AN INVESTIGATION OF THE ENGLISH WORD STRESS PERCEPTION AND PRODUCTION SKILLS OF THAI 12TH-GRADE STUDENTS

A THESIS

BY

NIPA AUNGCHAROEN

Presented in Partial Fulfillment of the Requirements for the

Master of Arts Degree in English

at Srinakharinwirot University

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การสำรวจการรับรู้เสียงหนัก-เบาและลงเสียงหนัก-เบาในคำภาษาอังกฤษ ของนักเรียนชั้นมัธยมศึกษาปีที่ 6

บทคัดย่อ

ของ

นิภา อั้งเจริญ

เสนอต่อบัณฑิตวิทยาลัย มหาวิทยาลัยศรีนครินทรวิโรฒ เพื่อเป็นส่วนหนึ่งของการศึกษา
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การวิจัยครั้งนี้มีจุดประสงค์ เพื่อสำรวจการรับรู้และการออกเสียงเสียงหนัก-เบาในคำภาษาอังกฤษของ นักเรียนชั้นมัธยมศึกษาปีที่ 6 โรงเรียนเบญจมราชรังสฤษฎ์ จะเชิงเทรา ปีการศึกษา 2548 กลุ่มตัวอย่างประกอบด้วยนักเรียน จำนวน 160 คน แบ่งเป็นสี่กลุ่มคือ (1) นักเรียนชายที่มีระดับผลการเรียนการเรียนวิชาภาษาอังกฤษต่ำ จำนวน 40 คน (2) นักเรียนหญิงที่มีระดับผลการเรียนวิชาภาษาอังกฤษต่ำ จำนวน 40 คน (3) นักเรียนชายที่มีระดับผลการเรียนการเรียนวิชาภาษาอังกฤษสูงจำนวน 40 คน และ (4) นักเรียนหญิงที่มีระดับผลการเรียนวิชาภาษาอังกฤษสูงจำนวน 40 คน นักเรียนแต่ละคนทำแบบทดสอบสองชุดคือ การทดสอบการรับรู้เสียงหนัก-เบาในคำภาษาอังกฤษ และการลงเสียงหนัก-เบาในคำภาษาอังกฤษ ในการรับรู้เสียงหนัก-เบาในคำภาษาอังกฤษ นักเรียนฟังคำภาษาอังกฤษที่อ่านโดยเจ้าของภาษา แล้วเลือกพยางค์ที่ได้รับการเน้นเสียงในกระดาษคำตอบ หลังจากนั้นนักเรียนแต่ละคนอ่านคำศัพท์ชุดเดียวกันกับคำศัพท์ที่ใช้ทดสอบการรับรู้เสียงหนัก-เบา และใช้ Pearson's correlation coefficient และ *t*-test เพื่อทดสอบสมมุติฐาน ผลการวิจัยสนับสนุนสมมุติฐานที่ว่า มีความสัมพันธ์ในทางบวกระหว่างการรับรู้เสียงหนัก-เบาในคำภาษาอังกฤษ และการลงเสียงหนัก-เบาในคำภาษาอังกฤษของนักเรียน และ นักเรียนสามารถลงเสียงหนัก-เบาในคำภาษาอังกฤษ ที่เน้นเสียงที่พยางค์สุดท้ายได้ดีกว่าคำภาษาอังกฤษ ที่เน้นเสียงที่พยางค์ที่สองนับจากท้าย และ พยางค์ที่สาม ผลการวิจัยชี้ด้วยว่า นักเรียนที่มีระดับผลการเรียนวิชาภาษาอังกฤษสูงมีความสามารถในการรับรู้และการลงเสียงหนัก-เบาในคำภาษาอังกฤษดีกว่านักเรียนที่มีระดับผลการเรียนวิชาภาษาอังกฤษต่ำซึ่งสนับสนุนสมมุติฐาน ผลการวิจัยไม่สนับสนุนสมมุติฐานที่ว่า นักเรียนหญิงมีความสามารถในการการรับรู้และการลงเสียงหนัก-เบาในคำภาษาอังกฤษของแบบทดสอบดีกว่านักเรียนชาย ผลการวิจัยนี้แสดงให้เห็นว่า ความสามารถ ในการการรับรู้และการลงเสียงหนัก-เบาในคำภาษาอังกฤษของนักเรียนหญิงไม่แตกต่างจากนักเรียนชาย

AN INVESTIGATION OF THE ENGLISH WORD STRESS PERCEPTION AND PRODUCTION SKILLS OF THAI 12TH-GRADE STUDENTS

AN ABSTRACT

BY

NIPA AUNGCHAROEN

Presented in Partial Fulfillment of the Requirements for the

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This study aimed to investigate the word stress perception and production of 12th-grade students studying at Benchamaratcharungsarit School, Chachoengsao, in the academic year 2005. The participants were 160 12th-grade students comprising: (a) 40 male students with high proficiency in English, (b) 40 male students with low proficiency in English, (c) 40 female students with high proficiency in English, and (d) 40 female students with low proficiency in English. Data were obtained through word stress perception and production tasks. The participants were asked to listen to a word list pronounced by a native speaker of English and mark the stressed syllable of each word they heard. Then, they read the same word list for the production task. Pearson's correlation coefficient and the *t*-test were used to test the research hypotheses. The results supported the hypotheses that there was a positive relationship between the students' word stress perception and production skills and that the students scored significantly higher on words stressed on the ult than those stressed on the penult or the antepenult. The results also indicated that the students with high proficiency in English had better skills in word stress perception and production than the students with low proficiency in English, which supported the hypothesis. The results did not support the hypothesis that females scored higher on the word stress perception and production tests than males, and these indicated that the female participants' word stress perception and production skills did not differ from those of the males.

The thesis titled

"An Investigation of the English Word Stress Perception

and Production Skills of Thai 12th-Grade Students"

by

Nipa Aungcharoen

has been approved by The Graduate School as partial fulfillment of the requirements for the Master of Arts degree in English of Srinakharinwirot University.

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CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

English is one of the most important international languages for communication (Crystal, 2003). Many Internet websites, tool manuals, textbooks for higher education, and signs at airports are written in English. English is also used as a medium for communication in international business (Komin, 1998). For example, employees in international companies need English speaking and listening skills to communicate with foreign colleagues and need reading and writing skills to read English documents and write English e-mail messages and business documents. Additionally, English is one of the most widely taught foreign or second languages in over 100 countries (Crystal, 2003), and Thailand is one of those countries.

Because of its importance, English has been taught in Thailand for more than 100 years (Sudsawat, 1990). Before 1978, English teaching methodologies mainly emphasized the grammar and translation approaches (Ministry of Education, 2002). The purposes of learning English during this period were to enable learners to read and understand language structures. The oral proficiency of the learners was not emphasized (Butler-Pascoe & Wiburg, 2003). As a result, students could not communicate in English using their listening and speaking skills.

Foreign or second language educators in Europe saw disadvantages in focusing on teaching grammar and translating English text into learners' native languages. They recognized that these methods did not truly help learners to communicate in the target language (Richards, 2001). The educators tried to find a new method of teaching to help students to be able to communicate in a foreign or second language. Therefore,

communicative approaches were proposed as new approaches for language teaching in 1970. In Thailand, the communicative approaches were introduced as the principle teaching methods in 1978 (Ministry of Education, 2002). The goal of the communicative approaches is to help Thai students of English to be able to communicate in English effectively in their daily lives across the four skills: listening, speaking, reading, and writing.

According to Richards and Rodgers (2002), listening and speaking skills are required in oral communication. In Thailand, more employees with oral proficiency in English have been required with the increasing number of international companies based here (Komin, 1998). Thai learners of English, therefore, need to master listening and speaking skills in order to be able to communicate in English orally. However, Thai speakers of English still have difficulties in oral communication (Ministry of Education, 2002). Specifically, they have difficulties with their listening and speaking skills, as indicated in recent studies.

Jiranapakul (1996) found that Thai engineers working for international companies had poor skills in listening and speaking. They rated listening and speaking as the most important skills for their work. Similarly, Sutthawat (2004) indicated that engineers working for the Thai Airways International Company rated speaking and listening as the most important English language skills in the workplace. Paesupatana (1997) found that Thai vocational students had poor listening ability. Krisananon (1999) said that Thai secretaries working for international companies had problems with telephone conversations in English. Krisananon specified that causes of problems in oral communication were incorrect pronunciation and poor speaking skills. Netsawang (1999) found that incorrect pronunciation and word stress misplacement caused listening problems between Thai and Japanese workers in international companies.

As the cited studies show, Thai speakers of English had difficulties with their listening and speaking skills. Word stress misplacement is one possible cause of the problems. To be able to communicate effectively and intelligibly in oral English, non-native speakers of English need to be able to produce understandable sounds. To achieve this, they need to speak English with correct word stress placement in order to be comprehensible to other competent listeners (Morley 1989, cited in Murphy, 1991; Hedge, 2000; Jenkins, 2000). Word stress is particularly important in speech processing (Brown, 1990; Field, 2004). In order to identify words, native speakers of English or competent listeners rely on word stress patterns. It could be difficult for them to understand a word with the wrong stress pattern (Brown, 1990; Jenkins, 2000). Similarly, Underhill (1994) has suggested that spoken words with correct sounds but wrong stress placement are more difficult to comprehend than words with the correct word stress, but incorrect sounds. Learners' failure to acquire English word stress patterns is one of the pronunciation errors that possibly lead to misunderstanding (Benrabah, 1997; Ur, 2003).

Word Stress in English

As well as tone and intonation, word stress is one of the suprasegmental features of spoken texts (Ladefoged, 1993; Nunan, 1999). According to Ladefoged (1993) and Kreidler (1997), every word in English that has more than one syllable has a prominent stress. The stress pattern of an English word is fixed. Speakers of English are not free to give a prominent stress to any syllable they choose. When listening to native speakers of English, we will find that some syllables of the utterances we hear are louder, longer in vowel duration or higher in pitch. A polysyllabic word consists of one or more unstressed syllables and one primary stressed syllable. The stressed syllable is pronounced with a greater amount of energy and usually louder than unstressed syllables (Ladefoged, 1993; Field, 2004). For example, when we say the word *sugar*, the first

syllable will be higher in pitch, longer in vowel duration, and louder than the second syllable (Clark & Yallop, 1995). According to Underhill (1994), some long polysyllabic words can have, in addition to the primary stressed syllable, another syllable that is given stress. This is known as the secondary stressed syllable. The primary stressed syllable is given more force than the secondary stressed syllable. For example, the primary stressed syllable of the word *information* is on the second to last syllable, whereas the secondary stress is on the first syllable. Both the primary and the secondary stressed syllables of the word *information* contrast with unstressed syllables.

The placement of the primary stress in the word can determine the meanings of the word. For example, it can distinguish nouns from verbs, as in *an **in**sult*, *to in**sult**, an **in**crease*, *to in**crease***. The sample words illustrate that the nouns have the stress on the first syllable and the verbs have the stress on the second syllable. In addition, stress pattern is also used to discriminate between compound nouns and adjectives followed by nouns as in *a **hot** dog* (a type of food) and *a **hot dog*** (an over-heated dog). Compound nouns have a single stress on the first word, but the adjective phrases have stress on both words. Furthermore, many other variations in the stress placement can be related to the grammatical structure of the words as in the following examples.

diplomat	di**plo**macy	diplo**ma**tic
photograph	pho**to**graphy	photo**graph**ic
monotone	mo**no**tony	mono**to**nic

Each word in the first column has the primary stress on the first syllable. The stress shifts to the second syllable when there is a *y* suffix at the end of the word. In the third column, the stress of each word is on the third syllable preceding the suffix *ic*. According to Kriedler (1997), the stressed syllable of an English word can be in one of

four different positions: (a) it can be stressed on the ult (the last syllable), (b) it can be stressed on the penult (the second syllable from the last), (c) it can be stressed on the antepenult (the third syllable from the last), and it can be stressed on the pre-antepenult (the fourth syllable from the last).

English Word Stress Perception and Production

Two aspects of English word stress are word stress perception and word stress production (Roach, 1992). In word stress production, the stressed syllable of a polysyllabic word is pronounced longer in vowel duration, louder, and higher in pitch than unstressed syllables. Word stress perception is the recognition of the stressed syllable of a word. Learners of a second or foreign language will not be able to produce the target sound successfully if they cannot perceive it correctly (Eckman, 2004). Keawpasom (1991) has said that one cause of the problems with listening and speaking skills is the failure of non-native speaking students of English to perceive and produce word stress correctly.

Summary

The goal of learning English is to be able to communicate intelligibly and effectively in English with both native and non-native speakers. However, Thai speakers of English have difficulties with oral English. One possible cause of the problems is English word stress misplacement. Native speakers or competent listeners of English may have difficulties comprehending a spoken word with incorrect stress placement. Students of English need word stress perception and production skills in order to comprehend what they hear and produce understandable spoken texts. To be able to produce an English word with correct stress placement, students of English as a second or foreign language need to perceive the stressed syllable of that word correctly. For these reasons, the researcher of this study is interested in examining the primary word stress

perception and production of Thai learners of English. The researcher hopes to better understand those word stress perception and production problems that affect the students' listening and speaking skills.

Statement of the Problem

Studies investigating the relationship between the word stress perception and production of Thai students at the secondary school level could not be found. Therefore, the specific problem addressed in this study was to investigate whether there was a relationship between the word stress perception and production of this subset of Thai learners of English. The researcher also wanted to investigate whether the sample students made errors more with words that had the stressed syllable on the penult and on the antepenult than the ult. This study also attempted to investigate whether students with high proficiency in English had better skills to perceive and produce word stress than students with low proficiency in English. In addition, the researcher also wanted to investigate whether female students had better English word stress perception and production skills than male students as currently no studies addressing this issue are available.

Research Hypotheses

In this study, four hypotheses were tested.

1. Regardless of their proficiency, there is a positive relationship between students' word stress perception and production.
2. In terms of word stress production, students tend to make errors more with words that have the stressed syllable on the penult and on the antepenult than words stressed on the ult.

3. Students with high proficiency in English have better skills to perceive and produce word stress than the students with low proficiency in English.
4. Female students have better skills in both word stress perception and production than male students.

Significance of the Study

The findings obtained from this study provide information about the word stress perception and production skills of Thai students studying English as a foreign language. With a greater awareness of the English word stress problems Thai students face, teachers of English will be in a better position to help students improve their ability to perceive the stressed syllable of words and produce English words with correct stress placement. With the teachers' help, Thai students would be able to communicate in English more effectively.

Methodology

Participants

Selection of the School. The researcher's hometown, Chachoengsao, has become a center of international business in Thailand. In recent years, many multinational companies have located their factories and other premises here. Due to the importance of word stress in oral communication, the researcher was interested in examining the word stress perception and production skills of 12th-grade students in Chachoengsao. There are 32 secondary schools in Chachoengsao (Ministry Of Education, 2005), of which Benchamaratcharungsarit School is the biggest. For this reason, the researcher used the students from Benchamaratcharungsarit School as the participants of this study.

Selection of the Participants. The participants of this study were 160 12th-grade students studying at the beginning of the second semester of the academic year 2005 at Benchamaratcharungsarit School, Chachoengsao. They were 40 male and 40 female students with high proficiency in English and 40 male and 40 female students with low proficiency in English. The high English proficiency group comprised students with grades between 3.0 and 4.0, and the low English proficiency group comprised students with grades between 1.0 and 2.0.

Instrumentation

The instruments used to test the students' word stress perception and production were developed by the researcher and consisted of word stress perception and production tasks. A word list was used in both tests and was categorized into three groups of polysyllabic words. These word categories comprised: (a) words that are stressed on the ult, (b) words that are stressed on the penult, and (c) words that are stressed on the antepenult. Each category comprised 20 words, bringing the total number of words to 60.

Word Selection. The words in the word list were selected from *"Different 1," "Different 2,"* and *"Different 3,"* which are the English textbooks used in grades 10 –12 of Benchamaratcharungsarit School. It was decided at the outset to omit certain types of words from the word list. These included words that have a secondary stress and words in which the stressed syllable changes with the function of the word. For example, *university* was omitted as it has a secondary stress on the first syllable, and *increase* was excluded because the stress placement of the word depends on whether it is a noun or a verb. The words in each category were selected as follows.

Word Stress Perception and Production Tests. In the perception test, the participants were requested to identify the primary stressed syllable of each word pronounced by a native speaker of English. In the production test, the students were

asked to read the same word list, and their readings were recorded. Sony Sound Forge 8, a digital audio editor, was used to analyze the stressed syllable of each word pronounced by each participant.

Questionnaire. A questionnaire was developed to gauge the students' level of exposure to English (see Appendix E). The researcher used this information to more effectively interpret the results of the study.

Data Collection Procedures

Pilot Study. The perception and production tests were pilot tested with one class of 12th-grade students from Benchamaratcharungsarit School, Chachoengsao during November 10-15, in the second semester of the academic year 2005. The purpose of the pilot test was to check for clarity, ambiguity, and suitable time for completion to see if revision would be needed for the actual tests (Mc.Millan & Schumacher, 2001).

Data Collection. Data for this study was obtained from word stress perception and production tests. The researcher visited Benchamaratcharungsarit School and asked for permission to conduct the research study. The tests were given to the participants during December 15, 2005 – January 13, 2006.

Data Analysis

The correlation coefficient was used to test the relationship between the participants' word stress perception and production. A t-test was used to determine whether there was a difference in terms of word stress perception and production ability between the students with high and low proficiency in English. To determine whether there was a difference in terms of word stress perception and production ability between the male and the female students, the t-test was also used. The discrepancies between the scores for words stressed on the ult and the penult, and between the scores for words stressed on the ult and the antepenult were also tested using the t-test. An alpha level of

.05 was established to indicate whether relationships were statistically significant for all statistical tests.

Confidentiality of Participants and Their Scores

Participants were asked not to identify themselves on the answer sheets. The researcher assigned a code to each student in both tests. Participants were informed that their personal information would be destroyed immediately after the completion of the study. A letter explaining the purposes of the study was included with the questionnaires.

Limitation of the Study

Time constraints did not allow the researcher to select 12th-grade students studying in other educational regions. Therefore, this study was limited to the students studying in grade 12 in the second semester of the academic year 2005 at Benchamaratcharungsarit School in Chachoengsao, Thailand.

Organization of the Study

Chapter I of this study deals with the background and hypotheses of the study. Chapter II presents a review of the related literature and research studies relevant to the hypotheses of the study. Chapter III presents the method of the study. Chapter IV presents the results, and Chapter V contains a discussion of the results and recommendations for further studies.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter reviews the theoretical and research literature related to problems in speaking and listening encountered by Thai speakers of English and word stress perception and production in the following areas:

1. Listening and Speaking Problems Encountered by Thai Speakers of English
2. English Word Stress
3. Studies Related to English Word Stress
4. Word Stress Perceptions and Production
5. Studies Related to Word Stress Perception and Production
6. Thai Word Stress
7. The Influence of the Mother Tongue on Second Language Acquisition
8. Interlanguage
9. Studies Related to Interlanguage
10. Gender and Language Learning
11. Studies Related to Gender and Language Learning

The first part provides information about the listening and speaking problems encountered by Thai speakers of English. The second part presents English word stress, the phonological and morphological structure of words related to word stress, stressed and unstressed syllables, and English word stress patterns. The third part provides information about studies related to word stress placement. The fourth part deals with word stress perception and word stress production. The fifth part presents studies related to word stress perception and production. The sixth part presents Thai word stress. The seventh part is about the influence of the first language in second or foreign language

learning. The eighth part presents interlanguage. The ninth part presents studies related to Interlanguage. The tenth part is about gender and language learning. The last part presents studies related to gender and language learning.

Listening and Speaking Problems Encountered by Thai Speakers of English

In Thailand, more employees with oral proficiency in English have been required with the increasing number of international companies based here (Komin, 1998). Thai learners of English, therefore, need to master listening and speaking skills in order to be able to communicate in English orally. However, Thai speakers of English still have difficulties in oral communication (Ministry of Education, 2002). Specifically, they have difficulties with their listening and speaking skills, as indicated in recent studies.

Jiranapakul (1996) conducted a study to investigate the English language skills of engineers. Forty-two participants from twenty top companies throughout Thailand were interviewed. The criteria of the rating scale were 0 - 0.4 (poor), 0.5 – 1.4, (fair) 1.5 – 2.4 (good), and 2.5 –3.0 (very good). The study revealed that the participants rated their listening and speaking skills at 1.9 and 2.0 respectively, which were lower than their reading skills. Using the same rating scales, they rated listening and speaking as the most important skills.

Similarly, Sutthawat (2004) conducted a study to examine engineers' opinions of the importance of listening, speaking, reading, and writing skills in English. Sixty engineers working for the Thai Airways International Public Company Limited were asked to participate in the study. A survey was used as an instrument to investigate the participants' opinions of the skills. The results of the study revealed that the participants needed proficiency in English in order to be able to comprehend written text and communicate orally with foreigners. The participants rated their speaking and listening

as the most important skills. Sutthawat (2004) suggested that an English course focusing on speaking and listening be offered to the employees.

Paesupatana (1997) conducted a study to evaluate the listening abilities of first year students at vocational certificate level. The participants consisted of 877 students randomly selected from four commercial colleges in Bangkok. A listening ability test was developed to test the participants' listening comprehension. The test comprised three English genres: (a) conversation, (b) presentation, and (c) news. There were two topics for each genre: (a) The K.R. Photocopying Machine, and (b) S.S. Department Store's New Branch. The tests were multiple-choice tests, and there were eight questions for each topic. The results of the study showed that the sample students achieved only 50 % on the conversation genre part, and below 50 % on the presentation and news genre parts. The results of the study indicated that the students had poor listening skills.

Krisananon (1999) conducted a study to investigate secretaries' English language telephoning skills and to analyze the causes of communication problems with telephone conversations in English. Twenty-two experienced secretaries were interviewed. The content of the interview had three main elements: (a) the importance of telephone usage in a secretarial career, (b) the regular problems secretaries encounter, and (c) solving those problems. The results of the study revealed that the causes of communication problems over the telephone resulted from language barriers. Almost 50 % of the participants said that language barriers consisted of incorrect pronunciation and low ability in speaking skills.

Netsawang (1999) conducted a study to investigate the listening problems among Thai and Japanese employees at Thai MC Co., Ltd. in Bangkok. Ten Japanese and ten Thais were randomly selected to participate in the study. Each participant was interviewed about their communication problems concerning listening and speaking. The

Japanese participants said that they were sometimes confused when listening to Thai employees because Thais usually put the primary stress on the last syllable of a word. For example, Thai speakers of English pronounced the word *central* as /σεν ∩τ ℘ ν/ or the word *manager* as /μ□⊃νε ∩δ⏐±⊃/, which were not correct, and possibly led to misunderstanding. At the same time, Thai participants said that they had troubles understanding their Japanese colleagues' pronunciation. For example, Japanese pronounced the word *pattern* as /π□⊃τ□⊃ν/, or *otherwise* as / ℘ □Ωωα⎫συ⊃/, which were incorrect. Both the Japanese and Thai employees accepted that their mother tongues influenced their English pronunciation, which deviated from standard English. Netsawang concluded that problems with pronunciation and word stress caused listening problems between Thai and Japanese workers.

The above-mentioned studies provide clear evidence that Thai speakers of English have difficulty with their listening and speaking skills. As a result, many of them cannot communicate effectively in oral English. English word stress misplacement is one possible cause of the problems.

English Word Stress

Word stress, or lexical stress, is the emphasis given to a particular syllable of a word (Underhill, 1994). It is marked by vowel duration, loudness, and / or pitch height (Field, 2004; Ladefoged, 2005). Kreidler (2004) has said that "stress is a property of a word" (p. 70). For example, the word *paper* has the stress on the first syllable whereas the word *review* has the stress on the second syllable. Word stress is particularly important in speech processing (Brown, 1990; Field, 2004). In order to identify words, native speakers of English or competent listeners rely on word stress patterns. Learners

of English need to master English word stress patterns in order to be able to communicate in the target language intelligibly. Benrabah (1997) and Ur (2003) have said that word stress misplacement could lead to misunderstanding in oral communication. According to Kreidler (1997), phonological and morphological structures of words are related to English word stress patterns.

The Phonological Structure of Words

According to Kreidler (1997), a word consisting of two or more syllables has only one stressed syllable. The stressed syllable is the nuclear syllable. Any syllables before the nuclear syllable are onset syllables while the syllables after the nuclear syllable are coda syllables. The phonological structure of the words *man, begin, office, develop, happiness*, and *gentlemanly* can be illustrated as follows.

words	Onset syllable(s)	Nuclear syllable	Coda syllable(s)
man	0	man	0
begin	be	gin	0
office	0	of	fice
develop	de	ve	lop
happiness	0	hap	pi ness
gentlemanly	0	gen	tle man ly

There are many words that have only a nuclear syllable, as in the word *man*. Some words have an onset syllable and a nuclear syllable, but no coda syllables, as in the word *begin*. The word *office* is an example of word that has a nuclear syllable and a coda syllable with no onset syllables. Some words have an onset syllable: a nuclear syllable and a coda syllable, as in the word *develop*. A word may have a nuclear syllable and two coda

syllables, as in the word *happiness*. There might be three syllables in the coda, as in the word *gentlemanly*.

The Morphological Structure of Words

According to Kreidler (1997), the morphological structure of words can provide information to determine which syllable of a word is the stressed syllable. A word may comprise one meaningful unit, as in *hand, head, bad, student, school*, etc. A word also may consist of more than one meaningful unit, such as, *alarm clock, insincere, actor, guitarist*, etc. A morpheme is the smallest meaningful unit that cannot be divided into smaller meaningful parts, as in the words *small, pretty, difficult, dangerous*, and so on. There are two types of morphemes: free morphemes and bound morphemes. Free morphemes are the morphemes that can stand by themselves, such as *ham, pink, home, radio, fruit*, etc. Bound morphemes are the morphemes that cannot occur by themselves, such as un-, im-, -ist, in-, etc. Bound morphemes occur with free morphemes (the base), such as *play**er**, **un**happy, pian**ist**, **in**dependent*, etc. These bound morphemes are called affixes. Affixes that occur before the base words are called prefixes. Affixes that occur after the base words are called suffixes.

There are two types of words: simple words and composite words. A word with one free morpheme is a simple word, such as *dog, happy, and dangerous*. A word with more than one morpheme is called a composite word. There are three types of composite words, which can be described as follows:

Type 1: The composite words that consist only of free morphemes are called compound words, as in *bathroom, timetable, phone card,* and *ice-cold*.

Type 2: The composite words that consist of both free morphemes and bound morphemes are called complex words, as in *bus driver, happiness, disarm, unimportant.*

Type 3: The composite words that contain entirely bound morphemes are also called complex words such as the words *ambigu/ous, centi/pede, bio/log/y, hexa/gon/al*.

A type 2 word has a neutral affix that does not change the stress pattern of the base word. For example, the word ***hap**py* and the word *un**hap**py* have the same stressed syllable.

Type 3 complex words have additional affixes (non-neutral suffixes) that change the stress patterns of the base words. Many words have the same dependent base word but different suffixes.

emphas-**is**	emphas-**ize**	emphat-**tic**
fratern-**al**	fratern-**ity**	fratern-**ize**
ambigu-**ity**	ambigu-**ous**	

The following lists comprise examples of neutral and non-neutral suffixes.

Neutral Suffixes.

-al	arrival, burial, denial, dismissal, proposal
-er	announcer, employer, laborer
-ed	bearded, interested, prejudiced, absent minded
-en	golden, wooden, woolen, (adjectives)
-en	sharpen, lengthen, cheapen, threaten (verbs)
-ful	cheerful, graceful, joyful, resentful, beautiful
-hood	childhood, likelihood, motherhood
-ing	absorbing, interesting, studying
-ish	devilish, feverish, selfish, foolish
-less	careless, humorless, penniless,
-ly	brotherly, friendly, cowardly
-ness	consciousness, exactness, heartiness, happiness

-ship	censorship, hardship, scholarship
-y	feathery, hungry, silky, (un)wieldy

(Kreidler, 1997, p. 132)

Non-neutral suffixes.

-al	eternal, fatal, general, radical, universal
-ance, -ence	competence, extravagance, interference
-ant, -ent	dormant, evident, permanent, prudent
-ar	lunar, polar, similar, stellar, triangular
-ate, -ite, -ute	designate, unite, dilute
-esce	acquiesce, coalesce, convalesce
-fy	amplify, diversify, exemplify, personify
-ics	acoustics, economics, semantics
-id	arid, candid, insipid, intrepid, lucid
-ion	communion, intention, opinion, solution
-ior	anterior, inferior, junior, senior, superior
-is	crisis, hypnosis, metropolis
-ish	abolish, astonish, demolish, extinguish
-ive	active, captive, conservative, decisive
-oid	adenoid, deltoid, spheroid
-or	ardor, candor, favor, tremor
ous	disastrous, magnanimous
-ty	absurdity, complexity, society
-ure	censure, departure, pressure

(Kreidler, 1997, p. 132-133)

Stressed and Unstressed Syllables

According to Underhill (1994), a syllable of a word will appear to be the stressed syllable if it contrasts with the unstressed syllables surrounding it. Pitch height, loudness, and vowel duration correlate with the stressed syllable of an English word. On the contrary, the absence of pitch height, loudness, and vowel duration correlate with unstressed syllables. The unstressed syllables of a word are pronounced with less force than the stressed syllable in terms of pitch height, loudness, and vowel duration. The unstressed syllables of most English words contain the vowel / Ω / or the schwa. The vowel in the second syllable of the word *cinema* may be / Ω / or a higher vowel / ⟩/, depending on who is speaking. Most polysyllabic words (words that have more than one syllable) in English have one stressed syllable (S) and one or more unstressed syllables (U), as in the following examples.

S u	u S	S u u	u S u
salad	bal**loon**	**bul**letin	re**mem**ber
measure	com**mand**	**Ca**nada	de**ve**lop
value	re**sult**	**el**ephant	No**vem**ber
yellow	sup**ply**	**har**mony	de**ter**mine

Kreidler (2004, p. 74)

Word Stress Patterns

Although the location of the stress placement in English is not fixed like the stress placement of other languages, some stress patterns can be predicted. It is possible to predict the location of the primary stress of the majority of English words (Ladefoged, 1993; Kreidler 1997). According to Kreidler (1997, p. 135), four important factors for word stress patterns are (a) "the form class (noun, adjective, adverb, etc) of a word," (b) "the number of syllables in a word," (c) "the distinction between the strong syllables and

weak syllables," and (d) "the recognition of certain specific prefixes and suffixes." The stressed syllable of English words can be in one of four different positions, as follows:

1. Words Stressed on the Ult

Words with certain suffixes are always stressed on the last syllable.

Nouns	absent**ee,** engin**eer,** techn**ique,** phys**ique**
Noun –Adjective	Japan**ese**, Vietnam**ese**
Verbs	conval**esce,** acqui**esce**

(Kreidler, 1997, p. 136)

Verbs and adjectives that have the last syllable stronger than the first are stressed on the ult, as in the following words.

a**gree**, o**bey**, di**vide**, pro**mote**, re**duce**, at**tend**, con**vict**, de**mand**, ex**pect**, mo**lest**, a**cute**, di**vine**, se**rene**, dis**tinct**, re**ply**, ar**rest**, re**late**, em**ploy**, ex**empt**, de**bate**, ab**surd**

(Kreidler, 1997, p.136-137)

2. Words Stressed on the Penult

Some verbs and adjectives that have a weak ult are stressed on the penult, as in the following.

a**ban**don, dis**co**ver, e**xam**ine, in**ha**bit, **hu**mid, dy**na**mic, ex**pli**cit, peri**o**dic

(Kreidler, 1997, p.137)

Two-syllable nouns with a strong ult or weak ult are stressed on the penult, as in the following words.

canine, **hy**giene, **mem**brane, **sta**tus, **car**bine, **cal**cite, **mo**dule, **del**ta, **gar**den, **sen**tence, **ma**gic

(Kreidler, 1997, p.137)

A compound word consisting of two simple words is stressed on the penult, as in the following words.

keyhole, **week**end, **hard**ware, **trash**can

(Kreidler, 2004, p. 80)

Nouns of more than two syllables that have a weak ult are stressed on the penult.

ap**pen**dix, ho**ri**zon, in**tes**tine, a**re**na

(Kreidler, 1997, p.138)

Words with the suffixes -al, -ant, -ent, -ine, -ous, -ic, and -ion are stressed on the penult if the penult is strong.

a**bun**dant, acci**den**tal, in**ter**nal

demo**cra**tic, alco**ho**lic, anti**sep**tic**,** cos**me**tic, eco**no**mic

civics, eco**no**mics, gym**nas**tics, se**man**tics,

ad**dic**tion, exami**na**tion, satis**fac**tion, identifi**ca**tion, o**pi**nion,

pro**fe**ssion, indi**ges**tion so**lu**tion

(Kreidler, 1997, p.137)

3. Words Stressed on the Antepenult

Nouns of more than two syllables that have a weak ult and weak penult are stressed on the antepenult, as in the following examples.

cinema, **ci**tizen, **o**pera, **as**terisk

(Kreidler, 1997, p.138)

Most words that have three or more syllables with a strong ult are stressed on the antepenult, as in the following examples.

Verbs **mul**tiply, **pros**ecute, **im**plement, **ma**nifest

Adjectives **de**stitute, **e**rudite, **mo**ribund

Nouns **ex**ercise, **as**teroid, **hur**ricane, **dy**namite,

(Kreidler, 1997, p.139)

A compound word comprising three syllables is stressed on the antepenult.

wastebasket **some**body **corn**flower

(Kreidler, 2004, p.80)

Words that end with -ate are usually stressed on the antepenult, as in the following examples.

adequate, **e**ducate, **ad**vocate, **pe**netrate, e**la**borate, **se**parate,

stimulate, af**fec**tionate, **es**timate, **in**timate, con**si**derate,

(Kreidler, 2004, p.81)

Adjectives with the suffixes -al, -ant, -ent, -ine, and -ous are stressed on the antepenult if the penult is weak, as in the following.

feminine, **ge**nerous, ri**di**culous

(Kreidler, 1997, p.138)

Some words are stressed on the antepenult when they end with the suffixes -ty, or -ical, as in the following words.

possi**bi**lity, fes**ti**vity, com**mu**nity, responsi**bi**lity, ma**tu**rity, an**xi**ety,

hu**mi**lity, **lo**yalty, **no**velty, responsi**bi**lity, so**ci**ety, his**to**rical,

chemical, po**li**tical, e**lec**trical, inter**na**tional

(Kreidler, 1997, p.138)

4. Words Stressed on the Pre-antepenult

If the antepenult vowel is followed by the penult vowel without a consonant between them, the stress is on the pre-antepenultimate syllable, as in the following.

Bibliophile, de**ter**iorate, **he**liotrope, **ste**reotype

(Kreidler, 1997, p.139)

Words with more than three syllables that end with the suffixes *-acy, -ancy, -ency, -ory, -ary, and -m* are stressed on the pre-antepenult, as in the following words.

adequacy, **he**sitancy, **pre**sidency, **ad**vocacy,

complimentary, **se**cretary, **dor**mitory

egotism, **log**arithm, **pro**toplasm

(Kreidler, 1997, p.139)

Studies Related to English Word Stress

Some researchers, both in Thailand and abroad, have conducted studies investigating the word stress placement of second or foreign language learners of English. They found that the native languages of learners influenced their proficiency in word stress placement in English. Furthermore, English word stress misplacement led to misunderstanding in oral communication.

Chen (1996) conducted a workshop entitled “A New Perspective on Teaching English Pronunciation: Rhythm” at the fourth International Symposium and Book Fair on English Teaching at Kaohsiung University. The purpose of the workshop was to explore the differences between English and Chinese. He found that students ignored the stress patterns of English because they put equal stress on every syllable in their mother tongue.

As a result, their pronunciation of English was poor. They gave every syllable in English words the same strength, length and pitch, as when they spoke Chinese.

According to Benrabah (1997), misunderstanding in oral communication resulted from word stress misplacement. Benrabah studied word stress patterns produced by nonnative speakers of English. The participants were Algerian speakers of English. They were asked to speak freely into a tape recorder. Then, a British listener edited and divided the speech into sentences. Benrabah discovered that wrong word stress placement had led to the misunderstanding of the whole sentence. A selection of the incorrectly stressed words and corresponding miscomprehensions are as follows.

Intended word	Algerian speaker's pronunciation	British listener's response
forgot	**FOR**got	forelock
chemistry	chemistry	community
airport	air**PORT**	approached
upset	**Up**set	absent

Benrabah concluded that learners' wrong stress placement led to misunderstanding in oral communication. He also suggested that learners of English as a foreign language should be aware of English word stress placement.

In Thailand, Bourjan (2003) conducted a study to investigate problems in the English word stress placement of Mattayomsuksa six (grade twelve) students. The participants were ten Mattayomsuksa six students in Mahasarakham. The instruments were word lists that contained polysyllabic words categorized into four groups: (a) verbs, (b) nouns, (c) adjectives, and (d) adverbs. The participants were asked to read each word list. The primary stressed syllable of each word pronounced by each participant was

checked. The results of the study showed that the students had problems with word stress in all word types tested. All of the students gave every syllable an equal stress, which is incorrect. Bourjan concluded that the influence of the mother tongue was a probable cause of the problem.

Hahn (2004) conducted a study to examine the reactions of native speakers listening to nonnative speech. The participants comprised three groups of undergraduate North American students with 30 students in each group. The instrument was a lecture, which was delivered to each group separately, and under different conditions. The first group listened to the lecture given by a non-native speaker with correct word stress placement. The second group listened to the lecture given by a non-native speaker with incorrect word stress placement. The third group listened to the lecture given by a non-native speaker with no word stress placement. It was found that the participants in the first group understood the lecture more clearly than those in the other two groups. The result of the study indicated that word stress misplacement could seriously affect comprehensibility of the spoken text.

Similarly, Field (2005) conducted a study to investigate native and non-native English speakers' reactions to deviance in word stress placement. The instrument was a disyllabic-word list with 12 words stressed on the ult, and 12 words stressed on the penult. The words in the word list were recorded in three different ways; (a) in standard form, as in /∩σεκΩνδ/, (b) with a stress shift, but no change in weak vowel quality, as in /σε∩κΩνδ/, and (c) with a stress shift and a change to full vowel quality as in /σε ∩κ ±⊃νδ/. The participants were 72 native English speakers and 76 non-native English speakers. The participants listened to the word list recordings and wrote the words they heard on an answer sheet. It was found that both native and non-native

speakers could better identify the words with correct stress placement than the words with a stress shift, and the words with a stress shift and vowel quality change. The results of the study indicated that a stress shift with or without vowel quality change impaired both native and non-native English speakers' comprehension. Field recommended exercises for non-native English speakers to train the ear to distinguish stressed from unstressed syllables.

Word Stress Perception and Production

Two aspects of word stress are word stress perception and word stress production (Roach, 1992). In word stress production, the stressed syllable of a polysyllabic word is pronounced longer in vowel duration, louder, and higher in pitch than unstressed syllables. Word stress perception is the recognition of the stressed syllable of a word. Keawpasom (1991) has said that one cause of the problems with listening and speaking skills is the failure of students of English to perceive and produce word stress correctly. The following studies relate to the word stress perception and production of non-native speakers of English.

Studies Related to English Word Stress Perception and Word Stress Production

Archibald (1993) conducted a study to examine the acquisition of English word stress by Spanish speakers. The instruments comprised perception and production word stress assignment tasks. Seven native speakers of Spanish participated in the study. Using an evaluation interview, Archibald determined that four students had higher proficiency in English than the other three. All the participants were asked to read fifty English words, and their readings were recorded. Later, the words read by the participants were transcribed, and the word stress placement of each word was analyzed.

Then, the participants listened to a native English speaker pronouncing the words in the same word list and identified the primary stressed syllable of each word. The results of the study showed that the word stress production errors of all of the sample students were about the same but that the weak students made more errors in word stress perception than the strong students. Archibald concluded that the students with strong ability in English had fairly accurate word stress perception, but that their word stress production was still controlled by the native language. On the other hand, the students with weak ability in English had not developed their word stress perception ability. Therefore, their word stress production and perception error rates were about the same.

In Thailand, Jarusan (1997) conducted a study to investigate the relationship between the perception and production of English word stress by native speakers of Thai. Eighty students studying at Rangsit University were selected to participate in the study. Forty students who completed a questionnaire asking for information about their English experience were divided into two groups: (a) high experience in English, and (b) low experience in English. The other forty students were tested on their listening abilities and were divided into two groups: (a) strong listening ability and (b) weak listening ability. The instrument in the listening test was a word list that contained polysyllabic words. All participants were given a four-part English word stress test. First, the participants read the words on the word list. Second, they had to identify the primary stress of each word on the same word list pronounced by an English native speaker. Third, they read the same word list again. Finally, they were asked to identify the primary stressed syllable pronounced by themselves. Pearson's Coefficient Correlation (rxy) was used to analyze the relationship between word stress perception and production. The results of the study showed that there was a positive relationship between word stress perception and production (rxy = 0.32) at the significant level of 0.01. That is, students who could

identify the primary stress of each word correctly would be able to place the primary stress on the correct syllable of each word. The majority of the participants placed the primary stress on the last syllable of each word, which was incorrect in most cases. Jarusan (1997) concluded that the problem of English word stress misplacement resulted from the influence of the mother tongue.

Nguyen and Ingram (2005) conducted a study to examine word stress production of Vietnamese learners of English. Twenty minimal pairs of nouns and verbs were used as linguistic materials. All the noun and verb pairs were embedded in the sentence "Say the word _____ again." Stress was marked on the correct stress patterns in order to make sure that the participants produced correct stress patterns. For example,

1. a. Say the word "**con**duct" again.
   b. Say the word "con**duct**" again.
2. a. Say the word "**pre**sent" again.
   b. Say the word "pre**sent**" again.

The participants were ten beginning-level Vietnamese learners of English, ten advanced-level Vietnamese speakers of English and two native speakers of English. The participants were asked to read the sentences aloud. The degree of difference in sound values between stressed syllables and unstressed syllables among the three groups of the participants was compared. The results showed that the stressed syllables produced by native and advanced English speakers were significantly longer in vowel duration than the unstressed syllables. In contrast, beginning-level Vietnamese learners of English produced no significant difference in vowel duration between the stressed and unstressed syllables. Nguyen and Ingram (2005) concluded that the ability of the advanced English speakers to produce a contrasting duration between stressed and unstressed syllables showed that this ability could be learned.

Thai Word Stress

According to Smyth (2002), "Thai is a tonal language, with the meaning of each syllable determined by the pitch at which it is pronounced." Although Thai is not a stress-timed language like English, native Thai speakers usually pronounce some syllables louder than others (Pankhuenkhat, 1998). Putting stress on different syllables in a word does not change the meaning of the uttered word or affect the understanding of the listeners. According to Udom Warotsikhadit (2002), syllable structures play an important role in word stress in Thai. The syllable structures are divided into three groups: monosyllabic words, disyllabic words and polysyllabic word. Wong-opasai (1992) has said "Thai primary stress falls on the last syllable, and the secondary stresses alternate with unstressed syllables" (p. 462). Likewise, Udom Warotsikhadit (2002) has said that the primary stress of a polysyllabic word in Thai is always on the last syllable because the final syllable is in the *heavy* position. According to Udom Warotsikhadit (2002), Thai polysyllabic words have stress patterns as follows:

1. Disyllabic Words (words with two syllables)

   A. Unstressed-Stressed

   In the unstressed-stressed pattern, the primary stressed syllable is the second syllable. The first syllable usually contains short vowels or long vowels without consonants at the end of the syllable, as in, *กระทิง* (kra**ting**) *ชะนี* (cha**nee**) *แม่น้ำ* (maenam) *ไพศาล* (paisarn) The first syllable that has a short vowel as อะ (a) อิ (i) อึ (ue) อุ **(** u) and reduction of the vowel โอะ with consonants in แม่กก (maekok) แม่กบ(maekob) แม่กด(maekod) แม่กง(maekong) แม่กน(maekon) แม่กม (maekom) is unstressed

Therefore, the stress is on the second syllable as in the words *นิดหน่อย* (nidnoi) *ศึกษา* (suk**sa**) *อดทน* (od**ton**) *กับข้าว* (kab**kaw**) *กงการ* (kongkarn) *บันดาล* (ban**darn**) *สมพร.* (som**porn**)

B. Stressed-Stressed

In this stress pattern, the stress is put on both the first and the second syllable. The syllables in this pattern usually contain diphthongs or long vowels with consonants at the end, as in the words, *ยั้วเยี้ยะ* (**yuayere**) *โชคชัย* (**chokechai**) *จีดชีด.* (**jeudcheud**)

2. Trisyllabic words (words with three syllables)

A. Stressed-Unstressed-Stressed

The stress of the stressed-unstressed-stressed pattern is on the first and the last syllable. The second syllable of this pattern usually has a short vowel without consonants at the end as in the words *กรมหลวง - **กรม-มะ-หลวง*** (**krom**ma**luan**g) *กรมพระยา - **กรม-พระ-ยา*** (**krom**pra**ya**) *ราชกาล - **ราด ชะ กาน/*** (**rat**cha**karn**)

B. Unstressed-Stressed-Stressed

The stress of this pattern is on the second and last syllables. The first syllable usually contains a short vowel อะ อิ อึ อุ or the first syllable begins with the vowel อะ and the second syllable contains a short vowel, as in the words *พิธีการ –พิ **ที กาน*** (pi**teekarn**) *มโหรี - มะ **โห** รี* (ma**horee**) *อดิศัย – อะ **ดิ สัย*** (a**disai**) *อนุมาน - อะ **นุ มาน***(a**numarn**)

3. Quadrisyllabic Word (words with four syllables)

A. Unstressed-Stressed-Unstressed-Stressed

In this pattern, the stress is put on the second and the last syllable. It is the most common pattern in quardrisyllabic words. The first and the third syllables contain short vowels without consonants at the end of them. Examples of such words are *ประถมศึกษา-ประถมสึกสา* (pra**thom**suk**sa**) *วิสาหกิจ - วิสาหะกิด* (wi**sa**ha**kit**) *อุดมศึกษา- อุดมสึกสา*. (u**dom**suk**sa**)

B. Stressed-Unstressed-Unstressed-Stressed

The stress of this pattern is put on the first and the last syllable. The second and the third syllables contain the vowel อะ. Examples of such words are *จินตกวี - จิน ตะ กะ วี* (**jin**taka**wee**) *นนทบุรี- นน ทะ บุ รี* (**non**tabu**ri**) *อัญมณี –อัน ยะ มะ นี*. (**an**yama**nee**)

C. Stressed-Unstressed-Stressed-Stressed

The stress is put on the first, third and the last syllables. The second syllable usually contains a short vowel without consonants at the end of it, as in the words *วชิราวุธ - วะ ชิ รา วุด* (**wa**chi**rawut**) *บานบุรีม่วง - บาน บุ รี ม่วง* (**ban**bu**reemuang**) *จัตวาศก -จัด ตะ วา สก* (**jat**ta**wasok**).

D. Stressed-Stressed-Unstressed -Stressed

The stress is on the first, second and the last syllables. The third syllable of this pattern contains the vowel อะ as in the words,

ชาติพัฒนา **- ชาด พัด** ทะ **นา** (**chart**pat**tana**) ราชบูรณะ – **ราด บู** ระ **นะ**. (**rat**bu**rana**)

The Influence of the Mother Tongue on Second Language Acquisition

According to Archibald (1998), a second language learner's speech can be recognized because it is likely to sound like the learner's native language. Archibald has exemplified the pronunciation of the word *have* by French and German speakers as follows.

English Target	French Speakers	German Speakers
Have /ɳ—ϖ /	/—ϖ̣/	/ɳ—ɸ/

French speakers omit the phoneme / h / when they pronounce the word *have* because this phoneme does not exist in their native language. The transfer from the native language is the same when the German speakers pronounce the word *have*. They devoice the phoneme /v/ to /f/. Scovel (2001) has indicated that the interference of a mother tongue is a factor affecting second language learning. There are two kinds of mother tongue interference: negative transfer and positive transfer. Negative transfer form the first language will arise when the second and first language structures differ.

Interlanguage

Interlanguage is a linguistic system involving the interference of the first language that second language learners construct in their language acquisition (Freeman & Long, 1991; Gass & Selinker, 1994; Ellis, 1997). According to Gass & Selinker (1994), the results of many studies reveal that the English proficiency of Swedes is higher than that of Finns because of the similarities that exist between Swedish and English and the lack of similarities between English and Finnish.

According to Archibald (1998), there are two types of errors in interlanguage grammar: transfer errors and developmental errors. Transfer errors result from the

influence of the native language. Developmental errors are similar to those made by children when they are acquiring their first language, for example, *goed, fishes*, etc. Developmental errors are also caused by an overgeneralization by the learners. Developmental errors will increase when learners are more advanced in their second language. Rates of transfer and developmental errors according to language proficiency are illustrated as follows.

Level of Proficiency	Transfer Errors	Developmental Errors
Beginner	High	Low
Intermediate	Medium	High
Advanced	Low	Low

The number of transfer errors is high when learners are at the beginner level of proficiency and then gradually decreases as the learner progresses in proficiency. The number of the developmental errors is low at the beginner level, then high at the intermediate, and low again as the learner progresses to the advanced level. Advanced learners have low occurrences of both transfer and developmental errors.

Studies Related to Interlanguage

Eckman (1981a, 1981b, cited in Eckman, 2004) conducted a study to investigate whether learners of English with different first language background pronounced the voiced consonant at the end of an English word differently. The participants were Mandarin and Spanish speakers of English. It was noted that the voiced consonant at the end of a word does not exist in either Mandarin or Spanish. The participants were asked to read a word list. Their readings were recorded, and later transcribed. It was found that

the Mandarin speakers of English added a schwa at the end of the target English words. Examples of those words are illustrated as follows.

English Word	Mandarin Speakers
/ρεδ/	/ ρεδΩ/
/͡ζ/	/͡ζΩ/
/ η—δ/	/ η—δΩ/

The Spanish speakers of English devoiced the final sound of a word as in the following examples.

English Word	Spanish Speakers
/ βεδ/	/βετ/
/ϕ ℘ ζ͡/	/ϕ ℘ σ͡/
/ρεδ/	/ρετ/
/βρεϖ/	/βρεϕ/

Eckman concluded that the pronunciation deviation could be the result of the influence of the mother tongues of learners of English.

Anani (1989) conducted a study to investigate the English stress placement of Arab learners of English to see whether the incorrect stress placement of Arab learners of English was influenced by the negative transfer of the mother tongue. The participants were two groups of students who were studying at the University of Jordan: six Jordanian students and six American native speakers of English. The instruments were three polysyllabic word lists. The three word lists comprised words that had long vowels in different syllable positions. The first word list contained two- and three-syllable words that end with a long vowel or ended with more than one consonant, such as *jigsaw, concrete,* or *fertile*. The second word list consisted of words that have a short vowel in the penult and a long vowel in the ult, such as *industry, certainly,* and *probably*. The

third word list consisted of words with a short vowel sound in the penult such as *sufficient, musician, and delicious*.

The results of the study showed that the native speakers of English produced the expected stress placement by stressing, for example, the first syllable of the words ***head****light,* ***peg****board,* ***cer****tainly,* ***pro****bably,* ***pho****tograph,* ***in****dicate, and* ***ed****ucate*. In contrast, the Jordanian speakers of English put the primary stress on the syllables with long vowel sounds such as *head****light****, peg****board****, cer****tain****ly, pro****ba****bly, photo****graph****, indi****cate****, and edu****cate***. Anani suggested that the Jordanian learners' incorrect English word stress was influenced by Arab word stress placement rules. Because of the mother tongue interference, Arab learners of English tended to place stress on English words by conforming to the stress patterns of Arab, which is fixed and restricted in syllable structure.

Archibald (1998) conducted a study to investigate English word stress placement by Polish learners. Words in Polish are stressed on the penultimate syllable. Archibald found that Polish speakers of English tended to put the stress on the penultimate syllable of every word in English and concluded that this was the result of the mother tongue interference. He noted that the misplacement of word stress could result in difficulties in oral communication. A selection of words as pronounced by Archibald's Polish participants follows.

English Target	Polish Speakers
as**to**nish	as**to**nish
main**tain**	**main**tain
cabinet	ca**bi**net

Gender and Language Learning

Males and females are different both biologically and mentally. Biologically, males and females use different sides of the brain to process language; that is, males use the right side of the brain to process language, whereas females use the left side (Oxford, 1993 cited in Liyanage, 2004). This difference impacts on their language learning (Maubach & Morgan, 2001). A number of studies on the broad issues of gender differences and language learning have been carried out.

Males and females have different levels of ability in their first language learning. Girls' verbal ability in their first language is superior to that of boys' (Maccoby & Jacklin, 1974 cited in Sunderland 1994). Marsh, Byrne, and Shavelson (1988, cited in Bacon & Finnemann, 1992) also found that "females had both self-concept of verbal ability and higher verbal achievement." Gender differences also impact on second or foreign language acquisition (Sunderland, 1994). Female learners are superior to males in second or foreign language learning (Swan, 1992, cited in Maubach & Morgan 2001; Ehrlich 1997). Nyikos (1990) found that girls were better than boys in German vocabulary memorization. Male learners of a second or foreign language had more difficulties in reading and writing than female learners (Browne, 1996 cited in Maubach & Morgan 2001).

Male and female learners have different learning styles (Maubach & Morgan, 2001). According to Bacon (1992 cited in Bacon & Finnemann, 1992), females monitored their listening comprehension more than males did. Bacon and Finnemann (1992) found that females had higher levels of motivation, strategy use, comprehension, positive affect, willingness to confront, and exposure to authentic input. Liyanage (2004) said males and females have different levels of metacognitive, cognitive, and social affective strategies.

Studies Related to Gender and Language Learning

Green and Oxford (1995) investigated language-learning strategies used by male and female students at different levels of English proficiency. The participants were 374 students studying at the University of Puerto Rico. All the participants took the English as a Second Language Achievement Test (ESLAT). They were placed into three levels of English proficiency: (a) Intermediate English, (b) Basic English, and (c) Pre-basic English. The Intermediate English group comprised 49 females and 75 males, the Basic English group comprised 72 females and 57 males, and the Pre-basic group consisted of 57 females and 64 males. The participants were asked to answer a questionnaire, the Strategy Inventory for Language Learning (SILL 50-item Version 7 for ESL/ EFL). The SILL consists of six types of strategies: (a) memory, (b) cognitive, (c) compensation, (d) metacognitive, (e) affective, and (f) social strategies. The results of the study showed that the students with high proficiency used cognitive, compensation, metacognitive, and social strategies significantly more than the weak students did. Furthermore, female learners used memory, metacognitive, affective and social strategies more than male students did.

Gu (2002) conducted a study to investigate differences in the vocabulary learning strategies, vocabulary size, and general English proficiency between male and female students studying at Beijing Normal University. The participants were asked to answer a vocabulary-learning questionnaire and were tested on vocabulary knowledge and general English proficiency. The results of the study showed that the female participants scored significantly more than the male participants on both vocabulary size and general English proficiency. The female participants reported more use of metacognitive strategies and vocabulary learning strategies than their male counterparts. It was found that the female participants did more guessing, used the dictionary more, took more notes, employed

more oral repetition, used more contextual coding for new words, sought more opportunities to use new words, and spent more extra time learning English than the male students.

Chumpavan and Lorber (2003) conducted a study to investigate the difference in English language proficiency between first-year male and female students studying in the regular and international programs at university level in Thailand. The Pre-TOEFL test was used as an instrument to test the students' English proficiency. The results of the study showed that female students did not have a better command of English than male students. The authors said that the result of the study was inconsistent with the findings of some studies that females were more likely to have higher levels of achievement in foreign or second language study than males. They concluded that a possible reason for the lack of significant differences between female and male students was that the research instrument used in the study was not sensitive enough to measure the differences in prior knowledge and interests between males and females. Therefore, it was recommended by the authors that a specific test should be used to investigate gender differences and achievement in language learning.

Lui (2004) conducted a study to investigate the relationship between the gender, language learning strategies and English proficiency of Chinese students. The participants were 87 male and 292 female English majors studying at the Nanyang Institute of Technology in China. The instruments employed consisted of the English Proficiency Self-Report questionnaire and the Strategy Inventory for Language Learning questionnaire (SILL, version 7.0). The results of the study showed that learners with high proficiency in English scored more on the SILL. In addition, female students employed more learning strategies than male students did. Lui (2004) concluded that the greater number of strategies in language learning used by female learners indicated female

superiority in language learning since successful language learners employed many learning strategies.

Summary

Thai speakers of English have problems with listening and speaking skills. One element of those problems is English word stress misplacement. Word stress placement in English is not fixed, but some word stress patterns can be predicted. On the contrary, Thai native speakers always emphasize the last syllable of polysyllabic words. Many studies related to the word stress production of learners of English have been conducted, and it has been found that word stress misplacement could reduce the comprehensibility of a spoken text. A smaller number of studies has been carried out to examine both word stress production and perception in English language learning. These studies have revealed that the mother tongues of learners of English influence the word stress production of learners of English. A number of studies on the broad issue of gender differences and language learning have been carried out. These studies revealed that females are superior to males in general English proficiency. Yet, none of the previous research studies explored the effect of gender and level of language proficiency on the word stress perception and production skills of learners of English. The effect of gender and level of English proficiency on word stress perception and production were explored in the present study.

CHAPTER III

METHODOLOGY

This chapter details the research methodology employed in this study. The methodology comprised four parts: (a) the selection of the school, (b) the selection of the participants, (c) instrumentation, and (d) data collection procedures. The purposes of this study were to investigate: (a) whether there was a relationship between word stress perception and word stress production of the sample students, (b) whether the sample students made errors more with words that have the stressed syllable on the penult and words stressed on the antepenult than words stressed on the ult, (c) whether the students with high proficiency in English had better skills to perceive and produce word stress than the students with low proficiency in English, and (d) whether the female students had better skills in both word stress perception and production than the male students.

Word stress perception and production tests developed by the researcher were used as instruments to investigate students' word stress perception and production. An English exposure questionnaire was also used as a tool to help the researcher to interpret the results of the study more effectively.

Participants

Selection of the School

The researcher's hometown, Chachoengsao, has become a center of international business in Thailand. In recent years, many multinational companies have located their factories and other premises here. Today, there are over 124 international companies in Chachoengsao (Industrial Estate Authority of Thailand, 2005). This increase in international business growth has brought a requirement for employees to communicate effectively with English-speaking employers and colleagues. Due to the importance of word stress in oral communication, the researcher was interested in examining the word stress perception and production skills of 12th-grade students in Chachoengsao.

There are 32 secondary schools in Chachoengsao (Ministry Of Education, 2005), of which Benchamaratcharungsarit School is the biggest. According to the school annual report, almost 1,000 students finish grade 12 at Benchamaratcharungsarit School each year. Some of those students will probably pursue careers at international companies. For this reason, the researcher used the students from Benchamaratcharungsarit School as the participants of this study.

Selection of the Participants

The participants of this study were 12th-grade students studying at the beginning of the second semester of the academic year 2005 at Benchamaratcharungsarit School, Chachoengsao. They had studied English for at least ten years, so they were deemed suitable participants for the study. There were 16 classes, of which one class was selected to participate in a pilot study. In the remaining 15 classes, students were divided into two groups, high and low English proficiency, using their final grade results in the English core course at the end of the first semester in the academic year 2005 as criteria for separating them. The high English proficiency group comprised students with grades

between 3.0 and 4.0, and the low English proficiency group comprised students with grades between 1.0 and 2.0. Forty male and forty female students were then randomly selected from each group to participate in the actual study, bringing the total number of the participants to 160.

Instrumentation

The instruments used to test the students' word stress perception and production were developed by the researcher and consisted of word stress perception and production tasks. A word list was used in both tests and was categorized into three groups of polysyllabic words. These word categories comprised: (a) words that are stressed on the ult, (b) words that are stressed on the penult, and (c) words that are stressed on the antepenult. Each category contained 20 words, bringing the total number of words to 60.

Word Selection

The words in the word list were selected from *"Different 1," "Different 2,"* and *"Different 3,"* which are the English textbooks used in grades 10 – 12. The researcher studied the glossary provided at the end of each book and used the frequency of word occurrence as the criterion for selection. It was decided at the outset to omit certain types of words from the word list. These included words that have a secondary stress and words in which the stressed syllable changes with the function of the word. For example, *university* was omitted as it has a secondary stress on the first syllable, and *increase* was excluded because the stress placement of the word depends on whether it is a noun or a verb. The words in each category were selected as follows.

1. Words Stressed on the Ult

   There are 61 words in the glossary that are stressed on the ult: 1 word that appears 3 times, 9 words that appear twice, and 51 words that appear once. The

researcher selected those words with a frequency of 3 and 2. The word *engineer* was excluded from the list as it contains a secondary stress. Eleven other words were randomly selected from those words that appear once in the glossary. This category comprised 20 words.

2. Words Stressed on the Penult

The glossary contains 385 words that are stressed on the penult: 3 words that appear 5 times, 3 that appear 4 times, 14 that appear 3 times, 56 that appear twice and 309 that appear once. The researcher selected all the words with a frequency of 5 and 4, 13 words with a frequency of 3 (the word *education* was omitted, as it contains a secondary stress), while one word was randomly selected from the words that appear twice. Twenty words were selected for this category.

3. Words Stressed on the Antepenult

There are 123 words in the glossary that are stressed on the antepenult: 1 word that appears 5 times, 2 words that appear 4 times, 4 words that appear 3 times, 23 words that appear twice, and 93 words that appear once. The researcher selected all the words that appear 5, 4 and 3 times, while 13 of those that appear twice were randomly selected. Twenty words were selected for this category.

The thesis adviser was asked to examine the content of the tests, and it was agreed that it was appropriate and valid to use as an instrument to test the word stress perception and production of the students at the secondary school level.

The words in the word list were listed alphabetically to prevent the participants from guessing the patterns of word stress (see appendix B). A native English speaker teaching at Srinakarinwirot University was asked to read the word list in a recording studio at the Technology and Media Center, Srinakarinwirot University. The recording was transferred to C.D. format for the perception test.

Word Stress Perception and Production Tests

In the perception test, the participants were requested to identify the primary stressed syllable of each word pronounced by a native speaker of English on specially designed word stress perception forms (See Appendix C) by marking a tick on the stressed syllable of each word they heard. In the production test, the researcher met each participant individually. The participants were asked to read the word list, and their readings were recorded using a digital voice recorder. They had to say the code the researcher assigned them before they read the word list. Sony Sound Forge 8, a digital audio editor, was used to analyze the stressed syllable of each word pronounced by each participant. It was considered appropriate for such use because it includes an interface that can graphically illustrate the pitch height and vowel duration of each syllable. The stressed syllable of a word will be seen as that with the highest pitch, and the longest vowel length. With the assistance of two native speakers of English, the researcher checked the prominent stressed syllable of each word pronounced by the sample students. Figure 1 illustrates sound waves of the word *children*, as pronounced by a native speaker of English, analyzed using the Sony Sound forge program.

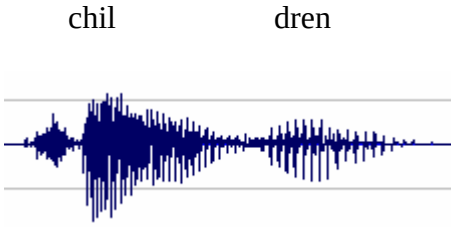

Figure 1. Sound Waves of the Word *children* Pronounced by an English Native Speaker. The sound waves illustrate that the penult of the word *children* is the stressed syllable because it is higher in pitch and longer in vowel duration than the ult.

Participants who read a word with the correct stress placement and intelligible pronunciation got 1 point. Zero points were given to students who read a word with the wrong stress placement and correct pronunciation, wrong stress placement and incorrect pronunciation, correct stress placement and unintelligible pronunciation, or equal stress on two or more syllables. Students who did not read a word also got 0 points.

Questionnaire

In order to better interpret the result of the study, the participants were asked to answer an English exposure questionnaire (See Appendix E) developed by the researcher. There were 12 questions in the questionnaire. To clarify the questions for the participants, each question was translated into Thai.

Data Collection Procedures

Pilot Study

The thesis adviser was asked to examine the content of the tests and agreed that it was appropriate and valid to use in the study. The perception and production tests were pilot tested with one class of 12th-grade students during November 12-16, in the second semester of the academic year 2005. The purpose of the pilot test was to check for clarity, ambiguity, and suitable time for completion to see if revision would be needed for the actual test (McMillan & Schumacher, 2001).

Data Collection

Data for this study were obtained through a word stress perception test, a word stress production test, and an English exposure questionnaire. The researcher visited the school and gave the tests and the questionnaire to the participants during December 15, 2005 and January 13, 2006. The participants' English teachers granted permission to the researcher to give the questionnaires and the word stress perception test to the participants

during an English class. The researcher later gave the production test to participants during their free time or after class. The word stress production test was given to the participants at least one day after their word stress perception test to prevent them from remembering the word stress patterns from the word stress perception test. Table 1 illustrates the administration dates of the word stress perception test, the word stress production test, and the questionnaires in the pilot study and the present studies.

Table 1

The Administration Dates of the Word Stress Perception and Production Test and the English Exposure Questionnaire in the Pilot Study and the Present Study

Study	Participants	Administration Dates
Pilot Study	12th-grade students (studying in the beginning of the second semester of the academic year 2005)	12 – 16 November 2005
Present Study	12th-grade students (studying in the beginning of the second semester of the academic year 2005)	15 December 2005 – 13 January 2006

Data Analysis

The correlation coefficient was used to test the relationship between the participants' word stress perception and production. A t-test was used to determine whether there was a difference in terms of word stress perception and production ability between the students with high and low proficiency in English. To determine whether there was a difference in terms of word stress perception and production ability between

the male and the female students, the t-test was also used. The discrepancies between the scores for words stressed on the ult and the penult and between the scores for words stressed on the ult and the antepenult were also tested using the t-test. An alpha level of .05 was established to indicate whether relationships were statistically significant for all statistical tests.

Summary

This study investigated the word stress perception and production of 12th-grade students from Benchamaratcharungsarit School, Chachoengsao. The instruments were word stress perception and production tests featuring a list of 60 words. The list consisted of polysyllabic words that appear frequently in the glossary of the students' textbooks and were categorized into three types: words stressed on the ult, words stressed on the penult, and words stressed on the antepenult. To develop the instrument for the word stress perception test, a native speaker was asked to read the word list, and his reading was recorded onto a C.D. Then, the participants were asked to perform word stress perception and production tasks and answer an exposure to English questionnaire. Sony Sound Forge 8, a digital audio editor, was used to analyze the stressed syllable of each word pronounced by each participant. Statistical analysis was used to test the hypotheses in the study.

CHAPTER IV

FINDINGS

The purpose of the study was to analyze the participants' word stress perception and production. The participants of the study were 160 12th-grade students at Benchamaratcharungsarit School, Chachoengsao. The participants comprised 40 males and 40 females with high proficiency in English, and 40 males and 40 females with low proficiency in English. Data from this study were obtained through word stress perception and word stress production tests and questionnaires answered by the participants. The data were analyzed according to the following hypotheses:

1. Regardless of English proficiency, there is a positive relationship between students' word stress perception and production.
2. In terms of word stress production, students tend to make errors more with words that have the stressed syllable on the penult and on the antepenult than on the ult.
3. Students with high proficiency in English have better skills to perceive and produce word stress than students with low proficiency in English.
4. Female students have better skills in both word stress perception and production than male students.

This chapter presents the findings of the study in accordance with each hypothesis.

Participants and Their English Proficiency Level

The total number of students that participated in this study was 160 (N = 160). There were 80 (50%) males and 80 (50%) females participating in the study. Half of the participants were high in proficiency in English (50%), and the other half were the participants with low proficiency in English (50%). Thus, there were 40 (25%) males with high and 40 (25%) males with low proficiency in English, and there were 40 (25%) females with high and 40 (25%) females with low proficiency in English participating in the study. The grade results of the students in the English core course at the end of the first semester in the academic year 2005 were used as an indication of their English proficiency. The students with low proficiency in English achieved grade results between 1.00 and 2.00, while the students with high proficiency achieved grade results between 3.00 and 4.00. Table 2 illustrates the students' information regarding proficiency in English and gender.

Table 2

Gender and the English Proficiency of the participants (N = 160)

	n	%
English Proficiency		
a. High Proficiency	80	50
b. Low Proficiency	80	50
Gender		
a. Male	80	50
b. Female	80	50

Hypothesis 1

Regardless of their English proficiency, there is a positive relationship between students' word stress perception and production.

To test this hypothesis, the students were asked to perform word stress perception and production tasks. In the perception test, the participants were requested to identify the primary stressed syllable of each word pronounced by a native speaker of English. In the production test, the students were asked to read the same word list, and their readings were recorded and subsequently analyzed. The mean score of the Pearson's correlation coefficient of the word stress perception and production tests of the participants is presented in Table 3.

It was found that there was a positive correlation between the word stress perception and production of the students. The participants' word stress perception scores significantly correlated with their word stress production scores (r (158) = .45, p = .00). The result of the study indicated that students with strong word stress perception skills also had strong skills in word stress production. On the other hand, the students with poor skills in word stress perception also had poor word stress production skills. Research hypothesis one was supported.

Table 3

A Correlation Coefficient Between the Mean scores of the Word Stress Perception Test and the Word Stress Production Test

Skills	*n*	*r*	*p*
Word Stress Perception	160	.45*	.00*
Word Stress Production	160		

*p < .05

Hypothesis 2

In terms of word stress production, students tend to make errors more with words that have the stressed syllable on the penult and words stressed on the antepenult than words stressed on the ult.

To test this hypothesis, the mean scores of the students' word stress production of the words that have the stressed syllable on the ult (WSU), on the penult (WSP), and on the antepenult (WSA) were compared. The mean score of the WSU was compared with the mean score of the WSP. Likewise, the mean score of the WSU was compared with that of the WSA. An independent t-test was used in each case. Table 4 illustrates the comparison between the mean score of the WSU and the mean score of the WSP, and table 5 illustrates the comparison between the mean score of the WSU and the mean score of the WSA.

As illustrated in table 4, it was found that the participants got significantly higher scores on the WSU (M = 14.51, $S.D.$ = 2.64) than the WSP ($M.$ = 5.95, $S.D.$ = 5.63, t (158) = 17.39, p = .00). The results of the study indicated that the participants made fewer word stress placement errors with words with the stress placement on the ult than with words with the stress placement on the penult.

Table 4

A Comparison of the Mean Score of the Words Stressed on the Ult (WSU) and the Words Stressed on the Penult (WSP)

Word Stress Placement	*n*	*M*	*S.D.*	*t*	*p*
WSU	160	14.51	2.64	17.39	.00*
WSP	160	5.95	5.63		

*$p < .05$

Table 5 shows that the participants scored significantly higher on the WSU (M = 14.51, $S.D.$ = 2.64) than on the WSA (M = 3.69, $S.D.$ = 4.27, t (158) = 27.24, p= .00). The discrepancies of the mean score of the WSU and the WSA indicated that the participants made fewer word stress placement errors with words with the stress placement on the last syllable than with words with the stress placement on the third syllable from the last.

Table 5

A Comparison of the Mean Score of the Words Stressed on the Ult (WSU) and the Words Stressed on the Antepenult (WSA)

Word Stress Placement	*n*	*M*	*S.D.*	*t*	*p*
WSU	160	14.51	2.64		
				27.24	.00*
WSA	160	3.69	4.27		

*$p < .05$

Hypothesis 3

Students with high proficiency in English have better skills to perceive and produce word stress than students with low proficiency in English.

To test this hypothesis, the mean scores of the word stress perception and production tests of the students with high proficiency in English (High) and the students with low proficiency in English (Low) were compared using an independent t-test. Table 6 shows the word stress perception and production scores of the students with high and low proficiency in English.

Table 6 shows that the mean score of the word stress perception tests of the students with high proficiency in English (M = 45.94, $S.D.$ = 8.53) was significantly

higher than that of the students with low proficiency in English (M = 39.96, S.D. = 8.74, *t* (78) = 4.38, *p* = .00). Likewise, the mean score of the word stress production tests of the students with high proficiency in English (*M* = 28.28, *S.D.* = 10.86) was significantly higher than that of the students with low proficiency in English (*M* = 20.01, *S.D.* = 8.89, *t* (78) = 5.27, *p* = .00). The results of the study indicated that the students with high proficiency in English had better skills to perceive the stress placement of the words tested and pronounce the English words with the correct stress placement than the students with low proficiency in English. This research hypothesis was supported.

Table 6

The Mean Scores of the Word stress Perception and Production Tests of the Students With High and Low Proficiency in English

Skills	*M*		*S.D.*		*n*	*t*	*p*
	High	Low	High	Low			
Word Stress Perception	45.94	39.96	8.53	8.74	160	4.38	.00*
Word Stress Production	28.28	20.01	10.86	8.89	160	5.27	.00*

*$p < .05$

Hypothesis 4

Female students have better skills in both word stress perception and production than male students.

To test this hypothesis, an independent t-test was used to see whether the female participants had better skills in word stress perception and production than their male counterparts. Table 6 compares the mean scores of the male and female students' word stress perception and production.

As indicated in table 7, the female participants did not achieve significantly higher scores in the word stress perception test (*M* = 42.09, *S.D.* =8.98) than the male students (*M* = 43.81, *S.D.* = 9.22, *t* (158) = 1.20, *p* = .00). Likewise, The mean of the females' word stress production test results was not significantly higher (*M* = 23.08, *S.D.* = 10.85) than that of the males (*M* = 25.21, *S.D.* = 10.56, *t* (158) = 1.26, *p* = .00). The results of the study showed that the female participants' word stress perception and production test mean scores were not different from those of the male participants. In other words, the female participants did not have better skills to perceive and produce word stress than the male students. This research hypothesis was rejected.

Table 7

A Comparison of the Mean Scores of the Word Stress Perception (Perception) and Production (Production) tests of the Male and the Female Students

Skills	*M*		*S.D.*		*n*	*t*	*p*
	Male	Female	Male	Female			
Perception	43.81	42.09	9.22	8.98	160	1.20	.00*
Production	25.21	23.08	10.56	10.85	160	1.26	.00*

*$p < .05$

Additional Findings

In addition to the research hypotheses, the study offers a number of interesting additional findings.

First, participants had problems with pronouncing the three-syllable words *comfortable* / ∩κ℘μϕτΩβλ / and *vegetable* / ∩ϖεδ⏐τΩβλ /. All participants pronounced each of the two words as if they were four syllable words. Second, the qualities of the sound waves of a word pronounced with the correct stress placement by

the participants were different from those pronounced by a native speaker in terms of vowel contrast between the stressed and unstressed syllables, pitch height, and the total amount of time used to pronounce the word. The participants gave extra vowel length to the unstressed syllables of the words tested. They also gave a rising tone to the last syllables of some words tested resulting in a high pitch on the ult. The participants used more time than the native speaker do to pronounce the same word. Third, the perception skills of the participants were significantly higher than their production skills (see Appendix F).

English Exposure Questionnaire

In order to better interpret the results of the study, the participants were asked to answer an English exposure questionnaire (See Appendix E) developed by the researcher. To clarify the questions for the participants, each question was translated into Thai. The following rating scale was used to analyze the answers to the questionnaire.

1. Never = 1
2. Rarely = 2
3. Occasionally = 3
4. Often = 4
5. Always = 5

Eighty males and eighty females answered the questionnaire. The male and female participants' responses to the English exposure questionnaire, question by question, are presented in table 8. It was found that the responses of the female participants were not different from those of their male counterparts. Both male and female participants said their Thai teachers often spoke English while teaching. The participants often studied English with native speakers of English. The participants

occasionally had the opportunity to speak English in class. They occasionally listened to English conversations or songs or watched movies in English in English class. The participants rarely spoke English with their friends, or pronounced new words with the correct stress placement after class, or checked the stress pattern of a word in an English dictionary. They occasionally had the opportunity to speak English with native speakers of English or watched news, movies, or other T.V. programs in English. None of them spoke English with their parents or had the opportunity to study English in an English-speaking country.

Table 8

The Means of the Male and Female Participants' Responses to the English Exposure Questionnaire by Gender (N = 160)

English Exposure	M		S.D.	
	Male	Female	Male	Female
Students study English with Thai teachers who speak English	3.86	4.20	1.00	0.83
Students study English with native speakers of English	3.68	3.95	0.98	1.00
Students speak English in English class	2.97	3.34	0.78	0.81
Students listen to conversations or songs or watch movies in English, as part of activities during English class	2.64	2.82	0.80	0.73
Students practice pronouncing new words after class	2.03	2.10	0.87	0.97
Students practice word stress placement after class	1.89	1.98	0.83	0.93
Students practice speaking English with friends after class	1.96	2.00	1.05	1.10
Students check the stress patterns of English words that they have never encountered before in an English dictionary	2.36	2.23	0.97	1.00
Students have the opportunity to speak English with native speakers of English or English speaking people	2.61	2.79	0.97	0.85
Students watch news, movies, or other T.V. programs in English	2.70	2.64	0.93	0.92
Students speak English with parents at home	1.40	1.35	0.69	0.64
Students study English in an English-speaking country	1.11	1.19	0.48	1.47

Summary

The research results showed that there was a positive relationship between the word stress perception and production of the sample students. The students with strong skills in word stress perception also had strong skills in word stress production. On the other hand, the students with poor skills in word stress perception also had poor skills in word stress production. The participants scored significantly higher with the words stressed on the ult than those stressed on the penult and the antepenult. The students with high proficiency in English had better skills in word stress perception and production than the students with low proficiency in English. The female participants did not have better skills to perceive and produce word stress than the male students. Additional findings showed that the participants had problems pronouncing the three syllable words *comfortable* / ∩κ℘μϕτΩβλ / and *vegetable* / ∩ϖεδ | τΩβλ/. The qualities of the sound waves of a word pronounced by the participants with the correct stress placement were different from those pronounced by a native speaker. The perception skills of the participants were better than their production skills. The answers to the questionnaire showed that the female participants' level of English exposure was not different from that of their male counterparts.

CHAPTER V

CONCLUSION AND DISCUSSION

The purpose of the study was to investigate the participants' word stress perception and production. The participants of the study were 160 12th-grade students at Benchamaratcharungsarit School, Chachoengsao. Data from this study were obtained through word stress perception and word stress production tests and a questionnaire developed by the researcher. The data were analyzed according to the following hypotheses:

1. Regardless of their proficiency, there is a positive relationship between students' word stress perception and production.
2. In terms of word stress production, students tend to make errors more with words stressed on the penult and words stressed on the antepenult than words stressed on the ult.
3. Students with high proficiency in English have better skills to perceive and produce word stress than those with low proficiency in English.
4. Female students have better skills in both word stress perception and production than male students.

In this chapter, the results of the study are discussed in accordance with each hypothesis. Recommendations for further studies are given at the end of the chapter. A number of findings incidental to the hypothesis tests are presented at the end of the chapter.

Hypothesis 1

Hypothesis 1: Regardless of their proficiency, there is a positive relationship between students' word stress perception and production.

Hypothesis 1: Results

The participants were asked to perform word stress perception and production tasks. It was found that there was a positive relationship between the participants' word stress perception and production.

Hypothesis 1: Discussion

The findings indicated that the participants who had strong skills in word stress perception also had strong skills in word stress production. Similarly, the participants with poor skills in word stress perception also had poor skills in word stress production. The findings were consistent with the findings of a research study conducted by Jarusan (1997). In Jarusan's study, it was found that students who could identify the primary stress of each word correctly would be able to place the primary stress of a word correctly. These results of the study suggest that English teachers should find materials or activities that would help students develop their word stress perception abilities so that their word stress production abilities would also improve. To help students of English communicate in oral English intelligibly and more effectively, word stress perception (and hence production) skills should be integrated with other skills in a meaningful context. Auditory perception training can improve perception of the suprasegmental features of pronunciation (Wayland & Guion, 2004). Training students of English as a second or foreign language to recognize the stressed syllable of an English word will help them improve their word stress production skills (Murphy, 1991). In addition, practicing pronouncing the strong and weak syllables of an English word embedded in phrasal or

sentential units might help students of English increase their listening ability (D' Angelo, 2005).

Hypothesis 2

Hypothesis 2: In terms of word stress production, students tend to make errors more with words that are stressed on the penult and words that are stressed on the antepenult than words that are stressed on the ult.

Hypothesis 2: Results

The results from the word stress production task in this study showed that the participants made fewer word stress placement errors with the English words with the stress placement on the ult than with the words with the stress placement on the penult or with the words with the stress placement on the antepenult.

Hypothesis 2: Discussion

The results of this study indicated that the participants had little difficulty with the word stress production of those words stressed on the ult. They tended to place the stress syllable of a word on the ult. This could be an indication of mother tongue influence because the primary stress in polysyllabic words in Thai is on the last syllable (Wong-opasai, 1992; Udom Warotsikhadit, 2002). The following figures illustrate some example sound waves of the words repeat, organize, and weather. The sound waves of the three words show that the participant placed the stress on the ult of each word.

Figure 2 is a screen capture from the graphic display of Sony Sound Forge 8, and illustrates the sound waves of a word stressed on the ult, as pronounced by a participant. The participant placed the stress on the second syllable of the word *repeat*, which is correct.

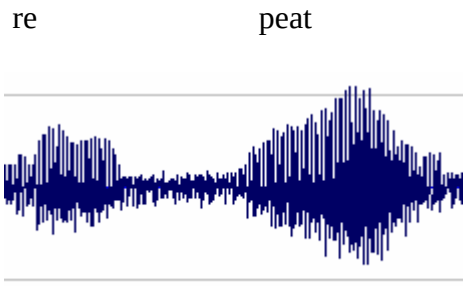

Figure 2. Sound Waves of the Word *repeat* Pronounced by a Participant

Figure 3 illustrates that the pitch height of the last syllable of the word *organize* is higher, than that of the antecedent syllables, and its vowel duration is longer. The participant placed the stress on the ult , which is incorrect. Similarly, the last syllable of the word *weather* illustrated in figure 4 is higher in pitch height and longer in vowel duration than the first syllable. The sound waves of this word show that the student placed the stress on the second syllable, which is not correct, and might be incomprehensible to other English-speaking people.

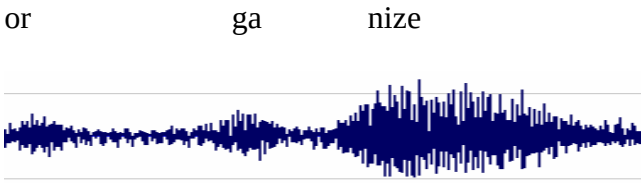

Figure 3. Sound Waves of the Word *organize* Pronounced by a Participant

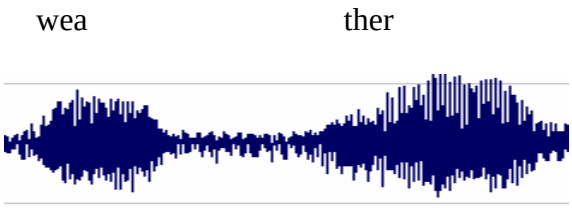

Figure 4. Sound Waves of the Word *weather* Pronounced by a Participant

Hypothesis 3

Hypothesis 3: Students with high proficiency in English have better skills to perceive and produce word stress than students with low proficiency in English.

Hypothesis 3: Results

The results of the study showed that the participants with high proficiency in English had better skills in both word stress perception and production than the participants with low proficiency.

Hypothesis 3: Discussion

The results of the study indicated that in terms of word stress perception and production skills, the students with high proficiency might have better skills in oral communication than the students with low proficiency in English. The results of research studies by Green and Oxford (1995) and Lui (2005) have indicated that students with high proficiency in English employed more strategies in language learning than students with low proficiency in English. Similarly, the participants in the present study with high proficiency in English might employ more strategies in language learning than the participants with low proficiency in English. This is one possible explanation for the higher scores achieved in the word stress perception and production tests by the students with high proficiency in English than their low proficiency counterparts. However, the

mean scores of the word stress production test of the participants with high (M = 28.28) and low (M = 20.01) proficiency in English indicated that both groups of students had low ability in word stress production. A possible cause of the low scores in word stress production tests of the participants might be because of the lack of practicing oral English. The responses to the exposure to English questionnaire showed that the participants often studied English with both native speakers of English and Thai teachers who spoke English while teaching. They also occasionally watched T.V. programs in English. However, the students lacked the opportunity to practice speaking English. They rarely spoke English with their friends or parents after class. In addition, the participants rarely checked the word stress pattern of an unfamiliar word. Consequently, they pronounced words with incorrect stress placement. The answers to the questionnaire indicated that the participants did not have adequate input of oral English; therefore, their English word stress production skills were poor. To be able to communicate in oral English effectively, students of English should be aware of the word stress placement of polysyllabic words, since word stress misplacement is one of the causes of unintelligibility in oral communication.

Hypothesis 4

Hypothesis 4: Female students have better skills in both word stress perception and production than male students.

Hypothesis 4: Results

It was found that the female participants did not have better skills in word stress perception and production than the male participants. The mean scores of the females' word stress perception did not differ significantly from those of the males.

Hypothesis 4: Discussion

The results of this study indicated that the participants' ability in word stress perception and production was not dependent on gender. The results of this study contradicted with other secondary research studies that females are generally superior to male students in language learning. The answers to the English exposure questionnaire showed that the responses of the female participants were not different from those of the male participants. From the questionnaire, the female participants did not have greater exposure to English than their male counterparts. This could be a reason why the female students did not have better skills in English word stress perception and production. The result of the study was consistent with the results of a study by Chumpavan and Lorber (2003). Chumpavan and Lorber conducted a study to investigate the differences in English language proficiency between first-year male and female students studying in the regular and international programs at university level in Thailand. They found that female students did not have a better command of English than male students. It should be noted, however, that Chumpavan and Lorber focused on reading, writing and listening skills and did not investigate the speaking proficiency of their participants.

Discussion of Additional Findings

The study offers a number of interesting findings that are incidental to the four main research hypotheses.

1. All participants had problems pronouncing the three syllable words *comfortable* / ∩κ℘μφτΩβλ / and *vegetable* / ∩ϖεδ | τΩβλ /. Each participant pronounced the two words as if they were four syllable words (see figures 5 and 6). They placed the stress on the last syllable of each of the two words, which is not correct. The mispronunciation and

word stress misplacement showed that the participants need a greater amount of oral input to help them deal with difficult words such as these.

com for ta ble

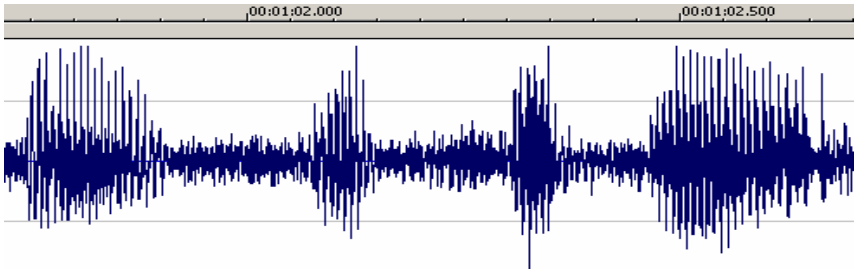

Figure 5. Sound Waves of the Word *comfortable* Pronounced by a Participant

ve ge ta ble

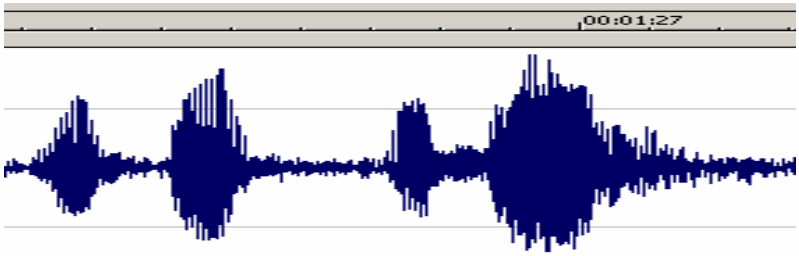

Figure 6. Sound Waves of the Word *vegetable* Pronounced by a Participant

2. In a number of cases, while the participants placed the stress on the right syllable, the qualities of the sound waves of the word pronounced by the participant were different from those pronounced by a native speaker in terms of vowel contrast between the stressed and unstressed syllables, pitch height, and the total amount of time used to pronounce a word. First, while most of the participants placed the stress on the right

syllable, they also gave extra vowel length to unstressed syllables. Figure 7 illustrates that the vowel duration of the unstressed syllable of the word *forget* pronounced by a participant is almost equal to that of the stressed syllable. On the contrary, it is shown in figure 8 that the vowel duration of the unstressed syllable of the same word pronounced by a native speaker contrasts with that of the stressed syllable. Second, comparing the sound waves of the second syllable of the word *forget* pronounced by a participant and by the native speaker, it was found that the pitch height of the sound waves pronounced by a participant was higher than that pronounced by the native speaker. This resulted from the rising tone given to the last syllable of the word *forget* by the participant. Third, the length of time the participants used to pronounce a word was longer than the amount of time a native speaker used to pronounce the same word. Using Sony Sound Forge, it was possible to determine that the time the participant used to pronounce the word *forget* was 1 second, while the native speaker used 0.5 seconds. Mother tongue interference might be a possible cause of the pronunciation deviation. With word stress production training and more exposure to English, students of English would be able to produce a contrasting duration of the stressed and unstressed syllables (Nguyen and Ingram, 2005).

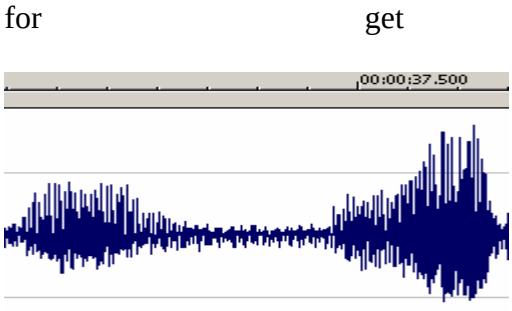

Figure 7. Sound Waves of the Word *forget* Pronounced by a Participant

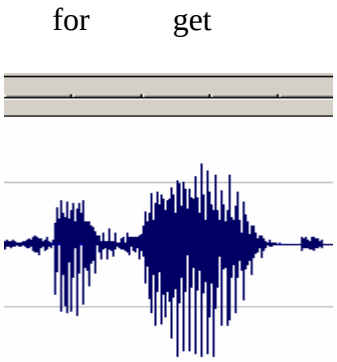

Figure 8. Sound Waves of the Word *forget* Pronounced by a Native Speaker of English

3. In addition, it was found that the participants' perception skills were better than their production skills. The participants' mean scores of the word stress perception test (M = 42.95) and production test (M = 24.14) were significantly different. The result of the study showed that the participants might have more difficulties with speaking skills than listening skills. They might find it difficult to make themselves understood to competent speakers or native speakers of English. The discrepancy between the participants' word stress perception and production skills might be a result of mother tongue interference. The stress placement in polysyllabic words in Thai is always on the ult. The students' word stress production could be governed by this convention without having a major impact on their word stress perception. In addition, inadequate input of spoken English might be a possible cause of the participants' poor skills in word stress production. The participants' word stress production ability might develop with the teachers' help and with more exposure to English.

Recommendations for Further Studies

Recommendations for further studies are as follows:

1. This study was conducted with 160 grade 12 students studying at Benchamaratcharungsarit School, Chachoengsao. Further studies should be conducted with larger samples in order to have more reliability.

2. Further studies should investigate the word stress perception and production skills of Thai speakers of English who work for international companies in order to better understand those word stress perception and production problems that affect their listening and speaking skills and potentially their effectiveness at work.

3. Further studies should investigate word stress perception and production skills of Thai teachers who teach English to Thai students of English in order to understand their problems of word stress perception and production. Training courses on word stress perception and production should be provided for those teachers who need help to improve their word stress perception and word stress production skills.

4. To complete the production task, the participants were asked to read a word list. In further studies, the word stress production task should incorporate natural speech, so that the data from the production task can better represent the participants' natural word stress placement ability in their speaking skills.

Implementation of the Study

The results of the study revealed some information about the students' word stress perception and production skills that is relevant to English teachers. Activities or materials to help students improve their skills in word stress perception and production should be included in English class. Training Thai students of English to perceive both the stressed and unstressed syllables of polysyllabic words, together with more oral

English input outside the classroom, could help Thai students of English improve their word stress perception and production skills. Improving word stress perception and production skills together with grammatical and lexical knowledge will help Thai students of English to be comprehensible to native or nonnative speakers of English in oral communication.

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APPENDICES

APPENDIX A

Glossary Word Lists

Glossary Word Lists

Ult List – Ranked According to Frequency

about	1
accept	1
across	1
admire	1
advice	1
afraid	1
against	1
alarm	1
alive	1
become	1
before	1
begin	1
behind	1
canal	1
canoe	1
compare	1
complete	1
connect	1
construct	1
declare	1
degree	1
describe	1
design	1
disappear	1
effect	1
elect	1
employ	1
expense	1
explain	1
forecast	1
forget	1
garage	1
guitar	1
hotel	1
income	1
increase (v)	1
invent	1
prevent	1
produce	1

promise	1
protect	1
record	1
relax	1
relief	1
repeat	1
reserve	1
retire	1
support	1
surprise	1
tattoo	1
until	1
apply	2
believe	2
cartoon	2
complain	2
compose	2
engineer	2
machine	2
polite	2
return	2
report	3

Penult List – Ranked According to Frequency

accommodation	1
accountant	1
action	1
agreement	1
airport	1
album	1
already	1
ambition	1
ambitious	1
ankle	1
announcement	1
answer	1
apple	1
architecture	1
armchair	1
attraction	1

attractive	1
author	1
awful	1
baby	1
baker	1
beauty	1
berry	1
better	1
birthday	1
blackboard	1
blanket	1
body	1
borrow	1
bottle	1
boyfriend	1
breakfast	1
brochure	1
broken	1
bury	1
butcher	1
butter	1
cabbage	1
cafeteria	1
campus	1
cancel	1
candy	1
careful	1
celebration	1
center	1
central	1
channel	1
chicken	1
chimney	1
chubby	1
circle	1
circulation	1
city	1
classroom	1
clever	1
college	1
concentration	1
concert	1
condition	1

convenient	1
cookie	1
corner	1
country	1
couple	1
cousin	1
cupboard	1
curtain	1
cushion	1
danger	1
decoration	1
delicious	1
deliver	1
designer	1
diamonds	1
dinner	1
diploma	1
director	1
dirty	1
disappointed	1
discover	1
disgusting	1
divorce	1
documentary	1
dolphin	1
dosage	1
drama	1
dustman	1
early	1
earthquake	1
easy	1
editorial	1
elbow	1
electric	1
electrician	1
elevator	1
enter	1
entry	1
equipment	1
essay	1
event	1
examination	1
explorer	1

external	1
extra	1
extract	1
famous	1
fantastic	1
farmer	1
father	1
female	1
ferry	1
figure	1
financial	1
finger	1
fluent	1
foreign	1
forest	1
frightened	1
funny	1
generation	1
genius	1
girlfriend	1
handsome	1
happen	1
harmful	1
harvest	1
headache	1
healthy	1
history	1
hobby	1
honest	1
honey	1
housewife	1
hundred	1
husband	1
illness	1
image	1
imaginative	1
important	1
impression	1
including	1
individual	1
inefficient	1
information	1
injure	1

invention	1
island	1
jacket	1
journey	1
ladder	1
lantern	1
later	1
layer	1
leader	1
lecture	1
letter	1
lettuce	1
library	1
location	1
lorry	1
lucky	1
luggage	1
magazine	1
magic	1
major	1
manage	1
marry	1
mechanic	1
message	1
middle	1
million	1
minute	1
mirror	1
mistake	1
misty	1
money	1
moustache	1
muscle	1
museum	1
mystery	1
notebook	1
nothing	1
novel	1
obligation	1
observation	1
occasion	1
offer	1
office	1

official	1
operation	1
ostrich	1
painting	1
pajamas	1
parrot	1
party	1
patient	1
patient	1
peaceful	1
penguin	1
people	1
perfect	1
perform	1
performer	1
person	1
picture	1
playground	1
pleasant	1
plumber	1
police	1
polite	1
politician	1
population	1
porter	1
postcard	1
potato	1
prayer	1
prediction	1
present (n)	1
pretty	1
prevention	1
printer	1
prison	1
private	1
production	1
program	1
progress	1
project	1
proposal	1
public	1
purple	1
qualification	1

quarter	1
racket	1
railway	1
raincoat	1
rainy	1
reader	1
rehearsal	1
remember	1
require	1
resolution	1
river	1
rubber	1
sailing	1
sausage	1
scanner	1
scissors	1
season	1
second	1
security	1
senior	1
sentence	1
serious	1
shampoo	1
shattered	1
shoulder	1
silent	1
simple	1
singer	1
single	1
sister	1
snowy	1
someone	1
sometimes	1
spirit	1
stadium	1
stomachache	1
story	1
straighten	1
study	1
subject	1
subtitle	1
success	1
successful	1

sugar	1
sunglasses	1
supper	1
swallow	1
sweater	1
swimming	1
symptom	1
system	1
talent	1
technician	1
textbook	1
theater	1
thousand	1
ticket	1
together	1
tomato	1
toothache	1
toothbrush	1
toothpaste	1
total	1
tradition	1
trainers	1
transport	1
trolley	1
trousers	1
tunnel	1
turkey	1
ugly	1
vacation	1
variety	1
village	1
volcano	1
waiter	1
water	1
window	1
actor	2
actress	2
advertisement	2
appearance	2
bedroom	2
biscuit	2
candle	2
carrot	2

chemist	2
coffee	2
color	2
communication	2
continue	2
contract	2
crazy	2
daughter	2
detective	2
direction	2
driver	2
empty	2
English	2
enormous	2
entertainment	2
fashion	2
fiction	2
flower	2
freedom	2
friendly	2
garden	2
happy	2
helpful	2
homework	2
impatient	2
interest	2
language	2
listen	2
local	2
medium	2
mountain	2
movie	2
notice	2
parent	2
pencil	2
plaster	2
profit	2
romantic	2
rubbish	2
service	2
shower	2
special	2
student	2

stupid	2
summer	2
teacher	2
toilet	2
travel	2
autumn	3
bathroom	3
cloudy	3
doctor	3
education	3
expensive	3
football	3
housework	3
kitchen	3
sunny	3
taxi	3
traffic	3
weather	3
winter	3
children	4
cycle	4
tennis	4
computer	5
music	5
table	5

Antepenult – Ranked According to Frequency

ability	1
accident	1
available	1
average	1
barbecue	1
basketball	1
battery	1
bicycle	1
biography	1
butterfly	1
calendar	1
carefully	1

celebrate	1
century	1
character	1
charity	1
chocolate	1
citizen	1
community	1
company	1
conference	1
decorate	1
definitely	1
dictionary	1
difference	1
document	1
editor	1
educational	1
elegant	1
environment	1
excellent	1
exciting	1
experience	1
fashionable	1
fictional	1
flexible	1
fortunately	1
furniture	1
geography	1
government	1
graduate	1
grandmother	1
hairdresser	1
happiness	1
horrible	1
hospital	1
injury	1
international	1
internet	1
location	1
majority	1
medicine	1
microphone	1
minority	1
monitor	1

murderer	1
musical	1
national	1
nationality	1
negative	1
officially	1
opener	1
opposite	1
passenger	1
perfectionist	1
personal	1
photograph	1
photographer	1
positive	1
possibility	1
possible	1
president	1
professional	1
radio	1
reasonable	1
recently	1
recommend	1
resident	1
responsibility	1
sacrifice	1
satisfied	1
scientist	1
seminar	1
several	1
sociable	1
specialize	1
terrible	1
traditional	1
typical	1
underground	1
uniform	1
video	1
yesterday	1
architect	2
capital	2
cigarette	2
comedy	2
comfortable	2

communicate	2
criminal	2
customer	2
dangerous	2
difficult	2
festival	2
generous	2
holiday	2
impossible	2
interview	2
personality	2
popular	2
regular	2
temperature	2
university	2
valuable	2
vegetable	2
wonderful	2
beautiful	3
business	3
camera	3
organize	3
cinema	4
favorite	4
telephone	5

APPENDIX B

Word List

Word List

1.	about	2.	cycle	3.	polite
4.	apply	5.	dangerous	6.	popular
7.	bathroom	8.	difficult	9.	criminal
10.	beautiful	11.	doctor	12.	canoe
13.	before	14.	expensive	15.	comedy
16.	believe	17.	festival	18.	relax
19.	business	20.	favorite	21.	relief
22.	camera	23.	football	24.	repeat
25.	canal	26.	employ	27.	report
28.	capital	29.	forget	30.	return
31.	cartoon	32.	guitar	33.	sunny
34.	children	35.	holiday	36.	table
37.	cinema	38.	hotel	39.	taxi
40.	cloudy	41.	housework	42.	autumn
43.	comfortable	44.	impossible	45.	telephone
46.	communicate	47.	kitchen	48.	tennis
49.	complain	50.	machine	51.	traffic
52.	compose	53.	music	54.	vegetable
55.	computer	56.	organize	57.	weather
58.	customer	59.	pencil	60.	winter

APPENDIX C

Word Stress Perception Form

Word Stress Perception Form

Student No.: _____ Male: ☐ Female ☐

Directions: Listen and mark the stressed syllable of each word you hear.

1. ○ ○	2. ○ ○	3. ○ ○
4. ○ ○	5. ○ ○ ○	6. ○ ○ ○
7. ○ ○	8. ○ ○ ○	9. ○ ○ ○
10. ○ ○ ○	11. ○ ○	12. ○ ○
13. ○ ○	14. ○ ○ ○	15. ○ ○ ○
16. ○ ○	17. ○ ○ ○	18. ○ ○
19. ○ ○ ○	20. ○ ○ ○	21. ○ ○
22. ○ ○ ○	23. ○ ○	24. ○ ○
25. ○ ○	26. ○ ○	27. ○ ○
28. ○ ○ ○	29. ○ ○	30. ○ ○
31. ○ ○	32. ○ ○	33. ○ ○
34. ○ ○	35. ○ ○ ○	36. ○ ○
37. ○ ○ ○	38. ○ ○	39. ○ ○
40. ○ ○	41. ○ ○	42. ○ ○
43. ○ ○ ○	44. ○ ○ ○ ○	45. ○ ○ ○
46. ○ ○ ○ ○	47. ○ ○	48. ○ ○
49. ○ ○	50. ○ ○	51. ○ ○
52. ○ ○	53. ○ ○	54. ○ ○ ○
55. ○ ○ ○	56. ○ ○ ○	57. ○ ○
58. ○ ○ ○	59. ○ ○	60. ○ ○

APPENDIX D

Word Stress Perception Form for Rater

Word Stress Production Form for Rater

Student No.: _____ Male: ☐ Female ☐

1. ○ ○	2. ○ ○	3. ○ ○
4. ○ ○	5. ○ ○ ○	6. ○ ○ ○
7. ○ ○	8. ○ ○ ○	9. ○ ○ ○
10. ○ ○ ○	11. ○ ○	12. ○ ○
13. ○ ○	14. ○ ○ ○	15. ○ ○ ○
16. ○ ○	17. ○ ○ ○	18. ○ ○
19. ○ ○ ○	20. ○ ○ ○	21. ○ ○
22. ○ ○ ○	23. ○ ○	24. ○ ○
25. ○ ○	26. ○ ○	27. ○ ○
28. ○ ○ ○	29. ○ ○	30. ○ ○
31. ○ ○	32. ○ ○	33. ○ ○
34. ○ ○	35. ○ ○ ○	36. ○ ○
37. ○ ○ ○	38. ○ ○	39. ○ ○
40. ○ ○	41. ○ ○	42. ○ ○
43. ○ ○ ○	44. ○ ○ ○ ○	45. ○ ○ ○
46. ○ ○ ○ ○	47. ○ ○	48. ○ ○
49. ○ ○	50. ○ ○	51. ○ ○
52. ○ ○	53. ○ ○	54. ○ ○ ○
55. ○ ○ ○	56. ○ ○ ○	57. ○ ○
58. ○ ○ ○	59. ○ ○	60. ○ ○

APPENDIX E

English Exposure Questionnaire

You have been asked to participate in a study investigating the relationship between word stress perception and word stress production. In order to better interpret the results of the study, it will be useful to know about your background. The following questions are intended to help gather that information. The information you provide will be used only for the purposes of this study, and will not be divulged to anyone else. Your assistance in providing the needed information is greatly appreciated.

Sincerely,

Nipa Aungcharoen

English Exposure Questionnaire

□ Male □ Female

Directions: Please answer the following questions by making a tick (✓) in the appropriate column.

Questions	never	rarely	occasionally	often	always
1. Do your English teachers speak English while teaching?					
2. Do you study English with native speakers of English?					
3. Do you have opportunities to speak English in class?					
4. Do you listen to conversations or songs, or watch movies in English, as part of activities during English class?					
5. Do you practice pronouncing new words after class?					
6. Do you practice word stress placement after class?					
7. Do you practice speaking English with your friends after class?					
8. Do you check the stress patterns of English words that you have never encountered before in an English-English dictionary?					
9. Have you ever had the opportunity to speak English with native speakers of English or English speaking people?					
10. Do you watch news, movies, or other T.V. programs in English?					
11. Do you ever speak English with your parents at home?					
12. Have you had the opportunity to study English in an English-speaking country?					

APPENDIX F

A Comparison of Mean Scores of Word Stress Perception and Word Stress Production Test of the Participants

Table 9

A Comparison of Mean Scores of Word Stress Perception and Word Stress Production Test of the Participants.

Skills	*n*	*M*	*S.D.*	*t*	*p*
Word Stress Perception	160	42.95	9.11	16.90	.00
Word Stress Production	160	24.14	10.72		

*p < .05

VITAE

VITAE

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