L2 Production of English Word Stress by L1 Thai Learners

Sawaros Jaiprasong
English as an International Language Program, Graduate School,
Chulalongkorn University, Thailand
sawarosps@gmail.com

Nattama Pongpairoj
Department of English, Faculty of Arts, Chulalongkorn University,Thailand
pnattama@gmail.com

Abstract

This research was aimed at investigating L1 Thai learners' English word stress production in two aspects of English words – 1) English words with different suffixes: suffixes affecting stress shift, i.e. '-ic' (e.g. 'fantástic'), '-ity' (e.g. 'idéntity') and '-tion / -sion' (e.g. 'eléction') and suffixes demanding stress, i.e. '-oon' (e.g. 'typhóon'), '-eer' (e.g. mutinéer) and '-ee' (e.g. foresée) and 2) compound words: compound nouns (e.g. bédroom) and compound verbs (e.g. look fór). In total, 10 intermediate learners and 10 advanced learners participated in this study. The participants completed two production tasks: "Reading English Word Stress in Isolation" and "Reading English Word Stress in Sentences". The results showed that the advanced learners had better English word stress production than the intermediate learners in both tasks. It was assumed that the errors made were caused by interlingual errors as the word stress assignment rules of the two languages were different. This led to negative transfer which interferes with L1 Thai learners' acquisition of English word stress. The results contribute to second language acquisition with respect to English word stress of L1 Thai learners and also provide pedagogical implications for English pronunciation.

Keywords: compound words, English word stress, L1 Thai learners, L2 production, suffixes, word stress production

Introduction

English has become one of the most important languages spoken by people globally (Crystal, 2003). Naturally, four main skills are normally focused on when second language learners (L2) learn a language: listening, speaking, writing and reading. To be an effective English speaker, English pronunciation should also be taken into consideration (Alghazo, 2015). According to Gilakjani (2012), pronunciation, which is a part of the speaking skill, is an important unit of L2 learning because it can predict learners' communicative competence as well as performance. Moreover, being able to communicate with other people using English with a systematic process of speaking, listening and understanding helps learners of any language to be successful in their education and careers (Ahmad, 2016).

Stress is one of the significant suprasegmental features that have an important role in speakers' and listeners' mutual intelligibility (Dalton & Seidlhofer, 1994). According to Solé Sabater (1991), word stress is a prosodic dimension that varies across languages. Plansangket (2016) stated that L1 Thai learners seem to have problems with English word stress assignment of disyllabic and polysyllabic English words. Therefore, such problems could lead communicators to be confused and eventually affect their understanding of communication. Moreover, word stress is a phonological characteristic that has a contrastive function for distinguishing semantically distinct words (Friederici et al., 2007). Learners of

English rely on the placement of English word stress for word identification in both connected speech and in isolation (Cutler, 2012; Tremblay & Owens, 2010).

Language learners' success can be found when their communication in that language is comprehensible. When learners of English misunderstand messages during their communication, one of the main causes is that their comprehension of English word stress is insufficient for conveying information and understanding the conversation (Jones, 1966). In addition, Munro and Derwing (1999) stated that errors in English word stress assignment have a large impact on the intelligibility of L2 learners of English. Solé Sabater (1991) also claimed that perceiving English words with correct stress patterns results in learners' good intelligibility. Lepage and Busà (2014) found from their study that incorrect word stress placement had a negative impact on L2 listeners' intelligibility.

English is a stressed-time language (Abercrombie, 1967). Not all syllables in an English word are assigned with equal stress. As there are a number of English word stress rules which are quite complicated for L2 learners of English to acquire, they should learn the patterns of English word stress and try to recognize them.

There are some important factors that have effects on learners' English word stress assignment. To begin with, in the English learning process used by L2 learners, similarities and differences between learners' L1 and L2 are normally found. These cause the occurrence of positive and negative transfer between the two languages (Malghani & Bano, 2014). Positive transfer facilitates L2 learners' language acquisition, whereas negative transfer hinders L2 learners' language acquisition (Lado, 1957). According to Peperkamp and Dupoux (2002), with regard to English word stress, the more differences between L1 and L2 stress patterns there are, the more difficulties learners will have in L2 word stress acquisition. Moreover, learners whose L1 stress patterns are predictable will find it easier to acquire the language.

Additionally, it has been shown in many previous studies that English word stress is difficult for L2 learners of different language backgrounds to acquire; for example, learners have difficulties when they have to decide which syllables should be stressed. It is because English word stress assignment can be determined by several factors, such as syllable structure, lexical class, and phonological similarity (Archibald, 1997). Furthermore, there are other factors involved in the English word stress assignment of L2 learners, such as differences in ages (Archibald, 1997; Guion et al, 2003). According to Şenel (2006), it is usually found that learners whose English is native-like must have started learning English at a very young age.

Previous studies on English word stress in Thai contexts highlighted the stress production of English words with various syllables by L1 Thai university learners (Khamkhien, 2010), the perception and production of English word stress with various syllables by L1 Thai secondary learners (Aungcharoen, 2006) and the perception and production of English word stress of phrasal verbs by L1 Thai learners aged between 20 and 38 (Jangjamras, 2011). The previous studies found that L1 Thai learners have problems producing English word stress (Khamkhien, 2010) and producing and perceiving English word stress (Aungcharoen, 2006; Jangjamras, 2011). The previous studies showed that English pronunciation is still problematic for L2 learners of English. In this study, the researcher therefore focused on the production of English word stress by L1 Thai learners in words with particular suffixes (suffixes affecting stress shift and suffixes demanding stress) and compound words (compound nouns and compound verbs). The learners' production of English word stress was compared and contrasted.

The objective of this study was to compare and contrast the production of English word stress in words with particular suffixes and compound words by L1 Thai learners with two different levels of English proficiency (intermediate and advanced levels) as the

participants had become familiar with the selected English words during their grade 1-12 education.

Furthermore, contrastive analysis and error analysis were taken into account when setting up the hypothesis. Previous studies regarding English word stress assignment by L1 Thai learners and other L2 learners of English (Aungcharoen, 2006; Porzuczek & Rojczyk, 2017; Sahatsathatsana, 2017) showed that the learners whose English language proficiency levels were higher had better English word stress assignment than the learners with lower English proficiency levels. So, the hypothesis of the study was as follows:

L1 Thai advanced learners would have better production of English word stress of English words with particular suffixes and compound words than L1 Thai intermediate learners.

Review of Literature

This section provides related theories, which are 1) contrastive analysis and 2) error analysis. Moreover, stress patterns in English and stress patterns in Thai are explained. Subsequently, previous studies concerning the English word stress production of L2 learners are illustrated.

This section is beneficial to this research study as contrastive analysis could shed light on the similarities and differences between English and Thai stress patterns that could help predict what might facilitate and cause problems of English word stress to the L1 Thai learners and error analysis could be used as guidelines to see sources of errors with the help of similarities and differences between English and Thai stress patterns. Moreover, the previous studies described below could be used as evidence that English word stress production of the L1 Thai learners was still in need of improvement.

Contrastive Analysis

Contrastive analysis is the comparison of learners' mother tongue and a target language by identifying their structural similarities and differences systematically (Lado, 1957). Moreover, contrastive analysis shows how the language they are learning will be difficult for them to acquire if the L1 rules are different from those in L2.

Error Analysis

According to Corder (1967), error analysis is an alternative to contrastive analysis as contrastive analysis is considered inadequate by itself with regard to predicting causes of learners' language errors or learning difficulties.

Corder (1967) stated that language teachers consider learners' errors as problems in teaching and learning. The procedure for error analysis was divided into five steps: 1) selecting a corpus of language, 2) identifying errors in the corpus, 3) classifying the identified errors, 4) explaining the psycholinguistic causes of the errors and 5) evaluating the errors.

There are two main types of errors in language learning: interlingual and intralingual errors. According to Richards and Sampson (1974), interlingual errors are from first language interference or language transfer (L1 transfer). Intralingual errors occur when the target language's patterns, systems or rules are very difficult for learners to acquire themselves.

Stress Patterns in English and Thai

Stress, one aspect of the suprasegmental features of utterances with rhythm and intonation, is found in learners' speech production. Stress in most languages is present on a specific syllable of a word (Trask, 2004). According to Trujillo (2017), prominence is the sum of different factors, such as increased loudness, vowel length, changes in pitch and quality.

Stress Patterns in English

In English, the term 'stress' means the prominence of individual syllables of single words (Ladefoged, 1975). Stressed syllables are mostly defined as those syllables within an utterance that are longer, louder and higher.

In a conversation, to understand the meaning of a word, native English speakers and L2 learners of English listen mainly to the primarily stressed syllables, not the weaker forms: secondary stress or an unstressed syllable (Essberger, 2016). For better understanding, the English word stress patterns are categorized based on the categorization of Celce-Murcia et al. (2010) and Delahunty & Garvey (2003).

One-syllable words

A one-syllable word spoken in isolation generally has a primary stress. For example: 'dísh','phóne', 'lénd', 'séem', 'dráw', 'gó', 'stánd' and 'néws'.

Polysyllabic words

Stress-demanding suffixes

In words with these suffixes, primary stress is put on the last syllable (on the suffix), as shown in Table 1.

Table 1: Stress-demanding suffixes

Root	Suffix	Root+suffix	Root	Suffix	Root+suffix
míllion	-aire	millionáire	márket	-eer	marketéer
accépt	-ee	acceptée	Vietnám	-ese	Vietnamése

Stress-changing suffixes

When such a suffix is added to a root word, the primary stress is shifted, as shown in Table 2.

Table 2: Stress-changing suffixes

Root	Suffix	Root+suffix	Root	Suffix	Root+suffix
átmosphere	-ic	atmosphéric	mathemátic	-ian	mathematícian
bénefit	-ial	benefícial	décorate	-tion	decorátion

Compound words

A compound word is one type of a word consisting of two words. Those two words can stand independently as one English word (Roach, 2009). Here are some rules of the stress placement for compound words: compound nouns and compound verbs.

Compound nouns

A compound noun is a type of a noun consisting of two words. There are some forms of a compound noun which are commonly found: noun + noun (e.g. 'dóorbell'), adjective + noun (e.g. 'bláckboard'), noun + verb (e.g. 'háircut') and a compound noun which derives from a phrasal verb (e.g. 'hándout'). The focused compound noun of this study was a compound noun derived from noun + noun.

Compound verbs

A compound verb is a verb consisting of two words or more and it functions as a single verb. A compound verb comes from a verb and a preposition. The following words are examples of prepositions:

across	*away*	*back*	*through*
down	*in*	*out*	*on*
up	*off*	*over*	*under*

(Kreidler, 2004, p.207)

According to Zapata (2016), if a compound verb stands separately as a phrasal verb[1], the primary stress is placed on the adverbial preposition (the second syllable) e.g. 'back úp', 'put ón' and 'let dówn'.

Stress Patterns in Thai

Naksakul (2002) defines stress as the production of speech with a higher pitch and a longer duration. Stress shows the prominent quality of a word (Luksaneeyanawin, 1983). In Thai, there are two main syllable-stress patterns: stressed and unstressed (Naksakul, 2002).

Warotamasikkhadit (1967) states that in Thai, the final syllable of each word generally has the most prominence (stress) among all the syllables in that word. Hiranburana (1972) suggested that Thai word stress could not be explained by just a single rule. For example, when the word /ro:ŋrian/ ("school" in English) is pronounced in isolation, the stress is automatically placed on the last syllable according to the Thai stress-pattern rule. When there is a context or sentence containing the word /ro:ŋrian/, the stress can be shifted. For example, in /dá:n pai ro:ŋrian/ (walk to school), the stress is shifted to the word "walk /dá:n/" because the action is stressed in this phrase according to sentence stress rules.

Previous studies relating to L2 pronunciation problems regarding English word stress

In this section, previous studies in the area of English pronunciation in L2 production are presented.

Bian (2014) conducted a study on the influence of Chinese stress on English pronunciation teaching and learning because the researcher saw the importance of stress for people's understanding when communicating with others and stress was still problematic for Chinese learners. Two experiments were conducted in this study. Firstly, 10 first-year college learners were randomly selected to read ten words for a recording concerning stress on the first and the second syllable. The ten words were 'origin', 'forgot', 'unless', 'context', 'connect', 'obtain', 'content', 'original', 'congress' and 'opinion'. If they recognized that they had produced wrong pronunciation, they were allowed to repeat any words until they thought that their pronunciation was satisfactory. After that, the participants' pronunciation was judged by three professional Chinese teachers of English. The results showed that Chinese learners of English tended to use strong forms of English vowels rather than /ə/ for the first unstressed syllable e.g., 'forgot' [fɔˈgɔt], 'obtain' [ɔbˈtein], 'original' [ɔˈridʒinəl], 'unless' [ʌnˈles], 'connect' [kʌˈnekt] and 'condition' [kʌnˈdiʃən]. Later, a second experiment was conducted in order to further study the interference of Chinese stress patterns with the Chinese students' learning of English compounds. A total of 40 learners (20 college learners and 20 middle school learners) participated in the second experiment. They had also been learning English as a foreign language for at least six years. They were required to read 20 compound nouns consisting of some words with primary stress on the first component and some words with double stress. After that, they were asked to pronounce the given words with stress. The results illustrated that there was L1 transfer (Chinese stress patterns) occurring when they produced English compound nouns with primary stress on the first syllable and it caused a

high percentage of errors. Regarding the words with double stress, it was found that the participants could produce them quite well. Chinese learners were prone to producing compound words with the w-s (weak-strong) pattern instead of the s-w (strong-weak) pattern in English. Consequently, instead of producing compounds such as 'doorstep', 'earthquake', 'hairbrush', 'drugstore' and 'dining room' with correct stress, the participants shifted the stress to the last syllable. It was concluded that English word stress was difficult for Chinese EFL learners to acquire because of their L1 influence.

Vafaei et al. (2013) explored the English pronunciation of Iranian learners by focusing on the effect of the stress pattern. The participants were 30 students studying English at an intermediate level. There was a production task in which the participants had to pronounce selected words for analysis. The test consisted of 80 words chosen from Interchange Book 3 (Richards et al., 2004) categorized into four groups based on the number of syllables and the assignment of the stress: 1) 20 two-syllable words with the stress on the first syllable, 2) 20 two-syllable words with the stress on the second syllable, 3) 20 three-syllable words with the stress on the first syllable and 4) 20 three-syllable words with the stress on the second syllable. The participants were asked to read the chosen words for a recording. The findings showed that the participants produced the words whose stress was on the first syllables better than those containing the stress on the second syllables. The researcher stated that teachers should provide their students with more opportunity to practice pronouncing words with correct stress. In addition, materials for teaching pronunciation should be properly prepared for teaching.

Zubizarreta et al. (2013) compared the production of stress patterns in various types of compounds by English native speakers and L1 Spanish/L2 English speakers. A total of 16 native speakers who were undergraduate students at the University of Southern California (USC) and 16 L1 Spanish/L2 English speakers of English who were undergraduate or graduate students at USC or California State University-Fullerton, or who were Spanish lecturers or professors at USC or nearby institutions, participated in this study. The L2 speakers were from Spain, Mexico, and Peru. The participants were required to perform a reading protocol task, which was reading short passages containing the target compounds. The recordings were divided and coded by two undergraduate assistants based on perception. All discrepancies were judged by a third undergraduate and then discussed in lab meetings to reach a consensus. The results showed that English native speakers produced idiomatic compounds with fore-stress (strong-weak) patterns systematically, as did the second language speakers of English (Spanish as the native language). Significant differences were found between the two groups in their stress production of less familiar compositional compounds. There was a strong tendency for English native speakers to produce fore-stress patterns in the form of argument-head combinations and a weak tendency to produce end-stress (weak-strong) patterns in the case of modifier-head combinations.

Chen (2013) explored Chinese ESL learners' acquisition of English word stress and compared factors affecting their stress assignment with three factors of the findings of Guion et al. (2003), which were syllable structure, lexical class and phonologically similar words. A total of 20 advanced ESL learners from Hong Kong and China, who had never studied abroad in an English-speaking country, were tested on production and perception of 40 real words and 40 pseudowords of varying syllable structures, in noun and verb sentence frames. The results showed that the participants performed well in the tasks related to real words, but they exhibited asymmetrical abilities in the tasks involving pseudowords.

Gao (2012) conducted an experimental study on the influence of Chinese experience on English phonetic acquisition from the perspective of word stress. Based on the Perceptual Assimilation Model, which claims that L2 learners' perception and production is affected by language experience, the purpose of this study was to study whether there was a relationship

between the students' experience of suprasegmental perception and production. A total of 30 students majoring in English participated in this study. They had been studying English for more than eight years. Three English native speakers also participated in this study. The task required the participants to read 30 two-syllable English words whose second syllable was assigned with tone 4 in Chinese. The results showed that the students mostly misplaced the stress in polysyllabic words as it was located on the second syllable instead. The cause of this phenomenon was assumed to be L1 transfer (the last syllable was always stressed). It was suggested that there should be more L2 auditory sessions provided for the students' phonological awareness.

Hismanoglu (2012) explored the cause of problems in word stress patterns among Turkish EFL (English as a foreign language) learners and investigated if an internet-based pronunciation lesson could be more effective than a traditional pronunciation lesson in enhancing the Turkish EFL learners' accurate production of English word stress. The results showed that Turkish EFL learners had problems pronouncing words with the primary stress on the last, penultimate (second syllable from the end) and ante-penultimate (third syllable from the end) syllables as well as compound adjectives and verbs, due to unfamiliarity with the word stress patterns of L2 and the negative effect of L1.

Khamkhien (2010) conducted a study of the English pronunciation competence of 90 Thai learners studying in science fields. There were two parts of the testing. First, the learners were required to complete questionnaires to elicit their personal information. Second, the learners were assigned to read pieces of vocabulary with different numbers of syllables. The findings showed that most of the Thai learners did not show satisfactory competence in English pronunciation. Factors affecting Thai learners' word-stress competence were experiences in studying English, gender and faculty.

Jarusan (1997) explored the relationship between the perception and the production of English word stress by Thai native speakers. The subjects were 80 learners at Rangsit University and they were divided into four groups. The results revealed that the learners' English experience played an important role in the perception and the production of English word stress. The language experience helped the learners acquire the language and constantly improve their language ability.

To the best of my knowledge, there have been no systematic studies investigating Thai learners' pronunciation problems of English word stress focusing on production of English word stress of English words with different suffixes (suffixes affecting stress shift and suffixes demanding stress) and compound words (compound nouns and compound verbs) by L1 Thai university learners with different English proficiency levels. The results of this study would provide better understanding of the sources of problems of English word stress assignment of Thai learners.

Methodology

In this section, the participants, instruments, data collection and data analysis of this study are presented.

Participants

The participants were 20 L1 Thai first-year undergraduate learners studying at a university in Bangkok, Thailand. The participants in this study were categorized into two groups of 10 learners – intermediate learners (scores of 45-56) and advanced learners (scores of 92-105) – according to the CU-TEP (Chulalongkorn University Test of English Proficiency), which contains 120 items (120 points) and which all of the first-year learners needed to take in the first year of their bachelor's degree. The following are the characteristics that the two groups shared. First, they were homogeneous as they had completed their 12-year compulsory

education based on The Basic Education Core Curriculum B.E. 2551 (A.D. 2008). Second, they were L1 Thai students who had never been to study in English speaking countries. Third, they were studying in the same foundation English class at that time.

Instruments

Two research instruments were employed in this study: Reading English Word Stress in Isolation and Reading English Word Stress in Sentences. The details of each task can be explained as follows.

Since all of the participants in this study had already completed their compulsory education, they should have been familiar with the chosen words as the selected words were from grade 1-12 English textbooks for L1 Thai learners: *Take Off 1* (Abbs, 1996) for grade 7 learners, *Expressions 2* (Nunan, 2001) for grade 8 learners, *Expressions 3* (Nunan, 1990) for grade 9 learners and *Vocabulary Book for University Admission* (Pukjaroen, 2012) for grade 10-12 learners. The targeted words were checked for their primary stresses in both American and British English in *A Concise Pronouncing Dictionary of British and American English* (Lewis, 1972).

Although there were two different main tasks employed in this study, the following are the characteristics that the two tasks shared. Firstly, the total number of chosen words was 39. Secondly, the aspects of English word stress and the number of words in each word category that were focused on in this study are as follows:

1. Five words were chosen for each suffix that shifts the stress to the syllable before the suffixes: '-ic' (e.g. 'doméstic' and 'pessimístic'), '-ity' (e.g. 'personálity' and 'hospitálity') and '-tion' (e.g. 'celebrátion' and 'superstítion').

2. Three words were chosen for suffixes that demand stress on themselves: '-oon' (e.g. 'racóon' and 'dragóon'), '-ee' (e.g. 'foresée' and 'deportée') and '-eer' (e.g. 'mountainéer' and 'marketéer'). The number of words for this category was different from other categories because there are limited numbers of English words ending with '-oon', '-eer' and '-ee' used in English textbooks.

3. Five words were chosen for each type of compound word, which were compound nouns derived from a noun + a noun (e.g. 'cámpfire' and 'bóokstore') and compound verbs derived from a verb + a preposition (e.g. 'go dówn' and 'set óff').

In order to avoid the participants' awareness of the English word stress patterns being tested, targeted words under the same word category were placed randomly. For Reading English Word Stress in Isolation, the targeted words were put in a random order with 23 distractors. For Reading English Word Stress in Sentences, the targeted words were put in the sentences considered as distractors.

The data collection was conducted at a university in Bangkok, Thailand. It took place in the classroom, in the second semester of the 2017 academic year (February-March). The first task took each person 15 minutes and the second took each person 30 minutes. The researcher was responsible for administering and recording the participants' pronunciation for data analysis of word stress. All the recordings from the two production tasks were listened to by three raters: three native speakers of English working as English teachers at universities in Thailand. Then, all English word stress production was checked and rated. If stress was put on the right part of the word, a ✓ mark was put in the table. If wrong stress was put on a certain syllable, the raters put an alphabetic symbol designated by the researcher in the table to explain more about the details of each word's mistake. The descriptions of each alphabetic symbol are as follows:

A = Wrong stress on a syllable other than the last syllable
(a) e.g. monsóon = ✓ mónsoon = A
A = Wrong stress on the last syllable
(b) e.g. précious = ✓ precíous = A
-B = Wrong pronunciation
-B was assigned in the table when the word pronounced by the participant did not have any correlation with the correct pronunciation.
-C = Word skipping
-C was assigned in the table when the participant skipped any words.

After coding and marking the symbols of the data, only the data regarding correct pronunciation, A (wrong stress on a syllable other than the last syllable) and A (wrong stress on the last syllable) were used for analysis.

Results and Discussion

This section presents the results obtained from the English word stress production by participants of two different levels of proficiency. The results of the English word stress production in Table 3 show the participants' production of English word stress in isolation.

Table 3: Correct English word stress production from Production Task 1 (Reading English Word Stress in Isolation)

Categories	Sub-categories	Intermediate Learners	Percentages	Advanced Learners	Percentages
Suffixes affecting stress shift	-ic	52%	**51.33%**	78%	**70%**
	-ity	44%		54%	
	-tion/ -sion	58%		78%	
Suffixes demanding stress	-oon	40%	**36.67%**	66.67%	**60%**
	-eer	33.33%		46.67%	
	-ee	36.67%		66.67%	
Compound nouns		70%	**70%**	62%	**62%**
Compound verbs		72%	**72%**	76%	**76%**
Total			**57.75%**		**67%**

Overall, the results showed that the advanced learners' English word stress production (67%) was better than that of the intermediate learners (57.75%).

Moreover, the results showed that the advanced learners had better production of English word stress than the intermediate learners in three categories: 1) suffixes affecting stress shift (70% and 51.33%), 2) suffixes demanding stress (60% and 36.67%) and 3) compound verbs (76% and 72%). However, the intermediate learners had better production of compound nouns (70a and 62%).

Next, the details of English word stress production by the participants are presented.

For suffixes affecting stress shift from Production Task 1 (Reading English Word Stress in Isolation), the results showed that advanced learners had better production of all

types of suffixes, which were 1) '-ic' (78% and 52%), 2) '-ity' (54% and 44%) and 3) '-tion/ -sion' (78% and 58%).

For suffixes demanding stress, it was found that advanced learners had much better production of English word stress in all sub-categories, which were 1) '-oon' (66.67% and 40%), 2) '-eer' (46.67% and 33.33%) and 3) '-ee' (66.67% and 36.67%).

However, the results revealed that the intermediate learners had slightly better production of compound verbs (76% and 72%) and better production of compound nouns than the advanced learners (70% and 62%).

Table 4: Correct English word stress production from Production Task 2 (Reading English Word Stress in Sentences)

Categories	Sub-categories	Intermediate Learners	Percentages	Advanced Learners	Percentages
Suffixes affecting stress shift	-ic	38%	**44.67%**	64%	**70%**
	-ity	44%		64%	
	-tion/ -sion	52%		82%	
Suffixes demanding stress	-oon	46.67%	**46.67%**	56.67%	**51.11%**
	-eer	56.67%		63.33%	
	-ee	36.67%		33.33%	
Compound nouns		48%	**48%**	66%	**66%**
Compound verbs		62%	**62%**	74%	**74%**
Total			**48.78%**		**63.70%**

For Production Task 2, it can be seen in Table 4 that the advanced learners (63.70%) had better production of English word stress than intermediate learners (48.78%) in all selected types of English words: 1) suffixes affecting stress shift (70% and 44.67%), 2) suffixes demanding stress (51.11% and 46.67%), 3) compound nouns (66% and 48%) and 4) compound verbs (74% and 62%).

The details of English word stress production by the participants are given below. Beginning with English word stress with suffixes affecting stress, the results showed that the advanced learners had better production of all types of suffixes than the intermediate learners: 1) '-ic' (64% and 38%), 2) '-ity' (64% and 44%) and 3) '-tion/ -sion' (82% and 52%).

In addition, for English word stress with suffixes demanding stress, the results showed that the advanced learners had much better production of English word stress on the following suffixes: 1) '-oon' (56.67% and 46.67%) and 2) '-eer' (63.33% and 56.67%) while the intermediate learners had slightly better English word stress production of the suffix '-ee' (36.67% and 33.33%) than advanced learners.

For English word stress of compound words, it was found that the advanced learners had better English word stress production of the following compounds: 1) compound nouns (66% and 48%) and 2) compound verbs (74% and 62%).

The results of this study showed that the production of L1 Thai learners was still problematic, but when investigating each word type more deeply, it was found that the participants had made some errors related to the English word stress production of the suffixes and compound words. With regard to the participants' production of stress in English

compound words, compound verb production seemed to be quite poor. The following part gives an explanation about the results.

Initially, it can be seen that the levels of English proficiency of the learners had effects on the learners' production of English word stress. It can be observed that the learners whose English proficiency was higher had better English word stress production than the learners with lower English proficiency. This is because the learners with higher English proficiency seemed to apply more stress-assignment strategies towards English words. Thus, the learners with higher English proficiency might have been better at differentiating the stressed syllable from others by recognizing the higher pitch or the longer duration of the stressed syllable compared to other syllables in a word, while the group of L1 Thai learners with lower English proficiency tended to assign the stress in no particular pattern.

The results are in consistence with the studies by Aungcharoen (2006) and Porzuczek (2014) in that the L2 learners of English with higher English proficiency could perform better in English speaking than the other group of L2 learners of English, who had a lower English proficiency. According to Porzuczek (2014), proficiency is one of the important predictors of English word stress realization by speakers of English. Therefore, the better the learners' English proficiency was, the better the learners did in English word stress.

However, there were some inconsistent results which showed that the advanced learners' production of English words with suffixes demanding stress, such as suffix -ee, was slightly better than that of the intermediate learners. This might be because of the learners' lower exposure to English words with suffixes demanding stress. Of all the English words compulsory for L1 Thai learners to study from grade 1-12, it was found that there were only four English words with suffixes demanding stress out of 8,606 words, accounting for 0.05% (National Institute of Educational Testing Service, 2020).

Moreover, there were a few cases where the negative transfer of stress patterns from Thai to English might not have caused the learners of the two groups to have unsatisfactory production of English words with suffixes affecting stress shift and compound nouns as higher proportions of the compulsory English vocabulary were English words with suffixes affecting stress shift (349 out of 8,606 words, or 4.06%) and compound nouns (215 out of 8606 words, or 2.50%), causing the learners' higher exposure.

Furthermore, there were some interesting cases showing that positive transfer did not facilitate students when producing English words with suffixes demanding stress. It could be explained by the effect of memorization of the tested words, which is consistent with the explanation by Altmann (2006). Moreover, Plansangket (2016) reported in her research study that the L1 Thai learners learned English word stress assignment by memorization, causing low scores in English word stress production.

The findings showed that the English word stress production errors made by L1 Thai learners were mainly because of the differences between the stress patterns of English and Thai. Because the stress is mostly assigned on the last syllable of the word in Thai (Warotamasikkhadit, 1967), negative transfer was observed; Thai learners' first language had negative impacts on their English pronunciation. The participants made numerous errors when pronouncing the English words with stress on the syllables before the suffixes, which were '-ic', '-tion / -sion' and '–ity'. On the other hand, for suffixes demanding stress, the participants sometimes did better when they produced the focused words as there was an L1 transfer that helped facilitate their pronunciation.

Many words pronounced by the participants had incorrect stress because the stress had been shifted to the last syllable. It demonstrated the learners' familiarity with the first language (Thai) pattern in which the stress is mostly on the last syllable of a word (Naksakul, 2002). Moreover, according to Gandour et al. (1999), Thai learners tend to assign Thai tones when pronouncing English word stress. For example, the word ability (abílity) was

pronounced as (abilití). The word election (eléction) was pronounced as (electíon). This signified interlingual errors reflecting L1 interference while learning an L2. Therefore, it was shown that the similarities could facilitate language learning while the differences made the language more difficult to acquire.

In addition, Table 3 and Table 4 present the results which showed that the participants gained higher scores when reading word stress in isolation as they seemed to be aware of what they were being tested on. Meanwhile, they tended to be less aware of the stimuli when reading English word stress in sentences as there were other words playing roles as distractors. This is in line with the study of Isarankura (2016). However, the intermediate group had better production of English words with suffixes demanding stress in sentences than in isolation because the participants might have been able to memorize the location of the stress of individual words, regardless of the given contexts.

Last, textbooks have been one of the main sources for L1 Thai learners' English learning but textbooks themselves could cause problems in learning about English word stress production among L1 Thai learners. The researcher observed that in English commercial textbooks used to teach L1 Thai learners, English pronunciation was just a small part of each lesson/unit, with only a few samples of pronunciation practice for the learners. This can be found in a number of English textbooks used to teach Thai learners, such as *Focus 1* (Reilly et al., 2010), *Focus 2* (Brayshaw & Michalowski, 2008), *Focus 3* (Brayshaw & Michalowski, 2008), and *Aim High 1-6* (Falla et al., 2010), which are used to teach Thai learners from grade 7 to grade 12. In each unit of *Aim High 3* (Falla et al., 2010, pp. 114), the focused vocabulary is presented along with the phonetic transcription of words such as 'assist (/əˈsɪst/)', 'baggy (/ˈbæg.i/)' and 'interact (/ˌɪn.təˈrækt/)'. Even though the learners are provided with a phonetic transcription of each focused word in the lesson, the curriculum and the lessons do not include lessons on English phonetics. Therefore, the presence of phonetic transcription might not help the learners to properly develop their English pronunciation competence. Moreover, it was found that when L1 Thai learners learn English pronunciation from the English textbooks used to teach L1 Thai learners, the rules regarding English word stress production are never taught to the L1 Thai learners explicitly. In English textbooks used to teach L1 Thai learners, such as *Aim High 3* (Falla et al., 2010), it is commonly seen that few samples of English words are given for pronunciation practice. The English words are mostly focused vocabulary from the lesson/unit and are not categorized into groups, so this makes the learners unaware of the patterns or rules of English word stress that govern those English words. Therefore, the fewer the number of English word stress samples there are, the less chance there is that learners can be aware of and acquire English word stress assignment rules. The interview with the participants in Khamkhien (2010) also raised the issue that the pronunciation content provided in English textbooks used in Thailand was limited or sometimes neglected. Furthermore, the learners interviewed in Sahatsathatsana's study (2017) stated that a teacher was sometimes the only source and role model of learning about English pronunciation, and this sometimes made them confused by the incorrect English word stress produced by Thai teachers of English. According to Schmidt's study (2001), it was claimed that learning is present if noticing is present. More inputs lead to more acquisition. So, insufficient numbers of samples and drills of correct English word stress could possibly mean that learners hardly acquire and apply them when it comes to real English word stress production.

Conclusions

This study investigated L1 Thai learners' production of English word stress by focusing on particular suffixes and compound words. L1 Thai learners of English still have difficulties in

producing English word stress. The differences between the stressing rules between English and Thai sometimes had impacts on L1 Thai learners' English word stress production. It can be assumed that L1 transfer (Thai) tremendously affects L1 Thai learners' English pronunciation.

Teachers should be aware of the problems of English word stress in pronunciation, and prepare and provide proper instruction and materials, like authentic materials, when teaching pronunciation. Video clips, cartoons, role plays and storytelling should be included in learning activities when teaching pronunciation (Khamkhien, 2010). English word stress, especially the rules and patterns of both English and Thai word stress, should be taught to learners to raise their awareness of the similarities and differences between the two languages for their better understanding of English pronunciation.

Future Research

Future research should include more types of English words, such as conversation words, to gain more insight into the problems of English pronunciation among L1 Thai learners. Moreover, interviews should be included to gain more insightful data regarding the problems with producing English word stress of L1 Thai learners.

Acknowledgements

We would like to express our gratitude to the Graduate School, Chulalongkorn University, for providing us with research funds from the 90th Anniversary of Chulalongkorn University Fund (Ratchadaphiseksomphot Endowment Fund). As this paper was presented at The 1st International ASEAN-ELT Conference 2017 and *Thailand TESOL* International Conference 2018, we would like to express our appreciation for all valuable comments and constructive feedback from the audience.

Endnotes

[1] A phrasal verb is a verb followed by a particle which can be either a preposition or an adverb
(Clifford, 2017).

[2] Chinese tones are divided into four categories: 1) tone 1 (¯) – a long and steady tone, e.g. zhōng ('middle'), 2) tone 2 (´) – a rising tone, e.g. rén ('person'), 3) tone 3 (ˇ) – a falling-rising tone, e.g. wǒ ('I, me') and 4) tone 4 (`) – a falling tone, e.g. shì ('to be, am, is, are') (Cheng, 1973).

About the Authors

Sawaros Jaiprasong**:** a Ph.D. candidate in the English as an International Language Program, Graduate School, Chulalongkorn University, Thailand. She received her M.A. in English Linguistics from the English as an International Language Program, Graduate School, Chulalongkorn University. Her research interests are English phonology, English pronunciation and second language acquisition.

Nattama Pongpairoj: an Associate Professor in the Department of English, Faculty of Arts, Chulalongkorn University, Thailand. She received her Ph.D. (Linguistics) from the University of York. Her research interests lie in interlanguage and second language acquisition, particularly L2 cognitive processing and variability in L2 functional morphology.

References

Abbs, K. (1996). *Take off 1*. MAC Press.

Abercrombie, D. (1976). Stress and some other terms. *Work in Progress, 9,* 51-53.

Ahmad, S.R. (2016). Importance of English communication skills. *International Journal of Applied Research 2016, 2*(3), 478-480.

Alghazo, S.M. (2015). Advanced EFL learners' beliefs about pronunciation teaching. *International Education Studies, 8*(11), 63-76. doi: 10.5539/ies.v8n11p63

Altmann, H. (2006). *The perception and production of second language stress: A cross-linguistic experimental study*. University of Delaware.

Archibald, J. (1997). The acquisition of English stress by speakers of nonaccentual languages: lexical storage versus computation of stress. *Linguistics, 35*(1). doi: 10.1515/ling.1997.35.1.167

Aungcharoen, N. (2006). *An investigation of English word stress perception and production skills of Thai 12th-grade students.* Srinakharinwirot University.

Bian, F. (2013). The influence of Chinese stress on English pronunciation teaching and learning. *English Language Teaching, 6*(11). doi: 10.5539/elt.v6n11p199

Brayshaw, D. & Michalowski, B. (2008). *Focus 2*. Pearson Education.

Brayshaw, D. & Michalowski, B. (2008). *Focus 3*. Pearson Education.

Celce-Murcia, M., Brinton, D. M., & Goodwin, J. M. (2010). *Teaching pronunciation hardback with audio CDs (2): A course book and reference guide*. Cambridge University Press.

Chen, H. C. (2013). Chinese learners' acquisition of English word stress and factors affecting stress assignment. *Linguistics and Education, 24*(4), 545–555. doi: 10.1016/j.linged.2013.08.003

Cheng, C. C. (1973). A quantitative study of Chinese tones. *Journal of Chinese Linguistics, 1*(1), 93-110.

Clifford, R. (2017, January 5). *Basic phrasal verbs.* Scribd. https://www.scribd.com/document/364395033/basic-phrasal-pdf.

Corder, S. P. (1967). The significance of learners' errors. *IRAL-International Review of Applied Linguistics in Language Teaching*, *5*(1-4), 161-170.

Crystal, D. (2012). *English as a global language*. Cambridge University Press.

Cutler, A. (2012). *Native listening: Language experience and the recognition of spoken words*. Mit Press.

Dalton, C., & Seidlhofer, B. (1994). *Pronunciation*. Oxford University Press.

Delahunty, G. P., & Garvey, J. J. (2003). *English word stress patterns.* Colorado State University.

Essberger, J. (2016, October 10). *The golden key to English pronunciation. English club*. https://www.englishclub.com/esl-articles/199810.html

Falla, T, Davies, P. A. & Hudson, J. (2010). *Aim high 3*. Oxford University Press.

Friederici, A. F., Friedrich, M., & Christophe, A. (2007). Brain responses in 4-month-old infants are already language specific. *Current Biology, 17*(14), 1208-1211.

Gandour, J., Tumtavitikul, A., & Satthamnuwong, N. (1999). Effects of speaking rate on Thai tones. *Phonetica, 56*(3-4), 123–134. doi: 10.1159/000028447

Gao, G. (2012). Experiment study on influence of Chinese experience on English phonetic acquisition at the perspective of word stress. *Studies in Literature and Language, 5*(1), 49-53.

Gilakjani, A. P. (2012). A study of factors affecting EFL learners' English pronunciation learning and the strategies for instruction. *International Journal of Humanities and Social Science, 2*(3), 119-128.

Guion, S. G., Clark, J. J., Harada, T., & Wayland, R. P. (2003). Factors affecting stress placement for English nonwords include syllabic structure, lexical class, and stress patterns of phonologically similar words. *Language and Speech, 46*(4), 403-426.

Hiranburana, S. (1972). Changes in the pitch contours in unaccentuated syllables in spoken Thai. In J. Harris & R.B. Noss (Eds.), *Phonetics and phonology* (pp. 23-27), Mahidol University.

Hismanoglu, M. (2012). Teaching word stress to Turkish EFL (English as a foreign language) learners through internet-based video lessons. *US-China Education Review A1*, 26-40.

Isarankura, S. (2018). The effects of stress and tones in Thai on the pronunciation of English polysyllabic loanwords among Thai EFL students. *LEARN Journal: Language Education and Acquisition Research Network, 11*(2), 66-83.

Jangjamras, J. (2011). *Perception and production of English lexical stress by Thai speakers*. University of Florida.

Jarusan, P. (1997). *Perception and production of English word stress of first year students at Rangsit University*. Chulalongkorn University.

Jones, D. (1966). *The pronunciation of English*. Cambridge University Press.

Khamkhien, A. (2010). Thai learners' English pronunciation competence: Lesson learned from word stress assignment. *Journal of Language Teaching and Research, 1*(6). doi: 10.4304/jltr.1.6.757-764

Kreidler, W. C. (2004). *The pronunciation of English*. Blackwell Publishing.

Ladefoged, P. (1975). *A course in phonetics*. Harcourt Brace Jovanovich.

Lado, R. (1957). *Linguistics across cultures: Applied linguistics for language teachers*. University of Michigan Press.

Lepage, A., & Busà, M. G. (2014). Intelligibility of English L2: The effects of incorrect word stress placement and incorrect vowel reduction in the speech of French and Italian learners of English. *International Symposium on the Acquisition of Second Language Speech Concordia, Working Papers in Applied Linguistics, 5*, 387-400.

Lewis, J.W. (1972). *A concise pronouncing dictionary of British and American English*. Oxford University Press.

Luksaneeyanawin, S. (1983). *Intonation in Thai.* University of Edinburgh.

Malghani, F., & Bano, S. (2014). Influence of L1 on acquisition of English (L2) stress pattern. *Balochistan Journal of Linguistics, 2*, 64-78.

Munro, M. J., & Derwing, T. M. (1999). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning, 49*(1), 285-310.

Naksakul, K. (2002). *Rabopsiengphasathai (The sound system of Thai).* Chulalongkorn University.

National Institute of Educational Testing Service. (2018, April 15). Compulsory vocabulary lists for Grade 1- 12 learners. https://www.niets.or.th/th/

Nunan, D. (1990). *Expressions book 3.* Institute of Academic Development.

Nunan, D. (2001). *Expressions book 2.* Institute of Academic Development.

Peperkamp, S., & Dupoux, E. (2002). A typological study of stress "deafness". *Laboratory Phonology, 7*, 203-40.

Plansangket, C. (2016, October 20). Word stress errors of graduate students in Thailand: A study of CEIC Program. Ethesisarchive. http://ethesisarchive.library.tu.ac.th/thesis/2016/TU_2016_5821040085_6950_4911.pdf

Porzuczek, A. (2014). Morphological cues to English word stress acquisition by Polish learners in Witalisz. *From Sound to Meaning in Context, 1*, 81-94.

Porzuczek, A., & Rojczyk, A. (2017). English word stress in Polish learners' speech production and metacompetence. *Research in Language*, *15*(4), 313-323.

Pukjaroen, S. (2012). *Vocabulary book for university admission.* Thammasat University Press.

Reilly, P., Uminska, M. & Michalowski, B. (2010). *Focus 1*. Pearson Education.

Richards, J. C., & Sampson, G. P. (1974). The study of learner English. In J.C. Richards (Ed.), *Error analysis: Perspectives on second language acquisition* (pp. 3-18). Sage Publications.

Richards, J. C., Hull, J., & Proctor, S. (2004). *Interchange student's book 3 with audio CD.* Cambridge University Press.

Roach, P. (2009). *English phonetics and phonology: A practical course*. Cambridge University Press.

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

Schmidt, R. (2001). Attention. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 3-32). Cambridge University Press.

Şenel, M. (2006). Suggestions for beautifying the pronunciation of EFL learners in Turkey. *Journal of Language and Linguistic Studies, 2*(1). 111-125.

Solé Sabater, M.-J. (1991). Stress and rhythm in English. *Revista alicantina de estudios ingleses, 4*, 145-162.

Trask, R. (2004). *A dictionary of phonetics and phonology.* Routledge. doi: 10.4324/9780203695111

Tremblay, A., & Owens, N. (2010). The role of acoustic cues in the development of (non-) target-like second-language prosodic representations. *The Canadian Journal of Linguistics / La Revue Canadienne De Linguistique*, *55*(1), 85–114. doi: 10.1353/cjl.0.0067

Trujillo, F. (2017, January 30). *E-lecture: English phonetics and phonology.* http://www.ugr.es/~ftsaez/fonetica.html

Vafaei, L., Sadeghpour, M., & Hassani, M. T. (2013). The effect of stress pattern on Iranian English language learners' pronunciation. *International Journal of English Language Education*, *1*(3), 198-207.

Warotamesikkhadit, U. (1967). Some phonological rules in Thai. *Journal of the American Oriental Society, 87*(4), 541. doi: 10.2307/597595

Zapata, A. A. (2016, August, 15). *Stress and rhythm.* http://webdelprofesor.ula.ve/humanidades/azapata/materias/phonetics_1/stress_and_rhythem.pdf

Zubizarreta, M. L., He, X., & Jonckheere, N. (2013). An L2 study on the production of stress patterns in English compounds. *Generative Linguistics and Acquisition Language Acquisition and Language Disorders, 8*, 185–204. doi: 10.1075/lald.54.08zub