especially when the final syllable is unstressed. Students should also be aware that while the strongest stress is normally placed on the word-final syllable in Thai, English words seldom have stress on the final syllable. This will help students to avoid pronouncing English words in the Thai way. Additionally,

teachers should discuss the concepts of Thai tones and stress in Thai and English and demonstrate to the students how tone assignment on a syllable can affect the perception of stress in English words.

Limitations of the Study

This study is limited by a small sample size due to the fact that it primarily aims to analyze and qualitatively discuss the effects of L1 system on the participants' oral performance. In addition, the participants were drawn from a pool of English major students in only one class year of a private university in Thailand. The findings may therefore limit credence to any claim of generalizability to other English language learning contexts.

About the Author:

Soisithorn Isarankura graduated with an M.A. in Linguistics and ELT from the University of Leeds, U.K., and a Ph.D. in English as an International Language from Chulalongkorn University, Thailand. Her research interest is in Second Language Acquisition. Her papers include acquisition of English articles, tense and aspect, prosody and pronunciation.

References

Bickner, R. (1986). Thai tones and English loanwords: A proposed explanation. In Bicker, R. et al. (Eds.), *Papers from a Conference on Thai Studies in Honor of William J. Gedney* (pp. 19-39). Michigan papers on South and Southeast Asia, Center for South and Southeast Asian Studies, University of Michigan, Ann Arbor.

Gandour, J. (1976). Tonal rules for English loanwords in Thai. In Thongkum T.L. et al. (Eds.), *Studies in Thai and Mon-Khmer Phonetics and Phonology in Honor of Eugenie J.A. Henderson* (pp. 131-144). Bangkok: Chulalongkorn University Press.

Kemmer, S. (2007). *Ling 216 course information*. Rice University. Retrieved from http://www.ruf.rice.edu/~kemmer/Words/loanwords.html.

Kenstowicz, M. & Suchato, A. (2006). Issues in loanword adaptation: A case study from Thai. *Lingua*, *116*(7), 921-949.

Luksaneeyanawin, S. (1983). *Intonation in Thai*. Unpublished Ph.D. thesis. University of Edinburgh.

Nacasakul, K. (1979). A note on English loanwords in Thai. In Thongkum T.L. et al. (Eds.), *Studies in Thai and Mon-Khmer Phonetics and Phonology in Honor of Eugenie J.A. Henderson* (pp.151-162). Bangkok: Chulalongkorn University Press.

Peyasantiwong, P. (1986). Stress in Thai. In Bicker, R. et al. (Eds.), *Papers from a Conference on Thai Studies in Honor of William J. Gedney* (pp. 211-230). Michigan papers on South and Southeast Asia, Center for South and Southeast Asian Studies, University of Michigan, Ann Arbor.

Selinker, L. (1972). Interlanguage. *IRAL*, *10*, 209-231.

Thai National Corpus (TNC). Department of Linguistics, Chulalongkorn University. Retrieved from http://www.arts.chula.ac.th/~ling/TNC/.

Vairojanavong, N. (1983). *A contrastive study of the accentual systems in English and Thai and an error analysis of the pronunciation of English polysyllabic medical terms*. Master Thesis, Chulalongkorn University.

Watanapokakul, S. (2009). The relationship between the CU students' ability to identify stress patterns of English polysyllabic medical terms and the ability to pronounce them. *PASAA, 43,* 93-113.

Appendix

Oral-Reading Part I

Please read the following sentences.

1. There is a small supermarket near my house.
2. The company paid him a big bonus.
3. Chlorine is widely used to kill bacteria.
4. A helicopter crashed into a building last night.
5. Jack gives me a ride to the office every morning.
6. A condominium near a BTS station is very expensive.
7. Perfumes and cleaning fluids contain alcohol.
8. Jane connected the microphone to a computer.
9. Too much cholesterol in the blood can cause heart disease.
10. Japan has decreased the import quota on shrimps.
11. His house is full of antique furniture.
12. He printed documents from a laser printer.
13. Most plastic is made from petroleum.
14. Anna started playing tennis last year.
15. To control weight, avoid high calorie foods.
16. Korean fashion is very popular in Thailand.
17. Microwave ovens are not suitable for grilling.
18. These pots and pans are made from aluminium.
19. A thermometer is a tool to measure temperature.
20. Yaya likes to watch romantic movies.
21. One of my school teachers was a missionary.
22. The bird flu virus can pass from human to human.
23. Korea is famous for the electronics industry.
24. The director is facing many charges of corruption.
25. Low carbohydrate diets help people lose weight quickly.
26. My mother made me a tuna sandwich for lunch.
27. I need a battery for my new camera.
28. Modern technology can help reduce production costs.
29. Mary decided to take a taxi to the airport.
30. She handed a ten dollar bill to the cashier.

Oral-Reading Part II

Please read the words on the list below.

1.	thermometer	11.	quota	21.	helicopter
2.	sandwich	12.	condominium	22.	bonus
3.	furniture	13.	petroleum	23.	corruption
4.	carbohydrate	14.	dollar	24.	cholesterol
5.	office	15.	technology	25.	taxi
6.	calorie	16.	computer	26.	electronics
7.	aluminium	17.	romantic	27.	alcohol
8.	tennis	18.	supermarket	28.	microwave
9.	bacteria	19.	fashion	29.	virus
10.	laser	20.	missionary	30.	battery

Stress Marking Test

Please put the primary stress mark (ˈ) on the correct syllable.

1.	thermometer	11.	quota	21.	helicopter
2.	sandwich	12.	condominium	22.	bonus
3.	furniture	13.	petroleum	23.	corruption
4.	carbohydrate	14.	dollar	24.	cholesterol
5.	office	15.	technology	25.	taxi
6.	calorie	16.	computer	26.	electronics
7.	aluminium	17.	romantic	27.	alcohol
8.	tennis	18.	supermarket	28.	microwave
9.	bacteria	19.	fashion	29.	virus
10.	laser	20.	missionary	30.	battery