

AN INTERLANGUAGE STUDY OF ENGLISH RHYTHMICAL PATTERNS IN THE READINGS
OF THAI LEARNERS, AND THE DEGREE OF COMPREHENSIBILITY JUDGED BY L1
ENGLISH AND L1 THAI ENGLISH TEACHERS

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การศึกษาภาษาในระหว่างของรูปแบบจังหวะภาษาอังกฤษจากการอ่านของผู้เรียนคนไทยและ
ระดับความเข้าใจจากการตัดสินใจของครูสอนภาษาอังกฤษที่พูดภาษาอังกฤษเป็นภาษาที่หนึ่งและ
ครูสอนภาษาอังกฤษที่พูดภาษาไทยเป็นภาษาที่หนึ่ง



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ทิพย์รัตน์ เอี่ยมวรภูมิกุล : การศึกษาภาษาในระหว่างของรูปแบบจังหวะภาษาอังกฤษจากการอ่านของผู้เรียนคนไทยและระดับความเข้าใจจากการตัดสินของครูสอนภาษาอังกฤษที่พูดภาษาอังกฤษเป็นภาษาที่หนึ่งและครูสอนภาษาอังกฤษที่พูดภาษาไทยเป็นภาษาที่หนึ่ง. (AN INTERLANGUAGE STUDY OF ENGLISH RHYTHMICAL PATTERNS IN THE READINGS OF THAI LEARNERS, AND THE DEGREE OF COMPREHENSIBILITY JUDGED BY L1 ENGLISH AND L1 THAI ENGLISH TEACHERS) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร. สุศุภาพร ลักษณะนิยานาวิน, 131 หน้า.

งานวิจัยชิ้นนี้มีวัตถุประสงค์เพื่อ 1.) ศึกษารูปแบบจังหวะภาษาอังกฤษ อันได้แก่ การหยุดเว้นระยะ และ จังหวะการอ่านของผู้เรียนคนไทย 2.) ศึกษาปัญหาของรูปแบบจังหวะการอ่านภาษาอังกฤษโดยผู้เรียนคนไทยที่มีประสบการณ์ทางภาษาอังกฤษสูงและต่ำ 3.) สำรวจระดับความเข้าใจของครูสอนภาษาอังกฤษที่พูดภาษาอังกฤษเป็นภาษาที่หนึ่งและครูสอนภาษาอังกฤษที่พูดภาษาไทยเป็นภาษาที่หนึ่งต่อการอ่านภาษาอังกฤษของผู้เรียนชาวไทย และ 4.) หาค่าความสัมพันธ์ระหว่างปัญหาในรูปแบบจังหวะการอ่านภาษาอังกฤษและระดับความเข้าใจในการฟัง

การวิจัยครั้งนี้เป็นการศึกษา 2 ด้าน ได้แก่ ด้านการใช้ และ ด้านการรับรู้ ทางด้านการใช้ ข้อมูลในการศึกษาได้มาจากการอ่านอนุเฉทของนักศึกษาระดับปริญญาตรี สาขาวิชาภาษาอังกฤษ สำนักวิชาศิลปศาสตร์ มหาวิทยาลัยแม่ฟ้าหลวง จำนวน 30 คน ที่เป็นกลุ่มตัวอย่างที่เลือกสุ่มแบบมีเกณฑ์ [stratified random sampling] จากประสบการณ์ภาษาอังกฤษ ได้แก่ กลุ่มที่มีประสบการณ์ทางภาษาอังกฤษสูง และ กลุ่มประสบการณ์ทางภาษาอังกฤษต่ำ กลุ่มละ 15 คน โดยเปรียบเทียบกับเจ้าของภาษาอังกฤษ 3 คน ส่วนการศึกษาด้านการรับรู้ให้ครูสอนภาษาอังกฤษที่พูดภาษาอังกฤษเป็นภาษาที่หนึ่ง และ ครูสอนภาษาอังกฤษที่พูดภาษาไทยเป็นภาษาที่หนึ่ง กลุ่มละ 6 คน ทำการตัดสินความเข้าใจในการฟังรูปแบบจังหวะภาษาอังกฤษจากการอ่านอนุเฉทของนักศึกษาไทย การวิเคราะห์ข้อมูลประกอบด้วย การหาค่าเฉลี่ย ค่าร้อยละ ค่าเบี่ยงเบนมาตรฐาน ค่าความแปรปรวน One-way ANOVA [Post-Hoc Test] ค่าความสัมพันธ์ T-test และค่าความสัมพันธ์ เพียร์สัน คอรัลเลชัน

ผลการวิจัยครั้งนี้แสดงให้เห็นว่า 1.) นักศึกษากลุ่มประสบการณ์ภาษาอังกฤษสูงมีรูปแบบจังหวะการอ่านภาษาอังกฤษ ซึ่งประกอบด้วย การแบ่งหน่วยการหยุดเว้นระยะ [tone groups or pause-defined units] และ หน่วยจังหวะ [feet] ใกล้เคียงกับเจ้าของภาษาอังกฤษมากกว่ากลุ่มประสบการณ์ต่ำ 2.) ปัญหาในรูปแบบจังหวะการอ่านภาษาอังกฤษที่พบในหน่วยการหยุดเว้นระยะ คือ การแบ่งวรรคตอนผิด ได้แก่ การเว้นวรรคภายในวลี [pause within phrases] และ การเว้นวรรคภายในคำ [pause within words] ส่วนปัญหาทางด้านหน่วยจังหวะ คือ การลงเสียงหนักผิดที่ ทั้งในคำหลักหลายพยางค์ [incorrect accentual patterns in polysyllabic words] และในคำไวยากรณ์ [stress on function words] 3.) ครูสอนภาษาอังกฤษที่พูดภาษาอังกฤษเป็นภาษาที่หนึ่ง และ ครูสอนภาษาอังกฤษที่พูดภาษาไทยเป็นภาษาที่หนึ่งตัดสินให้คะแนนระดับความเข้าใจต่อการอ่านภาษาอังกฤษของนักศึกษากลุ่มประสบการณ์ภาษาอังกฤษสูงมากกว่ากลุ่มประสบการณ์ภาษาอังกฤษต่ำ 4.) ปัญหาในรูปแบบจังหวะการอ่านภาษาอังกฤษและคะแนนระดับความเข้าใจมีค่าความสัมพันธ์สูงในทางลบ [$r = -0.54$] กล่าวคือ ถ้าพบปัญหามาก ระดับคะแนนความเข้าใจจะต่ำ

งานวิจัยชิ้นนี้มีประโยชน์อย่างยิ่งต่อการจัดการเรียนการสอนด้านการฝึกทักษะการอ่าน และ การออกแบบสื่อการเรียนการสอนของการอ่านออกเสียงภาษาอังกฤษในนักศึกษาไทย

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KEYWORDS: ENGLISH RHYTHMICAL PATTERNS / TONE GROUP BOUNDARIES / FOOT BOUNDARIES / ENGLISH LANGUAGE EXPERIENCE / COMPREHENSIBILITY

TIPPARAT EIAMWORAWUTTIKUL: AN INTERLANGUAGE STUDY OF ENGLISH RHYTHMICAL PATTERNS IN THE READINGS OF THAI LEARNERS, AND THE DEGREE OF COMPREHENSIBILITY JUDGED BY L1 ENGLISH AND L1 THAI ENGLISH TEACHERS. ADVISOR: ASST. PROF. SUDAPORN LUKSANEEYANAWIN, Ph.D., 131 pp.

This research is to 1.) study the English rhythmical patterns produced by Thai learners 2.) explore the problems in English rhythmical patterns of Thai learners with high and low English language experiences 3.) examine L1 English and L1 Thai English teachers' degree of comprehensibility towards the readings of Thai learners and 4.) find the correlation between the problems in rhythmical patterns and the degree of comprehensibility.

This research consists of two main studies, i.e., production study and perception study. For production study, sample groups were selected by stratified random sampling. They were 30 undergraduate English major students in the School of Liberal Arts at Mae Fah Luang University. They were selected by the English Language Experience Questionnaire: 1.) those with high English language experience or the EFL-High group and 2.) those with low English language experience or the EFL-Low group. The data were collected from English passage reading of Thai learners. Then, their productions were compared to three native English speakers [NSs], who served as a control group, for comparison purposes. In terms of perception study, 6 L1 English English teachers and 6 L1 Thai English teachers were asked to rate comprehensibility scores towards the readings of Thai learners. For statistical analysis, mean, percentage, standard deviation [SD], One-way ANOVA [Post-Hoc Test], T-test and Pearson's Correlation were employed.

The results were found as follows: 1.) English rhythmical patterns consisted of the division of tone groups or pause-defined units, and feet in the production of the EFL-High were more similar to those of NS than the EFL-Low. 2.) Problems regarding English rhythmical patterns in the readings of Thai learners were misplacement of tone group boundaries [pause within a phrase and pause within a word] found at tone group boundaries, and misplacement of accents [incorrect accentual patterns in polysyllabic words and stress on function words], found at foot boundaries. 3.) L1 English and L1 Thai English teachers rated higher degrees of comprehensibility towards the readings of the EFL-High group than the EFL-Low group. 4.) The relationship between the problems in rhythmical patterns in production and the degree of comprehensibility by the judges showed a high negative correlation value [$r = - 0.54$], which means more problems, less comprehensibility. For pedagogical implication, this study will be advantageous in designing pronunciation courses and teaching materials for Thai students to improve their English pronunciation.

Field of Study: English as an International
Language

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Student's Signature

Advisor's Signature

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CHAPTER I: INTRODUCTION

1.1 Background of the Study

To communicate in globalization, English is used as a global language spoken by many people around the world for many purposes: business, education and etc. (Crystal, 2003 and Graddol, 2006). In the central of communication, suprasegmentals play an important role to convey meaning in spoken communication, as Kang, Rubin & Pickering (2010: 555) claimed that “Prosody in comprehensibility research usually includes speech rate, pausing, stress, and pitch patterns or intonation”. Usually, non-native speakers of English or second language learners would transfer some characteristics of their first language to the pronunciation of the new language, as well as create the language system which is distinct from their own native language and the target language, called “interlanguage” (Selinker, 1972). That is to say, they have tried to reach the target language but still cannot acquire it because of five main factors in the processes of second language learning: L1 transfer, transfer of training, strategies of second language learning, strategies of second language communication, and overgeneralization of the target language rules.

To give a clear picture, it can be seen in the scenario of an international academic conference. If non-native speakers of English have their heavy accent to present their own papers at the conference, listeners may not understand what meanings they would like to convey. Undoubtedly, this really shows how important the training of pronunciation is.

Also, for Thai English learners, one of their English pronunciation problems is from the differences between the accentual systems or stress patterns of Thai and English (Luksaneeyanawin, 1983, 1998, 2005; Vairojanavong, 1984; Sankhavadhana, 1988; Limsangkass, 2009; Pongprairat, 2011). These differences cause the problems of English rhythmical patterns or tonality of speech in Thai people. Limsangkass (2009: 4) provided an example of this problem as follows:

“In an unmarked situation, English speakers would divide the tone group as // [^]She’s a /primary /school /teacher./, whereas Thai speakers would say // [^]She’s a prima/ry /school tea/cher./”.

From the example, it shows that Thai accentual systems or stress patterns have great impact on how Thai English learners divide the rhythmic units within a tone group by changing the position of the rhythmic unit boundary (foot boundary), marked by ‘/’ differently from native English speakers. Due to the change in assigning rhythmic unit boundaries (foot boundaries), the listeners or native speakers would have difficulty to understand, and get confused (Limsangkass, 2009).

As the example mentioned above, it shows that apart from production of speech by speakers, the listeners or native speakers’ perception is also important. In communication, since it is an interaction between at least two people in each context, not only sender or speaker of each message but receiver(s) or listener(s) of each message should be also taken into account.

However, since Halliday (1967, 1970) and Luksaneeyanawin (1983, 1998, 2005) claimed that there are many factors involved in the dialogue between speaker and

listener(s), i.e., presupposed belief, situation, politeness strategies and many others related to appellative or interpersonal function of the spontaneous speech, it seems these matters are hardly controlled. That is why the scope of this research would focus on only controlled speech task: “Read Speech” because the controlled data is advantageous in containing the intended information (Cook, 1986) and also “more tailored targets, more mechanical administration, a wider range of access to subjects, and ease of scoring – these most controlled tasks tend to achieve even more or better outcomes” (Chaudron, 2003, p.790). These claims show the advantages of read speech over the use of spontaneous speech data such as dialogue since the utterances containing similar lexico-grammatical forms produced in the same contexts can be controlled for analysis of the rhythmical patterns.

Since we have explored the production of speech by speakers but rarely looked at the perception – comprehensibility of listeners after receiving the message, this study also aims to investigate the perception of listeners to see their understanding of the message.

Derwing & Munro (2009) and Pongprairat (2011) claimed that in terms of comprehensibility, suprasegmental has a great impact on listener judgments because it is used to convey both the cognitive and emotive meaning in communication. Therefore, this research aims to study Thai English learners’ productions of English rhythmical patterns as related to the listeners: L1 English and L1 Thai English teachers’ perceptions in terms of comprehensibility.

1.2 Research Questions

1.2.1 What are the English rhythmical patterns produced by Thai learners?

1.2.2 What are the problems in English rhythmical patterns of Thai learners with low and high English language experiences?

1.2.3 What is the degree of comprehensibility in the readings of Thai learners judged by L1 English and L1 Thai English teachers?

1.2.4 How do the problems found in 1.2.2 correlate with the degree of comprehensibility in 1.2.3?

1.3 Objectives of the Study

1.3.1 To study the English rhythmical patterns produced by Thai learners

1.3.2 To explore the problems in English rhythmical patterns of Thai learners with low and high English language experiences

1.3.3 To examine L1 English and L1 Thai English teachers' degree of comprehensibility towards the readings of Thai learners

1.3.4 To find the correlation between the problems in rhythmical patterns and the degree of comprehensibility

1.4 Statement of Hypotheses

1.4.1 The English rhythmical patterns produced by Thai learners are varied according to their English language experiences.

1.4.2 The problems in English rhythmical patterns of Thai learners are from their misunderstanding in assigning the syntactic boundaries (tone groups or pause-defined units) and the word accentual patterns.

1.4.3 The degree of comprehensibility judged by L1 English and L1 Thai

English teachers is varied according to the rhythmical patterns.

1.4.4 There will be high correlation between Thais' problems in English rhythmical patterns and the degree of comprehensibility judged by L1 English and L1 Thai English teachers.

1.5 Scope of the Study

1.5.1 This study aimed to investigate the rhythmical patterns: tone group boundaries (pause-defined units) and foot boundaries under the framework of Hallidayan Tonality (1967, 1970).

1.5.2 The subjects of this study were selected from the first year and the fourth year English major students of Mae Fah Luang University. They had different English language experience scores.

1.5.3 The research approach was a cross-sectional study aiming to collect data from two groups of subjects at two different interlanguage stages: fifteen students with the low English language experience scores representing the low English experience group and fifteen students with the high English language experience scores representing the high English experience group.

1.6 Limitations of the Study

1.6.1 This study was not conducted longitudinally. It aimed to explore different interlanguage stages of students by looking at students with high and low English language experience scores at one point of time.

1.6.2 In order to avoid tiredness of the listeners during rating comprehensibility scores in the perception study, only 30 Thai English learners were the participants in the production study.

1.7 Assumptions of the Study

1.7.1 This study assumes that English language experiences influence the productions of students in performing the English rhythmical patterns.

1.7.2 It assumes that production of students with low English language experience scores represents early developmental interlanguage stage of students. Meanwhile, production of students with high English language experience scores represents advanced interlanguage stage of students.

1.8 Definition of Terms

1.8.1 **Interlanguage** is a language system created by the second language learners in the process of learning and trying to reach the target language (Selinker, 1972, 1992; Luksaneeyanawin, 2005).

1.8.2 **Rhythmical patterns** is used by Luksaneeyanawin (1983) to refer to “tonality” defined by Halliday (1970). It is the division of speech into tone groups (Halliday, 1967, 1970) or pause-defined units (Luksaneeyanawin, 1983, 1998) which refer to intonation units, utterances, or information chunks. The division is governed by the syntactic system. In addition, rhythmical pattern is also the division of each tone group into rhythmical units or feet governed by the word accentual system.

1.8.3 **Rhythmical unit or foot** is the time interval from a stressed syllable to the next stressed syllable but not including the next. Speech is unmarkedly divided into equal intervals of time (Luksaneeyanawin, 1983, 1998, 2005).

1.8.4 **Comprehensibility** refers to the listener’s perception of the degree of difficulty to understand the meaning of the speech (Derwing & Munro, 2009; Pongprairat, 2011).

1.9 Notations

1.9.1 **Double slash ‘//’** refers to tone group boundary marker.

1.9.2 **Vertical line ‘|’** refers to potential tone group boundary marker (potential but optional pauses)

1.9.3 **Slash ‘/’** refers to foot boundary marker.

1.10 Significance of the Study

1.10.1 To get more insight to the problems of Thai learners in the production of English rhythmical patterns and help them solve the problems

1.10.2 To bring the data used for application in pedagogical implication such as development of teaching materials, designing reading tasks or pronunciation courses for Thai students.

CHAPTER II: LITERATURE REVIEW

In this research, the main literature covers three main paradigms as follows:

2.1 Interlanguage

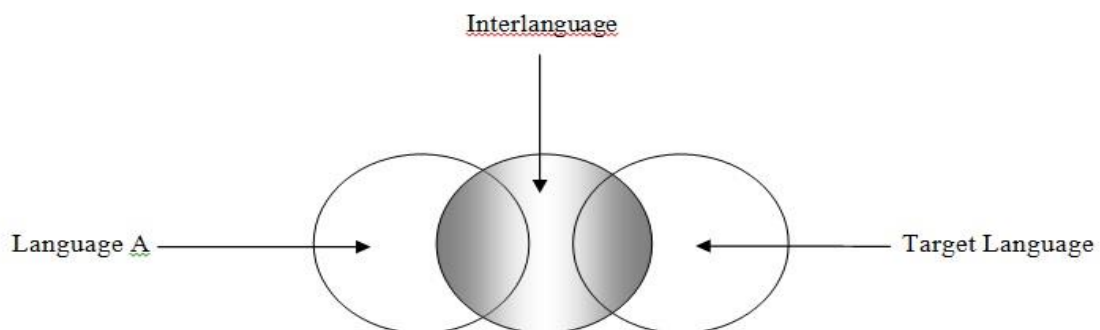
2.2 Rhythmical Patterns and its related research

2.3 Comprehensibility and its related research

2.1 Interlanguage

In second language learning and second language acquisition (SLA), interlanguage has come into play. The term: “Interlanguage” is coined by Selinker (1972) and it is referred to “an approximative linguistic system” or a developmental stage of the learner (Nemser, 1971).

In this theory, learners could acquire the target language by using their language system which is distinct from their native language, as same as the target language they use. This concept relates to Corder’s (1971, 1981) diagram as shown below.



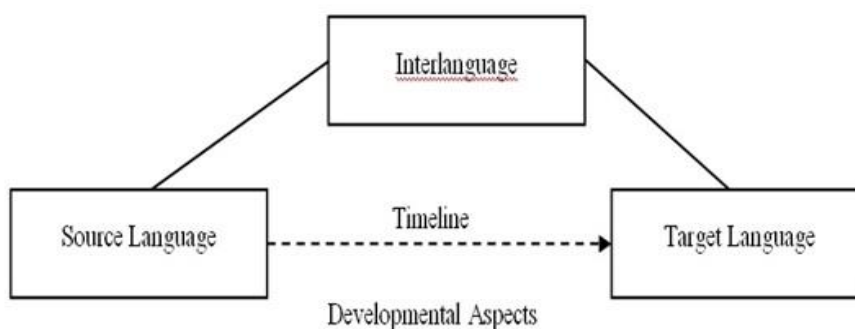
(Corder, 1971, 1981: 17)

From the diagram, it can be seen that interlanguage refers to the language stage of development towards the target language that a learner is learning, as stated “approximative stage”.

In addition, interlanguage is seen as the real idiosyncratic problems of each learner in learning the target language (Corder, 1967, 1971). He believes that there would be the dynamic nature of the second language (L2) learning process.

That is to say, in the learning process, interlanguage refers to developmental aspects of second language (L2) or foreign language (FL) learners in learning a target language over a period of time. The timeline of learners (Selinker, 1972) is illustrated via diagram below.

Figure 2.2: Timeline of Interlanguage



(Selinker, 1972; James, 1980: 4-5)

However, Selinker (1972) claimed that each individual has different problems in learning target language due to the five main factors in the processes of second language learning, as follows:

1. **Language transfer:** learners transfer linguistic features of their native language (L1) to the target language (L2).
2. **Transfer of training:** learners use incorrect linguistic features or structures of target language from what they learned from their teachers.
3. **Strategies of second language learning:** learners try to learn and practice the target language using their own strategies of learning.
4. **Strategies of second language communication:** learners try to communicate the target language by using their own strategies of communication even though their language ability is not good enough.
5. **Overgeneralization of the target language rules:** learners try to generate the target language rules which are overgeneralized and use these rules in their production.

Apart from these factors, learners' experience in the target language is also contributed to the interlanguage stage of each learner since learning language is a cumulative process in individual's knowledge and language uses (Postman, 1971; Tarnisarn, 2012). This shows that the target language experience of learners could affect their target language development. Hence, the English language experiences of students will be taken into account regarding the production of English rhythmical patterns in this study.

2.2 Rhythmical Patterns

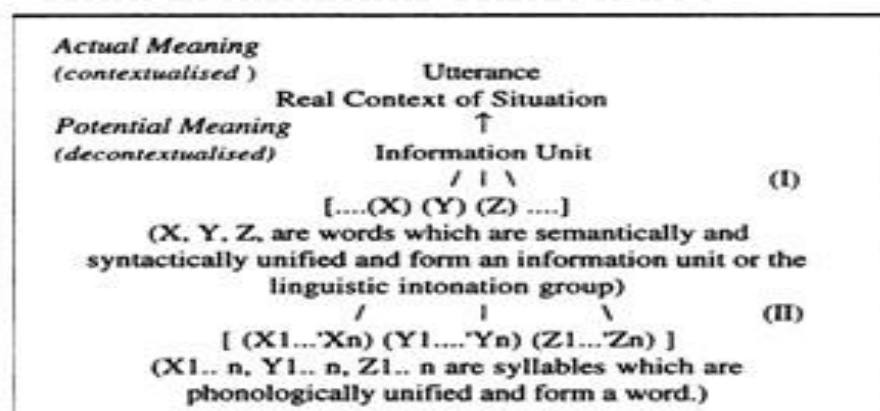
Luksaneeyanawin (1983) used “Rhythmical Patterns” to refer to tonality, following Hallidayan framework (1970). She mentioned:

“...Tonality contrasts are partly determined by the phonological accents of the word or the set of words which are syntactically and semantically unified to form information units...” (p.130-131).

From this statement, it provides readers a big picture that the rhythmical patterns or tonality has to deal with three main levels in the speakers’ linguistic repertoire: word accent (phonological level), syntactic boundaries (syntactic level), and the meaning speakers focus or convey (semantic level) in each information unit or an utterance.

Following Hallidayan Tonality Framework, Luksaneeyanawin (1983, 1998) claimed that rhythmical patterns refer to pause-defined unit (tone group boundary) and foot boundaries. What is more interesting in her statement mentioned above is that she presented the diagram to support her claim, as shown below.

Figure 2.3: The system of intonation grouping (Luksaneeyanawin, 1983, 1998)



Looking at the larger unit, intonation grouping is formed from smaller units to bigger ones: syllables which are phonologically unified (word), an information unit or the linguistic intonation group (phrases, clauses, sentences), and an utterance. It refers to tone group boundary (pause-defined unit) or the speakers' speech division. Tone group boundary (pause-defined unit) is used when speakers think what meanings they are going to speak or convey. Each tone group (pause-defined unit) or information chunk, mostly, corresponds to the syntactic rules or how speakers divide their speech upon their thought. Information chunking is defined by tone group boundaries (Halliday, 1967, 1970; Luksaneeyanawin, 1983, 1998).

Looking at the smaller unit, foot boundaries are also important in English rhythmical patterns or tonality in English. Leeuwen (2005) following Hallidayian framework proposed:

“...Rhythm divides the flow of time into measures – also known as ‘rhythmic feet’ in connection with speech rhythm and poetic metre – which, to our senses at least, are equally long and marked by an explicit pulse – called ‘stress’ in the case of speech and ‘beat’ in the case of music – which falls on the first sound (syllable, note, or other sound) or movement (gesture, dance step, etc.) of the measure, and which is made more prominent, more ‘attention-catching’ by means of increased loudness, pitch, duration, or, in the case of movement, some other form of increased force...” (p.182).

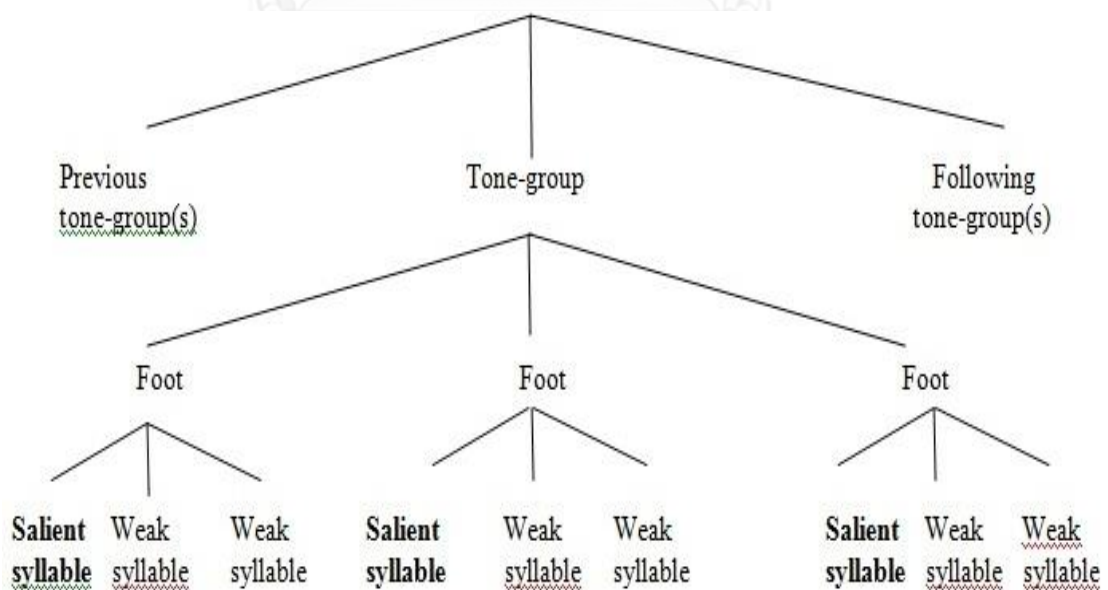
According to the statement above, rhythm in speech is similar to beat in music. Also, measures and pulses are related to the rhythm. It can be said that in the

equal interval of time, rhythm is created by the strong stresses or prominent beats in an information chunk.

That is to say, each pause-defined unit or tone group consists of strings of sound continuum between stressed and unstressed syllables. Foot boundaries refer to the tone group's subunits which are 'the rhythmic unit'. A foot boundary starts from a stressed syllable to the next stressed syllable but not including the next. It is the temporal unit in speech that is divided into equal interval of time (Abercrombie, 1967; Luksaneeyanawin, 1983, 1998, 2005). Undoubtedly, foot boundaries are related to both Phonetics and Phonology.

In line with this, Pitt and Edwards (2003) mentioned rhythmic structure of spoken English which is defined by Halliday in their book, as shown below.

Figure 2.4: Tone group and its rhythmic structure (Pitt and Edwards, 2003)



According to this diagram, it illustrates clearly what rhythmical pattern is about.

1. A unit of speech consists of several tone groups. The tone groups refer to chunks of sentences, clauses, intonation phrases (IPs), thought groups, breath groups or pause groups. To divide tone group boundary or pause-defined unit, the symbols ‘//’ and ‘|’ are used (Details in 1.9 Notations, p.7). It can be illustrated as shown below.

A.) “// Because I love languages | I’m studying intonation // When I’ve finished this book | I’ll know a lot more about it //”

(Wells, 2006: 6)

2. In each tone group, it consists of rhythmical units or foot.
3. Rhythmical unit or foot boundary refers to a unit in speech that is divided into an equal duration of time. It consists of *stressed (salient) syllable* and *unstressed (weak) syllable*. Content words (nouns, verbs, adjectives, adverbs) are accented and normally realized as stressed syllable; whereas, function words (articles, prepositions, pronouns, etc.) are unaccented and normally realized as *unstressed syllable*. To divide the rhythmic unit or foot boundary, the symbol ‘/’ is used. It can be illustrated as follows.

B.) “...For example, “*Janet lifts the box.*”

The content words: ‘*Janet*’ and ‘*box*’ are nouns, as well as ‘*lifts*’ is verb. The function word: ‘*the*’ is an article.

Hence, the sentence would be spoken with the following rhythm:

// 'Janet /lifts the /box. //...”

(Pitt & Edwards, 2003)

Looking at Figure 2.4 thoroughly, it can be seen that it is misleading in terms of rhythmical unit or foot boundary because each foot does not consist of just only three syllables. It can have any number of syllables. That is to say, “Each foot, in turn, can consist of a number of syllables, one or more...Each foot normally consists either of one salient syllable alone or of one salient syllable followed by one or more non-salient, or weak syllables...” (Halliday, 1970, p.1 from Abercrombie, 1967; Luksaneeyanawin, 2013).

As stated above, it can be seen that word accent at the phonological level realized as stress at the phonetic level plays as an important role in the production of rhythmic unit or foot. However, Luksaneeyanawin (1983, 1998, 2005) and Vairojanavong (1984) claimed that stress position or accentual systems of Thai differs from English. It is found that English is a free stress system language, whereas Thai is a fixed stress system language. In English, word accent can be placed at any syllable of a word, but mostly at the most left-handed position. On the contrary, in Thai, primary word accent is always placed at the last syllable of the word or right-handed. This causes the pronunciation problems of Thai in defining English rhythmic unit or foot boundary (Luksaneeyanawin, 1983, 1998, 2005; Vairojanavong, 1984; Sankhavadhana, 1988; Limsangkass, 2009; Pongprairat, 2011).

As reviewed, the problems of rhythmical patterns performed by Thai speakers have been reported before by Vairojanavong (1984), Sankhavadhana (1988), Limsangkass (2010).

Vairojanavong (1984) did a contrastive study of the accentual systems of English and Thai and investigated the errors of the stress patterns in English

polysyllabic medical terms in Thai medical students. The pronunciation in readings of resident doctors and medical students were analysed. They were asked to pronounce English polysyllabic medical terms put in different contexts, i.e., citation forms, occurring in English text, and occurring in Thai text. In her study, errors performed by Thai speakers showed problems of the sample groups that emerged from the interference of Thai accentual system in the English words, and hypercorrection in the sample groups was also found. The errors were also related to the linguistic contexts where the word exists, i.e., occurring in English text, and occurring in Thai text. Resident doctors assigned the stresses according to the Thai accentual systems, whereas medical students assigned the stresses mostly to the left-handed positions and sometimes these assignments were hypercorrected.

Sankhavadhana (1988) did a contrastive study of the intonation in English and Thai in terms of tonality, tonicity and tune, adopted the framework of Halliday's intonation systems in 1970. In her study, she predicted the problems which may occur in Thai English from the differences of intonation systems between two languages: English and Thai. That is to say, the problems of Thai speaking English may occur from the division of rhythmic units and tone groups, the placement of tonic, and the assignment of tune to an utterance. Also, she suggested pedagogical implication in pronunciation training that tonality should be introduced to students first since it is one system of intonation. Students should know how to divide speech appropriately and place stress correctly for their natural flow of English speech. Then, other systems: tonicity and tune should be added respectively.

Limsangkass (2010) investigated tonality of Thai students speaking Pattani Malay as their mother tongue. Thirty English major university students from Faculty

of Humanities and Social Sciences, Prince of Songkhla University, Pattani Campus were the sample of this study.

The English language exposure questionnaire was used to divide students into two sample groups: high and low English language exposure group. The participants were asked to fill out the language exposure questionnaire about the frequency in doing activities using central Thai, southern Thai, Pattani Malay and English. The High Exposure Group (HEG) consisted of 15 fourth-year students, and the Low Exposure Group (LEG) consisted of 15 first-year students. That is to say, the questionnaire was used to investigate the interlanguage stages of students.

Then, the samples were asked to perform the reading aloud task to examine whether the stress would be assigned to the last syllable of the 58 polysyllabic English words putting in different reading contexts. Then, the data was recorded and analyzed by Praat, a freeware program. This program is used to record data and analyze acoustic features in terms of duration, intensity, and pitch of the utterance that were used to indicate tonality.

The results showed that the percentage of stress falling on the last syllable in the HEG was lower than LEG, as seen from the findings of two, three, four, five, and six syllabic words that the HEG made just fewer errors. HEG tended to assign stress patterns closer to the English language. However, it can be seen that the tonality productions of two groups: HEG and LEG were influenced by the same factors: L1 transfer and overgeneralization in stress patterns.

Followed by the paradigm of the perception study, comprehensibility is defined and reviewed in section 2.3.

2.3 Comprehensibility

“...Comprehensibility is expressed by the listener’s judgment and how difficult it is to understand L2 speech production...” (Derwing, Munro & Wiebe, 1998, p.396).

“...It is a subjective assessment of ease or difficulty of comprehension...” (Derwing, Munro & Wiebe, 1998, p.396).

According to these two statements, it can be said that comprehensibility refers to judgments or ratings of listeners regarding how easy they thought the speaker was to understand. That is to say, it is a listener’s perception of how difficult or easy it is to understand an utterance.

Derwing & Munro (1995a, 1995b, 1999, 2004) claimed that the importance of comprehensible pronunciation is for the purpose of successful communication in the target language context. Moreover, comprehensibility and foreign accent is regarded to specific sounds and its features production: intonation and rhythm. This shows the relationship of speech production and comprehensibility. However, the correlation of the production of English intonation patterns and the listeners’ perception has still been explored very little (Derwing & Munro, 1997, 1998, 2001, 2008, 2009; Pongprairat, 2011).

As reviewed, Derwing and Munro published extensively in the field of comprehensibility, foreign accents and accentedness, and intelligibility, as seen from their research publications from 1997 to 2009.

Derwing & Munro (1997) explored the relationships among intelligibility, perceived comprehensibility, and accentedness. The samples were 26 native English listeners. They were asked to rate the accentedness and comprehensibility in the accented speech of intermediate ESL students that speak Cantonese, Japanese, Polish, and Spanish as their mother tongue. Then, they judged the scale of accentedness (1 = no accent, 9 = extremely strong accent). After they heard all speech, they were given a break of about 5 minutes. Next, they would be asked to listen to the speech again (in a different order) and rate comprehensibility scores (1 = extremely easy to understand, 9 = extremely difficult or impossible to understand). The results showed correlations of accentedness, comprehensibility, and intelligibility. That is to say, the familiarity of the speakers' first language with their grammatical, phonemic errors, and prosody (accentedness) influenced comprehensibility and intelligibility perceived by the listeners.

Derwing & Munro (1998) explored the differences between reduced rate and normal rate of accented speech whether it is more comprehensible and sounds less accented. English native-speaker listeners were asked to rate a passage read by 10 high-proficiency Mandarin learners of English at different rate. The researchers told the listeners to listen carefully to each passage. During the pause after each item, listeners were asked to score an accent and comprehensibility by circling scale numbers on two 9-point scales. Scale for accentedness is ranged from "1" (no accent) to "9" (very strong accent), while the comprehensibility scale is ranged from "1" (very easy to understand) to "9" (very difficult to understand). It was found that reading passage slowly was more accented and less comprehensible than normal-rate passages. The findings suggest that even though listeners may prefer to listen to

accented speech at slower rates, a slowing-down speaking strategy may not help second language learners.

Derwing & Munro (2001) investigated the relationship between judgments of accentedness, speaking rates and comprehensibility in utterances performed by speakers with various L1 backgrounds. The English speech excerpts at different speaking rates from speakers of several languages were listened to and rated by the listeners. Each utterance was scored by circling numbers on two 9-point scales which are the scale for degree of comprehensibility (1 = very easy to understand; 9 = impossible to understand) and the scale for degree of accentedness (1 = no accent; 9 = very strong accent). The listeners listened to each stimulus and then, during a pause, rated the scores. It was found that the normal rate and less L1 heavy accent of the speakers' speech was more comprehended and scored higher than the speech with very fast and very low rate judged by the listeners.

Derwing & Munro (2008) used mix-methods for their longitudinal study. They compared the oral fluency of 16 Mandarin and 16 Slavic well-educated adult immigrants enrolling in English as a second language (ESL) classes. The researchers collected data over a 2-year period from speech samples and weekly English use. The informants' comprehensibility and fluency over 22 months were judged by 33 English native speakers. For data collection, the listeners were asked to rate scores by using 7-point scales which are the scale for fluency (1 = extremely fluent, 7 = extremely dysfluent) and the scale for comprehensibility (1= very easy to understand, 7 = extremely difficult to understand). The listeners will be explained that to judge fluency, it should be based on factors such as filled pauses (ums and uhs), silent pauses, speech rate, self-corrections and the overall flow of speech.

Vocabulary and grammar should not be taken into account. To judge comprehensibility, the listeners were asked to rate how easy or difficult the speech samples were to understand. The progress of learners was followed for their English exposure outside their ESL class. It was revealed that even though the speakers of Slavic slightly exposed to English, they showed significant development in both fluency and comprehensibility. On the contrary, over 2 years, the performance of Mandarin speakers did not change, although oral proficiency of both groups started at the same level.

Derwing & Munro (2009) did an investigation on comprehensibility as a factor in listener interaction preferences: Implications for the workplace. Canadianborn employees were the target listeners to rate preferred 40 L2 accented voices. 16 native speakers of English were asked to select a preferred voice from both Mandarin and Slavic language accented-speech. The voice samples were varied in comprehensibility. It showed that comprehensibility is as important in their selection as fluency. Preferences of learners were influenced by different comprehensibility showed in the scale of one point to a nine-point comprehensibility rating scale. After that, other 14 native English speakers selected preferred speech samples to rate the degree of accent. It revealed that this group seemed to prefer less accented rather than accented speakers. However, it was found that when the two groups' preferences were compared, accentedness itself was less important than comprehensibility. The researchers discussed these findings to LINC (Language Instruction to Newcomers in Canada), other ESL programming, and English in the workplace. They suggested to set campaign about how to improve English speech of

the new comers or Canadian immigrants to be less accentedness and do further research after this campaign again.

A more recent study by Pongprairat (2011) explored the production of English intonation by Thai learners and the perception of native speakers. In her study, she also mentioned studies on the field of non-native production of L2 speech; for example, L2 proficiency and pausing patterns by Riazantseva (2001), Kormos & Denes (2004) and Tavakoli (2011). She said that research on rhythm and intonation was more advantageous in helping learners to enhance their speech comprehensibility. However, the correlation of the production of English intonation patterns and the listeners' perception has still been paid little attention. That is why she aimed to examine the productions of intonation patterns and the perceptions of native speakers in her study.

In the production study, 30 Thai students with two different interlanguage stages: high and low English language experiences were the samples selected from English language experience questionnaire for speech production – intonation patterns in terms of tonality, tonicity and tune in three reading aloud tasks: reading passage for tonality, dialogue passage for tonicity, and spontaneous speech for tune. These tasks were used as the research instruments to collect data.

Followed by the perception study, native speakers of English were the judges for the comprehensibility study. They were asked to rate the comprehensibility scores with the 5-point comprehensibility likert scales (1 = very difficult to understand, 2 = difficult to understand, 3 = neutral, 4 = easy to understand and 5= very easy to understand) towards the speech recordings.

From her study, the overall findings showed that Thai learners with low English language experience had more errors in English intonation than the high group. In terms of comprehensibility, high group got higher scores from native speakers of English judgments.

As reviewed, it can be seen that the research contributed to both the production of speakers and the perception of listeners has still not much been explored. Moreover, as previously mentioned, rhythm is more beneficial to improve speakers' speech comprehensibility especially non-native speakers of English because different students are at different interlanguage stages: which stages they are in learning the target language, what rhythmical problems they have, how much they are exposed to English, as well as how much they have experience using it.

Therefore, this research aimed to study both the production of English rhythmical patterns performed by Thai students with two different interlanguage stages: high and low English language experiences and the comprehensibility ratings judged by L1 English and L1 Thai English teachers using comprehensibility 5 likert-scales adapted from Derwing and Munro's studies and also recent research in Thai learners by Pongprairat (2011). It is hoped that after knowing deeply on students' problems, this research will be used in helping learners to have natural flow of English speech and communicate comprehensibly in the context, as well as it may be used as a pronunciation teaching guideline for pedagogical purposes in the classroom.

CHAPTER III: RESEARCH METHODOLOGY

In this chapter, the research methodologies of the two main studies: Production Study and Perception Study will be described.

3.1 Production Study

3.1.1 Samples

The technique used in identifying the sample groups in this study was a ‘stratified random sampling’. The participants of this study were selected from 222 English major students in the School of Liberal Arts of Mae Fah Luang University (97 fourth year and 125 first year students) by the English Language Experience Questionnaire ***(details in 3.1.2.1)*** scores. They were thirty students: fifteen first-year English major students with the lowest English Language Experience scores, considered as the Low English Experience Group (EFL-Low) and fifteen fourth-year English major students with the highest English Language Experience scores, considered as the High English Experience Group (EFL-High). It could be assumed that this is because the fourth-year students have more experience since they study in English major for 4 years, whereas the first-year students just start learning in English. Thus, the interlanguage stage of two groups: EFL-High and EFL-Low would be markedly different, which indicates very far timeline of developmental stage in English learning of the two groups.

The descriptive statistics of the English language experience scores: min, max, mean and standard deviation (SD) of both sample groups, the EFL-High and the EFL-Low, are shown in Table 3.1.

Table 3.1: English Language Experience scores of the EFL-High and the EFL-Low groups ($n = 30$)

EFL-High or Senior ($n = 15$)	Scores (200)	EFL-Low or Freshmen ($n = 15$)	Scores (200)
EFL-H1	169	EFL-L1	67
EFL-H2	158	EFL-L2	96
EFL-H3	155	EFL-L3	98
EFL-H4	155	EFL-L4	101
EFL-H5	155	EFL-L5	107
EFL-H6	154	EFL-L6	108
EFL-H7	154	EFL-L7	109
EFL-H8	153	EFL-L8	110
EFL-H9	153	EFL-L9	114
EFL-H10	153	EFL-L10	115
EFL-H11	152	EFL-L11	118
EFL-H12	151	EFL-L12	122
EFL-H13	151	EFL-L13	123
EFL-H14	150	EFL-L14	123
EFL-H15	150	EFL-L15	123
Max	169	Min	67
Min	150	Max	123
Mean	154.2	Mean	108.93
SD	4.63	SD	14.69

As shown in Table 3.1, the English language experience scores of the EFL-High learners ranged from 169-150. The average score was 154.2. On the other hand, the EFL-Low learners' scores ranged from 67-123. The mean score was 108.93. In terms of variation, the EFL-Low group ($SD = 14.69$) shows more variations of the experience scores among the low group than the high group ($SD = 4.63$). This indicates that the EFL-Low participants are less homogeneous because of their different language backgrounds. In contrast, the EFL-High participants are more homogeneous, as seen from the remarkable lower value of standard deviation ($SD = 4.63$).

Moreover, for basis of rhythmical pattern comparison, three native speakers of English (NSs) working as an English teacher in the School of Liberal Arts of Mae Fah Luang University served as a control group.

3.1.2 Research Instruments

3.1.2.1 English Language Experience Questionnaire* (Appendix A)

The questionnaire was adapted from CRSLP Questionnaire developed for the use in many research works under the supervision of Luksaneeyanawin in the studies of Sudasna Na Ayudhya (2002), Modehiran (2005), Limsangkass (2009), Pongprairat (2011), Wong-aram (2011), Tarnisarn (2012), and Thaworn (2012). The questionnaire consists of two parts: 1) personal information and 2) English language experiences. For the first part, answers provided the informants' demographic details. The information in this part was not counted in scoring process. Part two was the only part which was scored. In the second part, the learners were asked to answer the questions about their language used at home, other foreign language use (either English or non-English), years of exposure to English, English language proficiency level, and experiences in the use of English and amount of current use in everyday life (**Appendix B**). The purposes of the questionnaire were used to collect information on the learners' English Language Experience and to select the sample groups according to their English language experience scores.

3.1.2.2 Reading Aloud Task (Appendix C)

The reading aloud task was a passage reading. It was used to elicit speech data for the study of English rhythmical patterns. The passage consists of 108 words. It was carefully chosen from the university course workbook provided for the How to Live and Learn on Campus Project of Mae Fah Luang University. The passage was selected because it consists of a combination of different levels of syntactic complexion of the target language, i.e., relative clauses, adverbial connectives and listing of information. Moreover, it had appropriate length and did not have unseen vocabularies.

3.1.2.3 PRAAT Software Program

This program is used for acoustic analysis of the speech data. It is created by Paul Boersma and David Weenink of the University of Amsterdam (<http://www.fon.hum.uva.nl/praat/>). The program is used in this study to record the speech data for the analysis of pause and stress. Acoustic analysis (duration, intensity, and pitch of the speech) is used when auditory analysis is difficult to determine the rhythmical patterns.

3.1.3 Data Collection

There were 2 phases of collecting data as follows:

3.1.3.1 First, the English language experience questionnaires were distributed to the first and fourth year English major students of Mae Fah Luang University to select two groups of students, the high and low

experience group, from the questionnaire scores. Thirty students, selected from 15 students with highest and 15 students with lowest scores, were samples of this study.

3.1.3.2 Then, these students were asked to perform the reading aloud task. Their readings were recorded for data analysis.

3.1.4 Data Analysis

The data analysis was based on Halliday's (1967, 1970) tonality notations to mark theoretical potential tone groups and foot boundaries. Theoretical potential boundaries were marked by using the analysis of pauses (tone group boundaries) and the analysis of stresses (foot boundaries). This can be illustrated as shown below.

//David /Beckham | be/came a /famous /soccer /player | in the /late 19/90s, // and in 200/3 | was the /most recog/nizable /athlete | in the /world. // He was a /popular /player //first in /England | for Man/chester U/nited // and /then | in /Spain | for /Real Mad/rid. // They are /both suc/cessful // and /very /rich /soccer /teams. //Beckham | is a /valuable /player // be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances. //Beckham | was a fan/tastic /leader. // He /led his /country, //England, // in the 200/2 /World /Cup | where they /only /lost to Bra/zil. // His /fans | /also res/pect him // be/cause he is a /very /hard /worker // on the /field | and on the /training /ground. //

Paragraph above shows 29 potential tone groups or pause positions. It consists of 17 clause boundaries, marked by double slash (//) and 12 phrase boundaries (optional but potential pauses), marked by vertical line (|). In terms of foot boundaries, there are 63 potential foot boundaries, marked by slash (/).

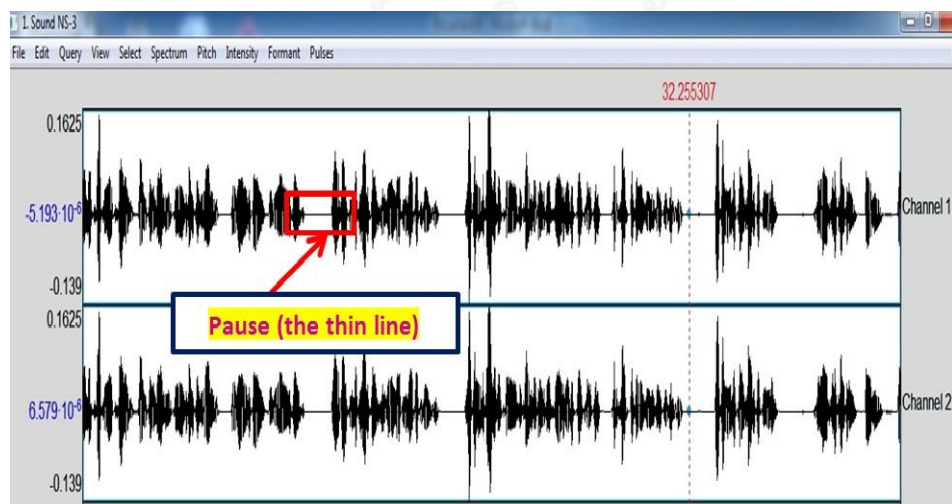
For data analysis, productions of learners were analyzed by both auditory and acoustic methods, using PRATT software program. The procedures are as follows:

First, for the auditory method, the researcher listened to the sound records and marked ‘//’ at the end of tone group boundaries and ‘/’ in front of foot boundaries (rhythmic units) performed by the participants on the sheets.

After the auditory analysis, the acoustic analysis using PRAAT software program is used to confirm the accuracy in the auditory analysis. That is to say, periods of acoustic silence represent the physical realization of pause, and prominence of acoustic correlates of duration, amplitude and pitch patterns represent the physical aspect of stress. To exhibit clearly, it can be seen as follows:

- 1.) Regarding the boundary of tone group, the researcher used the program for finding the pause, as shown in the thin line (without frequency), as illustrated in the following.

Figure 3.1: The boundary of tone group showed as the thin line for the pause ‘//’



2.) For analyzing stress acoustically, it can be detected by PRAAT software program in terms of three features: syllable duration, loudness and pitch (Collins & Mees, 2003). First, an amplitude line indicates loudness of a sound wave, called 'intensity' (dB). That is to say, the higher the amplitude, the louder we perceive the sound. Second, dotted line represents 'pitch' (Hz). Next, length of the wave form represents 'vowel duration' (Sec.). This can be illustrated as shown in examples of each group of speakers: the NS, EFL-High, and EFL-Low in following figures, respectively.

Figure 3.2: The foot boundary '/' of the NS1

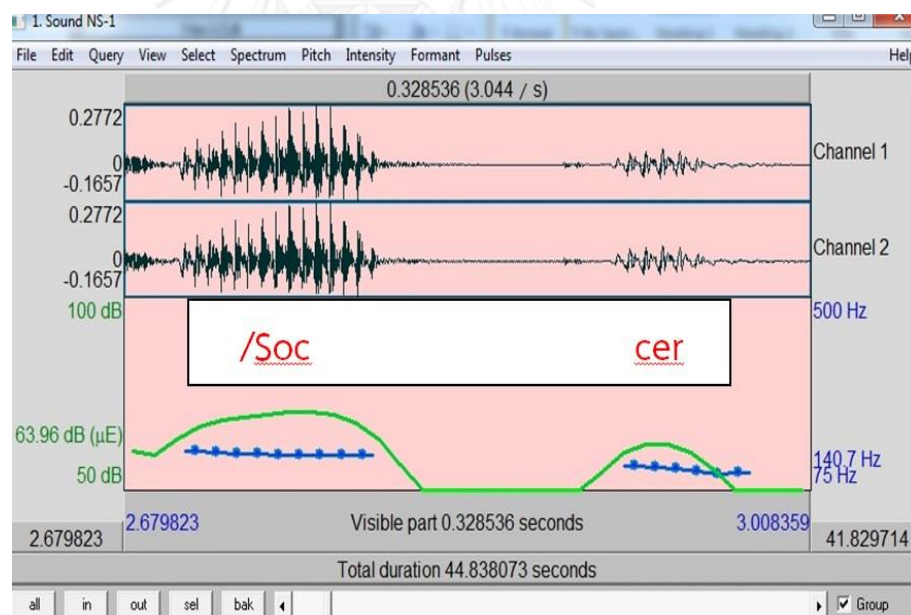


Figure 3.3: The foot boundary '/' of the EFL-H15

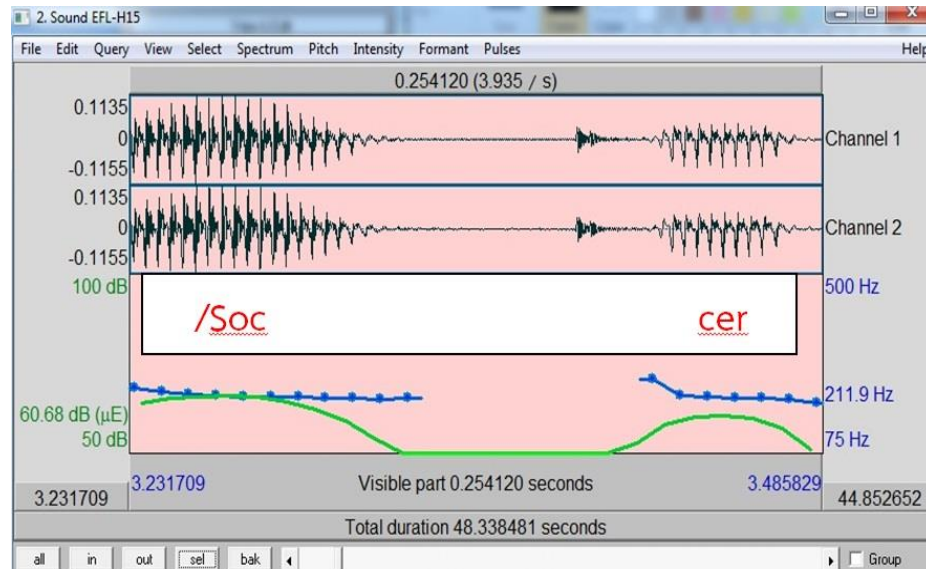
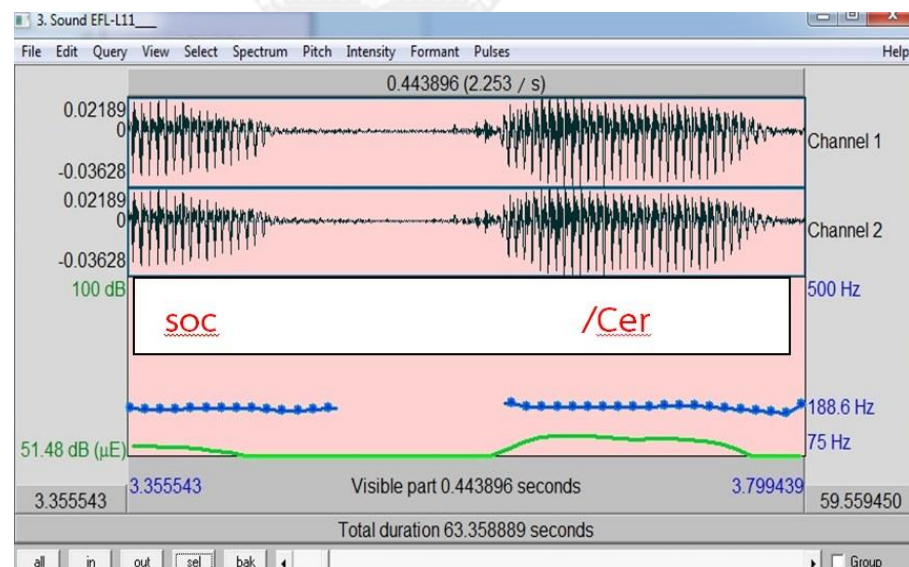


Figure 3.4: The foot boundary '/' of the EFL-L11



From the three figures: 3.2, 3.3 and 3.4, these show how PRAAT software program acoustically analyzes the length of wave form, the pitch, and the intensity of the stressed syllable of the word 'soccer'.

For the foot boundary of the NS1 and EFL-H15, it shows that a higher level of pitch, intensity, and longer wave form are found at the first syllable. This confirms that the first syllable is stressed, as noticed from figure 3.2 and 3.3.

In contrast, figure 3.4 illustrates the opposite finding since a higher level of pitch, intensity, and longer wave form are found at the second syllable. This exhibits that the second syllable is stressed performed by the EFL-L11.

3.2 Perception Study

3.2.1 Samples

Six L1 English and six L1 Thai English teachers from the School of Liberal Arts of Mae Fah Luang University were samples of the perception study. They were asked to judge the productions of the students by rating the comprehensibility scores.

3.2.2 Research Instrument

Comprehensibility 5-point rating scales were used for L1 English and L1 Thai English teachers to judge the productions of the students. The rating scales for comprehensibility are as follows:

- | | | |
|---|---|------------------------------|
| 1 | = | very difficult to understand |
| 2 | = | difficult to understand |
| 3 | = | neutral |
| 4 | = | easy to understand |
| 5 | = | very easy to understand |

3.2.3 Data Collection

3.2.3.1 First, the comprehensibility rating scales were provided for L1 English and L1 Thai English teachers and then the researcher explained how comprehensibility is defined, and how to judge the speech and rate comprehensibility in terms of ability to understand the speech.

3.2.3.2 Next, the L1 English and L1 Thai English teachers listened to 30 speech samples performed by 30 Thai English learners: 15 EFL-High students and 15 EFL-Low students. It took around 30 minutes for the judges to listen to the records and rated the degrees of comprehensibility.

3.2.4 Data Analysis

For analyzing data, descriptive and inferential statistics were used to test the differences between the performances of high group and low group, and the perceptions of L1 English and L1 Thai English teachers. The findings were calculated in terms of percentage, mean, min, max, standard deviation (SD), t-test, and Pearson's correlation (r).

CHAPTER IV: RESEARCH FINDINGS

In this chapter, the findings covering two main studies: the production study and the perception study will be presented respectively.

4.1 Production Study

Regarding research question no.1 and no.2, the English rhythmical patterns performed by 2 groups: EFL-High and EFL-Low along with their English rhythmical problems will be identified.

First, this section will quantitatively and qualitatively report the research findings regarding both tone group boundaries and foot boundaries performed by the three groups: the NS, EFL-High and the EFL-Low, respectively.

Tone group boundaries

Table 4.1.1: Comparison of number of tone groups in the NS, EFL-High and EFL-Low

No. of tone groups	Groups		
	NS (n = 3)	EFL-High (n = 15)	EFL-Low (n = 15)
Min	13	15	22
Max	16	23	55
Mean	14.67	19.4	31.27
SD.	1.53	3.02	8.57

From Table 4.1.1, the NS group assigned a mean of 14.67 tone groups in the readings of a 108-word English short passage. For the EFL-High group, the passage

was divided into an average of 19.4 tone groups. The EFL-High's production ($\bar{x} = 19.4$) is closer to that of the NS group which has an average of 14.67 tone groups. On the other hand, the EFL-Low group produced 31.27 tone groups on average. It can be seen that the EFL-Low group's information chunking ($\bar{x} = 31.27$) was found as twice as many in the production of NS group ($\bar{x} = 14.67$). Moreover, it can be seen that there are more variations of the patterns of tone group division among the EFL-Low participants ($SD = 8.57$) than the EFL-High ($SD = 3.02$) and the NS ($SD = 1.53$). To compare the productions across the 3 groups, one-way ANOVA and Post-Hoc Scheffe's method were employed. Table 4.1.2 shows the statistical value acquired from the analysis in the number of tone groups across the three sample groups.

Table 4.1.2: Comparison of the mean values of number of tone groups across groups

Group	Mean Diff	Std.	Sig.
NS vs. EFL-High	4.73	3.935	.493
NS vs. EFL-Low	16.60*	3.935	.001*
EFL-High vs. EFL-Low	11.87*	2.272	.000*

* $p < .05$ (significant difference)

According to Table 4.1.2, the production of the NS group and the EFL-High group did not differ significantly ($p = .493$). On the contrary, significant differences are found in the number of tone groups between the NS group and the EFL-Low group ($p = .001* < .05$), as well as between the two groups of Thai learners: the EFL-High and the EFL-Low ($p = .000* < .05$).

Regarding the number of words per tone group, it was from the total number of words in the English passage reading (108 words) divided by the number of tone groups performed by each group of informants. The number of words per tone group in the NS, EFL-High and EFL-Low is illustrated in the following.

Table 4.1.3: Comparison of number of words per tone group in the NS, EFL-High and EFL-Low

No. of words per tone group	Groups		
	NS (n = 3)	EFL-High (n = 15)	EFL-Low (n = 15)
Min	6.75	4.7	1.96
Max	8.31	7.2	4.91
Mean	7.42	5.71	3.66
SD.	0.80	0.96	0.83

From the comparison of the number of words per tone group among the three sample groups, it was found that the NS group chunked 7.42 words per tone group on average, whereas the EFL-High and the EFL-Low chunked 5.71 and 3.66 words per tone group on average. It can be seen that number of words per tone group of the EFL-High ($\bar{x} = 5.71$) is more similar to the production of the NS group ($\bar{x} = 7.42$) than that of the EFL-Low ($\bar{x} = 3.66$). This means that the EFL-High group can perform bigger and longer information chunks, whereas the EFL-Low group produced shorter ones. To discuss, since the length of information unit performed by speakers corresponds to the language processing or short term memory in speakers' speech recognition process, this can be interpreted that the EFL-High group has a longer

span of short term memory for processing their speech production in terms of reading than that of the EFL-Low group.

To compare the productions across groups, one-way ANOVA and Post-Hoc Scheffe's method were used to test whether the differences are statistically significant or not. The following table illustrates the statistical values of the differences in the number of words per tone group across groups.

Table 4.1.4: Comparison of the mean values of number of words per tone group across groups

Group	Mean Diff	Std.	Sig.
NS vs. EFL-High	1.71*	.564	.018*
NS vs. EFL-Low	3.76*	.564	.000*
EFL-High vs. EFL-Low	2.05*	.326	.000*

*p < .05 (significant difference)

Table 4.1.4 shows significant difference in the number of words per tone groups between the NS group and the EFL-High ($p = .018^* < .05$), the NS group and the EFL-Low group ($p = .000^* < .05$), and the EFL-High and the EFL-Low ($p = .000^* < .05$). This can be interpreted that significant difference can be found in the production of chunking tone groups between groups of native speakers and Thai learners, as well as between groups of Thai learners.

After reporting the quantitative data, the next section will qualitatively present the production of each group: the NS, the EFL-High and the EFL-Low, respectively. The numbers in the parentheses indicate the number of speakers that have similar patterns of pause at each tone group boundaries.

NS-Group (n = 3)

// David Beckham became a famous soccer player in the late 1990s, (3)// and in 2003 (1) | was the most recognizable athlete in the world. (3)// He was a popular player first in England for Manchester United (3) // and then in Spain for Real Madrid. (3)// They are both successful and very rich soccer teams. (3)// Beckham is a valuable player because he can take dangerous free kicks (2)// and pass the ball long distances. (3)// Beckham was a fantastic leader. (3)// He led his country, (3)// England, (3)// in the 2002 World Cup (3) | where they only lost to Brazil. (3)// His fans also respect him (2) // because he is a very hard worker on the field (3) | and on the training ground. (3)//

From the production of the NS group, it can be seen that the tone group boundaries performed by NSs are as theoretically predicted. 16 tone group boundaries which are: 13 clause boundaries and 3 phrase boundaries were found as predicted in the potential tone group boundaries. Uniformity among the 3 NSs existed at 13 tone group boundaries, as investigated mostly at clause boundaries. However, it is interesting to note that apart from the syntactic aspect, there are also variations of tone groups (SD = 1.53) regarded as the semantic and pragmatic-oriented performed by the NS group. These variations were found at phrase boundaries as follows:

- 1.) ...// and in 2003 (1) | was the most recognizable athlete in the world. (3)//

One of them intentionally assigned additional tone group boundary after the adverbial phrase “*and in 2003*” for giving an emphatic function on the adverb of time through this pause pattern.

2.) // His fans also respect him (2)// because he is a very hard worker on the field (3) | and on the training ground. (3)//

Abercrombie (1968) and Luksaneeyanawin (1988) claimed that: when the speakers are approaching to the end of the readings or speaking, it seems the speakers would pause more to signal an end to an utterance. It can be seen that all NSs paused at “*on the field*” to signal that it comes to an end of an utterance in their production (a terminal function).

EFL-High Group (n = 15)

// David Beckham (2) | became a (1) famous soccer player (2) | in the (1) late 1990s, (15)// and in 2003 (8) | was the most (1) recognizable (2) athlete (4) | in the world. (15)// He was a popular player (2)// first (2) in England (2) | for Manchester United (14) // and then (3) | in Spain (3) | for Real Madrid. (15)// They are both (1) successful (1)// and very rich (1) soccer teams. (15)// Beckham (2) | is a valuable (1) player (8)// because (4) he can take (2) dangerous (2) free kicks (14)// and (1) pass the ball (1) long distances. (15)// Beckham was a fantastic leader. (15)// He led his country, (13)// England, (15)// in (1) the (1) 2002 (2) World Cup (15) | where (2) they only (1) lost (2) to (1) Brazil. (15)// His fans (1) | also respect (1) him (8)// because (1) he is a very hard worker (10)// on the field (9) | and (1) on the training ground. (15)//

In the EFL-High group, it can be seen that 100% of participants do not have problems in chunking tone groups at theoretical predicted sentence boundaries. The uniformity among the EFL-High group can be found at 10 tone groups which are: 9 clause boundaries and 1 phrase boundary. From the data, it can be seen that most of them do not have problems in dividing their readings into small syntactic units which

are at the end of sentences, clauses and phrases since their tone group chunkings are mostly coincided with the syntactical units. Their readings are quite similar to the NS group. However, it could be observed that minor variations of tone group boundaries (SD = 3.02) still can be found in the EFL-High group. The variations performed by the EFL-High group are misplacement of tone group boundaries found within some phrase boundaries. The examples are as follows:

1.) Within NP

1.1 Between NP and its Determiner: a (1) I* famous soccer player

the (1) I* late 1990s

the (1) I* 2002 World Cup

1.2 Between AdjP or modifiers and NP: the most (1) I* recognizable (2) I* athlete

very rich (1) I* soccer teams

the 2002 (2) I* World Cup

a valuable (1) I* player

dangerous (2) I* free kicks

2.) Within VP

Between Verb and Modifier: lost (2) I* to Brazil

3.) Within PP

Between Preposition and NP: in (1) I* the 2002 World Cup

Actually, the prominent stresses can be found in these productions for emphatic function, but these productions have no semantic or pragmatic saliency to be prominently stressed. The function words are usually prominently stressed due to contrast and are mostly found in conversational speech rather than unmarked read speech.

On the other hand, for the EFL-Low learners, they chunk lots of tone groups ($\bar{x} = 31.27$), which do not coincide to grammatical units or syntactical units, resulting as a fragmented speech. The following paragraph will show tone group boundaries performed by the EFL-Low group.

EFL-Low Group (n = 15)

//David Beckham (6) | became (2) a famous soccer (2) play (1) yer (8) | in the (4) late (7) 1990s, (15)// and in (6) 2003 (11) | was (1) the most (5) recognizable (7) ath (1) lete (7) | in the world. (15)// He was a (2) pop (1) pular (2) player (1)// first (7) in England (9) | for (1) Manchester (1) United (14) // and (1) then (8) | in Spain (5) | for (1) Real Madrid. (15)// They are both (5) successful (4)// and very (1) rich (11) soccer teams. (15)// Beckham (2) | is a (6) valuable (3) player (9)// because (11) he can take (2) dangerous (4) free (2) kicks (14)// and (1) pass (6) the ball (5) long (6) distances. (15)// Beckham (1) | was (1) a (2) fantastic (1) leader. (15)// He (1) led (3) his country, (10)// Eng (1) land, (15)// in (1) the (8) 2002 (6) World Cup (15) | where (3) they (3) on (1) ly (4) lost (10) to Brazil. (15)// His fans (3) | also respect him (8)// because (9) he is a (1) very (1) hard (1) worker (9)// on the (2) field (13) | and (1) on the (1) training ground. (15)//

the 2002 (6) I* World Cup

a very (1) I* hard (1) I* worker

dangerous (4) I* free (2) I* kicks

long (6) I* distances

2.2 Between NP and its Determiner:

the (4) I* late 1990s

a (2) I* popular player

a (6) I* valuable player

a (2) I* fantastic leader

the (8) I* 2002 World Cup

a (1) I* very hard worker

the (2) I* field

the (1) I* training ground

2.3 Within Proper Noun (PN):

Manchester (1) I* United

3.) Within PP

Between Preposition and Noun:

in (6) I* 2003

for (1) I* Manchester United

for (1) I* Real Madrid

in (1) I* the 2002 World Cup

Actually, the prominent stresses can be found in these productions for emphatic function, but these productions have no semantic or pragmatic saliency to be prominently stressed. The function words are usually prominently stressed due to contrast and are mostly found in conversational speech rather than unmarked read speech.

In conclusion, it can be noticed that pause within phrases was the problem found in the production of both groups: the EFL-High and the EFL-Low. However, the low group had more misplacement. Moreover, other interesting finding emerged from the production of the EFL-Low group is pause within words. The total number of problems found in the production of both groups: the EFL-High and EFL-Low can be illustrated in the following table.

Table 4.1.5: Problems of Tone group boundaries found in the EFL-High and EFL-Low's productions

Misplacement of tone group boundaries	EFL-High	EFL-Low
1. Pause within phrases	33	159
2. Separate the syllable within the same word (Pause within words)	0	5
Total errors found ($n = 197$)	33	164
Percentage of problems	16.75%	83.25%

Regarding Table 4.1.5, it can be noticed that the EFL-Low group got higher percentage of problems in chunking tone groups (83.25%) than that of the EFL-High (16.75%). From data, it shows that pause within phrases was found as the biggest

problems in tone groups productions in readings of both EFL-High (33) and EFL-Low group (159). The examples of this type of problem are shown as follows:

➤ Between NP and its Determiner

(1) David Beckham became a famous soccer player in the I* late 1990s.

➤ Between AdjP and Noun

(2) ...in 2003 was the most recognizable I* athlete in the world.

(3) Beckham is a valuable I* player.

In addition, it should be noted that “separate the syllable within the same word or pause within a word” was an other type of problems which could be only investigated in the tone group productions of the EFL-Low group. They are: play I* yer, ath I* lete, pop I* pular, Eng I* land, and on I* ly.

Then, the next part will present quantitative and qualitative data of foot boundaries performed by each group: the NS, EFL-High and EFL-Low, respectively.

Foot boundaries

Table 4.1.6: Comparison of number of feet in the NS, EFL-High and EFL-Low

No. of foot boundaries	Groups		
	NS (n = 3)	EFL-High (n = 15)	EFL-Low (n = 15)
Min	63	64	68
Max	63	78	84
Mean	63	68.6	73.87
SD.	0	4.12	4.10

Regarding number of feet, the NS group divided their read speech into an average of 63 feet uniformly. For the EFL-High group, they performed 68.6 feet on an average which is very closer to the production of the NS group ($\bar{x} = 63$) than that of the EFL-Low group ($\bar{x} = 73.87$).

However, it is interesting to note that the high value of EFL-High's standard deviation (SD = 4.12) is obviously near that of the EFL-Low (SD = 4.10). This may indicate that the productions of foot boundaries in both groups: the EFL-High and the EFL-Low seem to be more varied compared to the NS group.

To compare the productions across groups, one-way ANOVA and Post-Hoc Scheffe's method were used to test whether the differences are statistically significant or not. The following table shows the statistical values of the difference in the number of feet across groups.

Table 4.1.7: Comparison of the mean values of number of feet across groups

Group	Mean Diff	Std.	Sig.
NS vs. EFL-High	5.60	2.512	.100
NS vs. EFL-Low	10.87*	2.512	.001*
EFL-High vs. EFL-Low	5.27*	1.450	.004*

*p < .05 (significant difference)

According to Table 4.1.7, it shows that the production of the NS group and the EFL-High group did not differ significantly since the p value is more than .05 (p = .100). On the contrary, significant difference can be found in the number of feet between the NS group and the EFL-Low group (p = .001* < .05), as well as between both groups of Thai learners: the EFL-High and the EFL-Low (p = .004* < .05).

Then, the next part will qualitatively present productions of foot boundaries in the NS, EFL-High and EFL-Low group respectively, as shown in the followings. The numbers in the parentheses indicate the number of speakers that have a stress at each foot boundary.

NS-Group (n = 3)

⁽³⁾/David ⁽³⁾/Beckham be ⁽³⁾/came a ⁽³⁾/famous ⁽³⁾/soccer ⁽³⁾/player in the ⁽³⁾/late 19⁽³⁾/90s, and in 200⁽³⁾/3 was the ⁽³⁾/most recog⁽³⁾/nizable ⁽³⁾/athlete in the ⁽³⁾/world. He was a ⁽³⁾/popular ⁽³⁾/player ⁽³⁾/first in ⁽³⁾/England for Man ⁽³⁾/chester U⁽³⁾/nited and ⁽³⁾/then in ⁽³⁾/Spain for ⁽³⁾/Real Mad⁽³⁾/rid. They are ⁽³⁾/both suc⁽³⁾/cessful and ⁽³⁾/very ⁽³⁾/rich ⁽³⁾/soccer ⁽³⁾/teams. ⁽³⁾/Beckham is a ⁽³⁾/valuable ⁽³⁾/player be ⁽³⁾/cause he can ⁽³⁾/take ⁽³⁾/dangerous ⁽³⁾/free ⁽³⁾/kicks and ⁽³⁾/pass the ⁽³⁾/ball ⁽³⁾/long ⁽³⁾/distances. ⁽³⁾/Beckham was a fan ⁽³⁾/tastic ⁽³⁾/leader. He ⁽³⁾/led his ⁽³⁾/country, ⁽³⁾/England, in the 200⁽³⁾/2 ⁽³⁾/World ⁽³⁾/Cup where they ⁽³⁾/only ⁽³⁾/lost to Bra⁽³⁾/zil. His ⁽³⁾/fans ⁽³⁾/also res⁽³⁾/pect him be ⁽³⁾/cause he is a ⁽³⁾/very ⁽³⁾/hard ⁽³⁾/worker on the ⁽³⁾/field and on the ⁽³⁾/training ⁽³⁾/ground.

From the NS production, it can be seen that their foot boundaries are all the same as theoretically predicted. It should be noted that NS group's standard deviation is zero (SD = 0). This shows the absolute agreement among the three NSs towards the foot boundaries.

On the contrary, foot boundaries in Thai learners' productions were more varied, as seen from high value of standard deviation in the EFL-High group (SD = 4.12) and the EFL-Low group (SD = 4.10). Their foot boundaries are shown respectively in the followings.

EFL-High group (n = 15)

Da⁽¹⁵⁾/*vid⁽¹¹⁾/Beck⁽⁴⁾/*ham be⁽¹⁵⁾/came⁽¹⁾/*a⁽²⁾/fa⁽¹³⁾/*mous⁽⁹⁾/soc⁽⁶⁾/*cer⁽¹¹⁾
 /pla⁽⁴⁾/*yer⁽¹⁾/*in⁽¹⁾/*the⁽¹⁵⁾/late 19⁽¹⁴⁾/9⁽¹⁾/*0s,⁽⁶⁾/*and⁽⁴⁾/*in 200⁽¹⁵⁾/3⁽¹⁾/*was the⁽¹⁵⁾
 /most recog⁽¹⁵⁾/nizable⁽¹²⁾/ath⁽³⁾/*lete in the⁽¹⁵⁾/world. He⁽¹⁰⁾/*was⁽¹⁾/*a⁽¹⁴⁾
 /popu⁽¹⁾/*lar⁽¹⁴⁾/pla⁽¹⁾/*yer⁽¹⁵⁾/first in⁽¹⁵⁾/England for Man⁽¹⁵⁾/chester U⁽¹⁵⁾/nited and⁽¹⁵⁾
 /then in⁽¹⁵⁾/Spain for⁽¹⁵⁾/Real⁽¹⁵⁾/*Madrid. They are⁽¹⁵⁾/both suc⁽¹⁰⁾/cess⁽⁵⁾/*ful and⁽⁸⁾
 /ve⁽⁷⁾/*ry⁽¹⁵⁾/rich⁽¹²⁾/soc⁽³⁾/*cer⁽¹⁵⁾/teams.⁽¹⁵⁾/Beckham⁽⁴⁾/*is⁽¹⁾/*a⁽⁴⁾/va⁽¹⁾/*lua⁽¹⁰⁾/*ble⁽¹²⁾
 /pla⁽³⁾/*yer be⁽¹⁵⁾/cause he⁽¹⁾/*can⁽¹⁵⁾/take⁽¹¹⁾/dange⁽⁴⁾/*rous⁽¹⁵⁾/free⁽¹⁵⁾/kicks⁽¹⁾
 /*and⁽¹⁵⁾/pass the⁽¹⁵⁾/ball⁽¹⁵⁾/long⁽¹⁵⁾/distances.⁽¹⁴⁾/Beck⁽¹⁾/*ham⁽²⁾/*was⁽²⁾/*a⁽¹⁵⁾
 fan⁽¹⁵⁾/tastic⁽¹⁵⁾/leader. He⁽¹⁵⁾/led⁽²⁾/*his⁽¹³⁾/coun⁽²⁾/*try,⁽¹⁴⁾/Eng⁽¹⁾/*land,⁽²⁾/*in⁽⁶⁾/*the⁽¹⁵⁾
 200⁽¹⁵⁾/2⁽¹⁵⁾/World⁽¹⁵⁾/Cup⁽⁴⁾/*where they⁽¹²⁾/on⁽³⁾/*ly⁽¹⁵⁾/lost⁽¹⁾/*to⁽¹⁾/*Bra⁽¹⁴⁾/zil.⁽³⁾
 /*His⁽¹⁵⁾/fans⁽²⁾/al⁽¹³⁾/*so⁽³⁾/*res⁽¹²⁾/pect⁽⁷⁾/*him be⁽¹⁵⁾/cause he⁽⁸⁾/*is a⁽¹⁰⁾/ve⁽⁵⁾/*ry⁽¹⁵⁾
 /hard⁽¹³⁾/wor⁽²⁾/*ker on the⁽¹⁵⁾/field⁽³⁾/*and⁽¹¹⁾/*on the⁽⁹⁾/train⁽⁶⁾/*ing⁽¹⁵⁾/ground.

EFL-Low group (n = 15)

Da⁽⁴⁾/*vid⁽¹¹⁾/Beck⁽⁷⁾/*ham be⁽¹⁵⁾/came⁽¹⁾/*a⁽³⁾/fa⁽¹²⁾/*mous⁽¹¹⁾/soc⁽⁴⁾/*cer⁽¹²⁾
 /pla⁽³⁾/*yer⁽⁵⁾/*in⁽⁴⁾/*the⁽¹⁵⁾/late 19⁽¹⁵⁾/90s,⁽⁶⁾/*and⁽¹¹⁾/*in 200⁽¹⁵⁾/3⁽⁹⁾/*was the⁽¹⁵⁾
 /most recog⁽¹⁰⁾/ni⁽⁴⁾/*za⁽¹⁾/*ble⁽⁶⁾/ath⁽⁹⁾/*lete⁽³⁾/*in the⁽¹⁵⁾/world. He⁽¹⁵⁾/*was⁽²⁾/*a⁽¹¹⁾
 /popu⁽⁴⁾/*lar⁽¹⁴⁾/pla⁽¹⁾/*yer⁽¹⁵⁾/first in⁽¹⁵⁾/England⁽²⁾/*for Man⁽¹⁴⁾/ches⁽¹⁾/*ter⁽⁸⁾
 U⁽⁸⁾/ni⁽⁷⁾/*ted and⁽¹⁵⁾/then⁽¹⁾/*in⁽¹⁵⁾/Spain⁽¹⁾/*for⁽¹⁵⁾/Real⁽¹⁵⁾/*Madrid.⁽¹⁾/*They⁽¹⁾/*are⁽¹⁵⁾
 /both⁽⁹⁾/*suc⁽³⁾/cess⁽³⁾/*ful⁽¹⁾/*and⁽¹²⁾/ve⁽³⁾/*ry⁽¹⁵⁾/rich⁽¹⁵⁾/soccer⁽¹⁵⁾/teams.⁽¹⁵⁾
 /Beckham⁽⁶⁾/*is⁽⁵⁾/*a⁽⁵⁾/valu⁽⁷⁾/*a⁽³⁾/*ble⁽¹⁵⁾/player be⁽¹⁵⁾/cause he can⁽¹⁵⁾/take⁽¹¹⁾
 /dange⁽⁴⁾/*rous⁽¹⁵⁾/free⁽¹⁵⁾/kicks⁽¹⁾/*and⁽¹⁵⁾/pass the⁽¹⁵⁾/ball⁽¹⁵⁾/long⁽¹⁵⁾/distances.⁽¹⁵⁾
 /Beckham⁽⁴⁾/*was⁽⁵⁾/*a fan⁽¹⁵⁾/tastic⁽¹⁴⁾/lea⁽¹⁾/*der.⁽¹⁾/*He⁽¹⁵⁾/led⁽³⁾/*his⁽¹⁵⁾/country,⁽¹⁴⁾
 /Eng⁽¹⁾/*land,⁽³⁾/*in⁽⁸⁾/*the 200⁽¹⁵⁾/2⁽¹⁵⁾/World⁽¹⁵⁾/Cup⁽¹⁰⁾/*where⁽⁵⁾/*they⁽¹²⁾
 /on⁽³⁾/*ly⁽¹⁵⁾/lost⁽³⁾/*to⁽²⁾/*Bra⁽¹³⁾/zil.⁽⁵⁾/*His⁽¹⁵⁾/fans⁽²⁾/al⁽¹³⁾/*so⁽¹⁵⁾/*respect⁽¹⁾/*him⁽¹⁵⁾
 be⁽¹⁵⁾/cause he⁽¹³⁾/*is a⁽¹²⁾/ve⁽³⁾/*ry⁽¹⁵⁾/hard⁽¹⁴⁾/wor⁽¹⁾/*ker⁽⁵⁾/*on⁽¹⁾/*the⁽¹⁵⁾/field⁽⁵⁾
 /*and⁽¹⁰⁾/*on⁽²⁾/*the⁽¹⁴⁾/train⁽¹⁾/*ing⁽¹⁵⁾/ground.

From the EFL-High and the EFL-Low productions, it can be seen that 100% of participants in both groups: the EFL-High and EFL-Low do not have problems in

pronouncing one-syllable content words since they can stress all those words correctly.

Regarding variations of foot boundaries in both groups, it should be noted that problems in pronouncing polysyllabic words (incorrect accentual patterns or misplacement of stress in polysyllabic words) and also stress on function words were found in the production of both groups: the EFL-High and EFL-Low.

The problems and its total number of problems found in the production of both groups: the EFL-High and EFL-Low are concluded in the following table.

Table 4.1.8: Problems of foot boundaries found in the EFL-High and EFL-Low's productions

Misplacement of accents	EFL-High	EFL-Low
1.Incorrect accentual patterns (Misplacement of stress in polysyllabic words)	133	144
2.Stress placement on function words	83	159
Total errors found ($n = 519$)	216	303
Percentage of problems	41.62%	58.38%

As shown in Table 4.1.8, it can be noticed that the EFL-Low learners got higher percentage of problems towards foot boundaries (58.38%) than that of the EFL-High (41.62%).

Regarding the incorrect accentual patterns or misplacement of stress in polysyllabic words, most of the students would assign stress at the final syllable of

words which are: Da/*vid, Beck/*ham, fa/*mous, soc/*cer, pla/*yer, ath/*lete, popu/*lar, success/*ful, ve/*ry, valua/*ble, dange/*rous, Eng/*land, on/*ly, al/*so, wor/*ker and train/*ing. It is interesting to note that assigning incorrect stress at the first syllable of words was also found as follows: /*Madrid and /*Brazil.

In addition, stress placement on function words is also other problem found in foot boundaries of both groups: EFL-High and EFL-Low. They placed stress at the function words, i.e., /*in, /*was, /*for, /*is, /*a, /*are, /*on.

4.2 Perception Study

Regarding research question no.3 and no.4, the results from the perception part of the study concerning the comprehensibility ratings judged by L1 English and L1 Thai English teachers towards the EFL-High and EFL-Low productions will be presented. Also, the correlations between the problems in the participants' English rhythmical patterns and comprehensibility ratings will be reported.

Firstly, judgments on the degree of comprehensibility rated by the L1 English English teachers (L1EET) and L1 Thai English Teachers (L1TET) towards the productions of the EFL-High and EFL-Low groups are reported, as shown in Table 4.2.1.

Table 4.2.1: The L1EET and the L1TET's judgments on the degree of comprehensibility towards the productions performed by the EFL-High and EFL-Low groups

Group	L1EET (n = 6)				L1TET (n = 6)			
	Min	Max	Mean	SD	Min	Max	Mean	SD
EFL-High	1	5	3.23	0.42	2	5	3.27	0.25
EFL-Low	1	4	2.73	0.13	1	5	2.50	0.18

According to Table 4.2.1, it can be seen that the EFL-High got higher comprehensibility scores from both groups of judges: L1EET ($\bar{x} = 3.23$) and L1TET ($\bar{x} = 3.27$) than that of the EFL-Low. This indicates that the English rhythmical patterns performed by the EFL-High group were easier to be understood than that of the EFL-Low group.

To compare the comprehensibility ratings between L1EET and L1TET groups, t-test was used to analyze the differences. The following table will show significant differences in comprehensibility ratings of two groups: L1EET and L1TET towards the productions of Thai learners.

Table 4.2.2: T-test results for judgments of the L1EET and L1TET

Group	L1EET vs L1TET
	Sig.(2-tailed)
EFL-High ($n = 15$)	.765
EFL-Low ($n = 15$)	.251

* $p < .05$ (significant difference)

According to Table 4.2.2, it shows that the comprehensibility ratings of the EFL-High group judged by the L1EET ($\bar{x} = 3.23$) and the L1TET ($\bar{x} = 3.27$) did not differ significantly since the p value is more than .05 ($p = .765$). Also, the t-test result of the EFL-Low group did not show significant difference since the p value is more than .05 ($p = .251$). Therefore, it seems the comprehensibility ratings from both L1EET and L1TET groups towards the productions of Thai learners: the EFL-High and the EFL-Low is congruent with each other.

Also, the following table will present whether the t-test results for the degree of comprehensibility of the groups of EFL-High and EFL-Low were statistically significant or not, as shown in Table 4.2.3.

Table 4.2.3: T-test results for degree of comprehensibility of the groups of EFL-High and EFL-Low

Group	EFL-High vs EFL-Low
	Sig.(2-tailed)
L1EET ($n = 6$)	.018*
L1TET ($n = 6$)	.002*

* $p < .05$ (significant difference)

From Table 4.2.3, it shows significant differences in the mean scores between the degree of comprehensibility of the groups of EFL-High and EFL-Low rated by the L1EET ($p = .018^* < .05$) and the L1TET ($p = .002^* < .05$). This can be interpreted that significant differences can be found in the degree of comprehensibility of both groups of learners: the EFL-High and EFL-Low according to the variations of their read speech. Thus, it can be concluded that the productions performed by the learners correlated with the degree of comprehensibility judged by the listeners.

Lastly, the Pearson Correlation's (r) between the problems in the participants' English rhythmical patterns and comprehensibility ratings will be presented, as shown in Table 4.2.4.

Table 4.2.4: Pearson correlations (r) between the problems in the participants' English rhythmical patterns and comprehensibility ratings

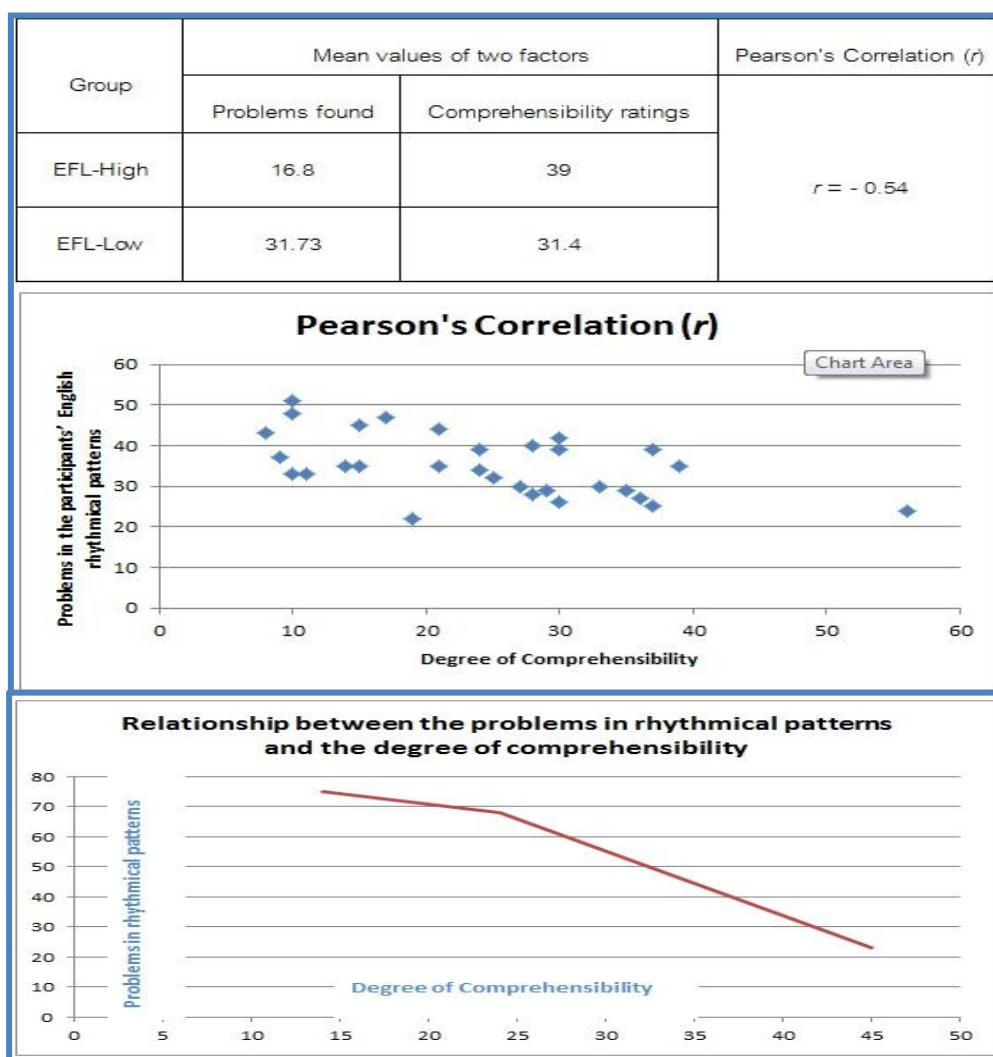


Table 4.2.4 illustrates the Pearson's Correlation analysis. It shows a high negative correlation between the problems in the participants' English rhythmical patterns and comprehensibility ratings ($r = -0.54$). This can be interpreted that if there are more problems found in rhythmical patterns, there will be also the less degree of comprehensibility. That is to say, the listeners will not understand the utterance if speakers made lots of errors in their speech. This will be further discussed in the next chapter.

CHAPTER V: CONCLUSION AND DISCUSSION, PEDAGOGICAL IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

In this chapter, it consists of three main sections as follows:

5.1 Conclusion and Discussion

5.2 Pedagogical Implications

5.3 Recommendations for Further Research

Firstly, overall picture of this study will be briefly reported. It can be seen that this study investigated the production of English rhythmical patterns by Thai learners and the perception of L1 English and L1 Thai English teachers.

In the production study, thirty English major Undergraduate students from the School of Liberal Arts of Mae Fah Luang University were samples of this study. The English Language Experience Questionnaire was used to divide students into two sample groups: high and low English language experience group. The participants were asked to fill out the questionnaire. The High English Language Experience Group (EFL-High) consisted of 15 fourth-year students with highest English language experience scores, and the Low English Language Experience Group (EFL-Low) consisted of 15 first-year students with lowest English language experience scores. The samples were asked to read aloud the English passage. Then, their productions were analyzed and compared to the production of the native speakers (NSs) for comparison purposes by both auditory and acoustic methods, using PRAAT software program.

Regarding the perception study, 6 L1 English and 6 L1 Thai teachers of English were the judges in the study of the comprehensibility towards the readings of the Thai learners with two different interlanguage stages. They were asked to rate the comprehensibility scores with the 5-point comprehensibility likert scales (1 = very difficult to understand, 2 = difficult to understand, 3 = neutral, 4 = easy to understand and 5 = very easy to understand) during listening to the students' performance. The perception study was conducted to see whether or not there were any relationships between the English rhythmical patterns performed by the speakers and the degree of comprehensibility judged by the listeners.

After reporting the overall picture of this study, the next section will cover conclusion and discussion, pedagogical implications, and recommendations for further research, respectively.

5.1 Conclusion and Discussion

In this section, the proposed research questions along with the statements of hypotheses will be discussed and concluded with the findings as follows:

5.1.1 What are the English rhythmical patterns produced by Thai learners?

Hypothesis 1) The English rhythmical patterns produced by Thai learners are varied according to their English language experiences.

As found in the results, number of tone group boundaries (see table 4.1.1), number of words per tone group (see table 4.1.3), and number of feet (see table 4.1.6) in the production of the EFL-High group were closer to those of the NS group than the EFL-Low group. It can be seen that the readings performed by both the NS

and EFL-High group were divided into bigger or longer information chunks and paused less than those of the EFL-Low group. It seems the English rhythmical patterns of the EFL-High group tend to be more native-like than those of the EFL-Low group. In contrast, the EFL-Low group produced shorter information chunks and paused more in their read speech. That is to say, the EFL-Low learners mostly divided or chunked their read speech into lots of tone group boundaries which do not syntactically correspond to meaningful units, resulting as fragmented speech. Linguistically said, since the length of information unit performed by speakers corresponds to the language processing or short term memory in speakers' speech recognition process, this can be interpreted that the EFL-High group has a longer span of short term memory for processing their speech production in terms of reading than that of the EFL-Low group.

To discuss, regarding two groups with different interlanguage stages: the EFL-High and EFL-Low English Language Experience scores, since learners' experience in learning the target language is a cumulative process in individual's knowledge and language uses (Postman, 1971; Luksaneeyanawin and Sudasna Na Ayudhya, 2002; Modehiran, 2005; Limsangkass, 2009; Pongprairat, 2011; Wong-aram, 2011; Tarnisarn, 2012; Thaworn, 2012), their experiences in the target language will also contribute to the interlanguage stage of each learner. This shows that the target language experience of the learners could affect their target language development. Hence, the English language experiences of students are more significant regarding their production of English rhythmical patterns in this study since each learner has different interlanguage stages. With the use of English Language Experience Questionnaire, it can be obviously interpreted that the production of the fourth-year

EFL-High learners represents advanced interlanguage stage of students, which is very far from the first-year EFL-Low learners who represent the very early interlanguage stage. This is because the high group has learned and has been exposed to English for longer time, and also the experiences provided to them as English majors are a lot more than those of the low group who just start learning in English, as seen obviously from Thai learners' English language experience scores and the variations of the English rhythmical patterns in their productions shown in the findings mentioned and discussed above.

5.1.2 What are the problems in English rhythmical patterns of Thai learners with low and high English language experiences?

Hypothesis 2) The problems in English rhythmical patterns of Thai learners are from their misunderstanding in assigning the syntactic boundaries (tone groups or pause-defined units) and the word accentual patterns.

It was found that problems regarding English rhythmical patterns in the readings of the EFL-High and the EFL-Low were found at both tone group boundaries and foot boundaries.

For tone group boundaries, pause within phrases was found in both groups: the EFL-High and EFL-Low, and pause within words was also only found in the EFL-Low production.

Regarding misplacement of tone group boundaries (pause within phrases), the learners chunked the information that did not coincide to grammatical units,

resulting as a fragmented speech. For example, they paused within NP, as shown in the following example.

“...in 2003 was the most I* recognizable I* athlete in the world.”

(Adj.) + (Adj.) + (N.)

In terms of pause within words, the EFL-Low group separated syllable within words which are: play I* yer, ath I* lete, pop I* pular, Eng I* land, and on I* ly.

From the examples, it shows problems in assigning syntactic boundaries.

Regarding foot boundaries, incorrect accentual patterns (misplacement of stress in polysyllabic words) and stress placement on function words were found. From the data, it showed that problems at the foot boundaries or rhythmic units were found as the most problem, as seen from the most errors ($n = 519$) found in the productions of Thai learners. Incorrect accentual patterns (Misplacement of stress in polysyllabic words) were mostly found at final syllable of words: Da/*vid, Beck/*ham, fa/*mous, soc/*cer, pla/*yer, ath/*lete, popu/*lar, success/*ful, ve/*ry, valua/*ble, dange/*rous, Eng/*land, on/*ly, al/*so, wor/*ker and train/*ing. It should be also noted that assigning incorrect stress at the first syllable of words was also found as follows: /*Madrid and /*Brazil. In addition, the stress placements on function words are: /*in, /*was, /*for, /*is, /*a, /*are, /*on and etc.

As noticed from the examples, it should be noted that Thai learners seemed to face with the differences of accentual systems or stress patterns between Thai and English since they mostly placed stress on the final syllable of a word, which is at right-handed. Luksaneeyanawin (1983, 1998, 2005) and Vairojanavong (1984) claimed

that potential stress positions or accentual system of Thai differs from English. It is found that English is a free stress system language, whereas Thai is a fixed stress system language. In English, stress can be mostly placed at any syllable of the word, but mostly at the left-handed position. On the contrary, in Thai, stress is mostly placed at the last syllable of the word or right-handed. This causes the pronunciation problems of Thai English at foot boundary or rhythmic unit (Luksaneeyanawin, 1983, 1998, 2005; Vairojanavong, 1984; Sankhavadhana, 1988; Limsangkass, 2009; Pongprairat, 2011).

As the findings shown and this claim supported above, it indicates interlanguage phenomenon: “L1 transfer” and “Overgeneralization of the target language” in Thai learners’ productions. Thus, this finding is in line with the previous studies done by Luksaneeyanawin (1983, 1998, 2005), Vairojanavong (1984), Sankhavadhana (1988), Limsangkass (2009, 2010), and Pongprairat (2011).

Due to the problems, the listeners might have difficulty to understand the speech and then get confused. Therefore, this shows importance of listeners’ perception towards productions of speakers. Its importance was raised as the following research questions in 5.1.3 and 5.1.4.

5.1.3 What is the degree of comprehensibility in the readings of Thai learners judged by L1 English and L1 Thai English teachers?

Hypothesis 3) The degree of comprehensibility judged by L1 English and L1 Thai English teachers is varied according to the rhythmical patterns.

It is claimed that in terms of comprehensibility, suprasegmental has a great impact on listener judgments because it is used to convey meanings in communication (Derwing & Munro, 2009 and Pongprairat, 2011). Since we have explored the production of speech by speakers but rarely looked at the perception – comprehensibility of listeners after receiving the message, this research question was posed to investigate the perception of listeners to see their understanding of the message.

From the results, it was found that the degree of comprehensibility rated by two groups of judges: L1 English and L1 Thai English teachers is varied according to the rhythmical patterns performed by two groups of students with different interlanguage stages: the EFL-High and EFL-Low group. It can be seen that since the productions of the English rhythmical patterns of the EFL-High learners were closer to those of the native English speakers, both groups of judges: L1 English and L1 Thai English teachers rated higher degrees of comprehensibility towards the variations of EFL-High's English rhythmical patterns production. On the other hand, the variations of the EFL-Low's English rhythmical patterns production were rated less degrees of comprehensibility by the judges. This could be interpreted that the judges understand the readings of the EFL-High group more than those of the EFL-Low, as noticed from judges' higher ratings towards the EFL-High's English rhythmical

patterns. This indicates that the fourth-year EFL-High learners' timeline represents advanced interlanguage stage of students, which is very far from the first-year EFL-Low learners who represents the very early interlanguage stage (Limsangkass, 2009; 2010, Pongprairat, 2011).

Thus, the result of this research question is congruent with the stated hypothesis and previous study done by Pongprairat (2011) that the variations of the English rhythmical patterns performed by the EFL-High and EFL-Low groups influenced the degree of comprehensibility judged by the listeners. It means this answer shows somewhat relationship between the productions of speech by the speakers and the perception or comprehensibility of the listeners that would be investigated more in the last research question, as shown in the following result.

5.1.4 How do the problems found in rhythmical patterns correlate with the degree of comprehensibility?

Hypothesis 4) There will be high correlation between Thai's problems in English rhythmical patterns and the degree of comprehensibility judged by L1 English and L1 Thai English teachers.

It is claimed that the importance of comprehensible pronunciation is for the purpose of successful communication in the target language context (Derwing and Munro, 2001). Moreover, comprehensibility and foreign accent is regarded to specific sounds and its features production: intonation and rhythm (Derwing and Munro, 2008). This shows the relationship of speech production and comprehensibility. However, the correlation of the production of English intonation patterns and the listeners' perception has still been paid little attention (Derwing & Munro, 1997,

1998, 2001, 2008, 2009; Pongprairat, 2011). Thus, this research question was posed to answer this importance whether there will be any relationships between the two aspects: production and perception or not.

From the result, it shows that there was a high negative correlation from Pearson's Correlation ($r = - 0.54$) value towards the relationship between the problems in rhythmical patterns and the degree of comprehensibility. To interpret this statement, it means that if there are more problems found in rhythmical patterns, there will be also the less degree of comprehensibility.

In conclusion, the performance of English rhythmical patterns in passage reading had an impact on the degree of comprehensibility (how it is easy to understand each speech). It means that the listeners will not understand the utterance if the speakers made lots of errors in their speech. This may affect the context of communication, which causes communication breakdown (Crystal, 2003 & Graddol, 2006) since in the central of communication, suprasegmentals play an important role to convey meaning in spoken communication (Kang, Rubin & Pickering, 2010). Undoubtedly, this really shows how important the training of pronunciation is, which will be discussed in the following part.

5.2 Pedagogical Implications

From the problems of the English rhythmical patterns performed by both EFL-High and EFL-Low learners discussed above, both groups had difficulty with the English accentual systems; on the contrary, tone group chunking and stress placement on function words were especially problematic for the EFL-Low group. To

design pronunciation courses and teaching materials, English accentual systems, word stress, and weak forms and strong forms should be emphasized as the first step for classroom lesson. Also, regarding the tone group division, students should be trained to chunk the speech into meaningful units which correspond to syntactic, semantic and pragmatic-oriented features. These trainings will lead to speech accuracy and fluency.

5.3 Recommendations for Further Research

5.3.1 It will be advantageous to further conduct a longitudinal study for investigating progress or development of students in learning the target language at each developmental stage since this research is cross-sectional study aiming to collect data from two groups of subjects at just only one point of time.

5.3.2 Moreover, apart from read speech, it will be also interesting to collect contextualized data from spontaneous speech, i.e., interview and conversational speech regarding style and tempo.

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APPENDICES



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

APPENDIX A: English Language Experience Questionnaire



จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

APPENDIX A: English Language Experience Questionnaire

แบบสอบถามประสบการณ์การใช้ภาษาอังกฤษ

แบบสอบถามฉบับนี้ทำขึ้นเพื่อเป็นข้อมูลในงานวิจัยระดับมหาบัณฑิตของนิสิตคณะ
ภาษาอังกฤษเป็นภาษานานาชาติ บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย ผู้วิจัยขอรับรองว่าข้อมูล
ทั้งหมดจะไม่ถูกเปิดเผย และใช้เพื่อเป็นส่วนหนึ่งของงานวิจัยเท่านั้น

คำชี้แจง

แบบสอบถามฉบับนี้มี 2 ส่วน ได้แก่ 1.) ข้อมูลส่วนตัว และ 2.) ประสบการณ์การใช้
ภาษาอังกฤษที่บ้าน โรงเรียน และตามอัยาศัย กรุณาตอบโดยการทำเครื่องหมาย ✓ ในกรอบ
สี่เหลี่ยมที่ให้มาหรือเขียนคำตอบตามประสบการณ์จริงของท่านในช่องว่าง

ส่วนที่ 1: ข้อมูลส่วนตัว

1. ชื่อ _____ นามสกุล _____ เพศ _____
2. ระดับปริญญาตรีชั้นปีที่ _____ รหัสนักศึกษา _____
3. สำนักวิชา _____ สาขา _____ มหาวิทยาลัย _____
4. หมายเลขโทรศัพท์ (มือถือ) _____ Email _____

ส่วนที่ 2: ประสบการณ์การใช้ภาษาอังกฤษที่บ้าน โรงเรียน และตามอัยาศัย

5. ภาษาที่ท่านใช้พูดในบ้าน (เลือกได้มากกว่า 1 ข้อ)
 - ภาษาไทยกรุงเทพฯ
 - ภาษาไทยถิ่น เช่น ภาษาเหนือ/อีสาน/ใต้/อื่นๆ (โปรดระบุ) _____
 - ภาษาต่างประเทศ (โปรดระบุ) _____
6. ภาษาที่ท่านใช้สื่อสารได้ดีที่สุด นอกจากภาษาไทย คือ
 - 6.1 ด้านการฟัง-พูด ได้แก่ ภาษา 1.) _____ 2.) _____ 3.) _____
 - 6.2 ด้านการอ่าน-เขียน ได้แก่ ภาษา 1.) _____ 2.) _____ 3.) _____
7. ท่านเริ่มเรียนภาษาอังกฤษตั้งแต่เมื่อใด

<input type="checkbox"/> ก่อนเข้าเตรียมอนุบาล (ที่บ้าน)	<input type="checkbox"/> เตรียมอนุบาล	<input type="checkbox"/> อนุบาล
<input type="checkbox"/> ประถมศึกษาตอนต้น (ป.1-ป. 3)	<input type="checkbox"/> ประถมศึกษาตอนปลาย (ป.4 – ป.5)	

8. กรุณาทำเครื่องหมาย ✓ ในช่องที่ตรงกับประสบการณ์จริงของท่าน ในขณะที่เป็นนักเรียน และขณะที่เป็นนักศึกษา โดยเฉลี่ยแล้ว ระดับคะแนนวิชาภาษาอังกฤษ มักอยู่ในระดับใด

ระดับ คะแนน ช่วงเวลา	เกรด 0 (F)	เกรด 1 ถึง 1.5 (D ถึง D+)	เกรด 2 ถึง 2.5 (C ถึง C+)	เกรด 3 ถึง 3.5 (B ถึง B+)	เกรด 4 (A)
ในขณะที่เป็นนักเรียน					
ในขณะที่เป็นนักศึกษา					

9. กรุณาทำเครื่องหมาย ✓ ในช่องที่ตรงกับประสบการณ์จริงของท่านตามระดับความถี่มากน้อยดังนี้

ไม่เคย = 0%, น้อยมาก = 1 – 25%, บางครั้ง = 26 – 50%, บ่อย = 51 – 75%, บ่อยมาก = 76 – 100%

ข้อมูล	ระดับความถี่				
	ไม่เคย	น้อยมาก	บางครั้ง	บ่อย	บ่อยมาก
1. ท่านเคยเรียนวิชาภาษาอังกฤษจากอาจารย์ชาวต่างประเทศที่โรงเรียน หรือ มหาวิทยาลัย บ้างหรือไม่					
2. ท่านเคยเรียนร่วมกับนักเรียนชาวต่างประเทศที่โรงเรียน หรือ มหาวิทยาลัย บ้างหรือไม่					
3. ท่านเคยใช้ห้องปฏิบัติการทางภาษาที่โรงเรียน หรือ มหาวิทยาลัย บ้างหรือไม่					
4. ครุภาษาอังกฤษพูดภาษาอังกฤษกับท่าน บ้างหรือไม่					
5. ท่านเคยรายงานหน้าชั้นเป็นภาษาอังกฤษ บ้างหรือไม่					
6. ท่านเคยเข้าค่ายภาษาอังกฤษ (English camp) บ้างหรือไม่					
7. ท่านเคยอ่านหนังสือพิมพ์ หรือ นิตยสารภาษาอังกฤษ บ้างหรือไม่					
8. ท่านเคยอ่านนวนิยาย หรือ หนังสืออ่านเล่นอื่นๆ ที่เป็นภาษาอังกฤษ บ้างหรือไม่					
9. ท่านเคยอ่านตำราเรียนวิชาอื่นที่ไม่ใช่วิชาภาษาอังกฤษ แต่เขียนด้วยภาษาอังกฤษ บ้างหรือไม่					
10. ท่านเคยอ่านข่าวสารจาก Internet หรือ Homepage ที่ใช้ภาษาอังกฤษ บ้างหรือไม่					
11. ท่านเคยอ่านการ์ตูนภาษาอังกฤษ บ้างหรือไม่					
12. ท่านคุยกับผู้อื่นโดยใช้ Email/Skype/SMS/Twitter Facebook/Instagram เป็นภาษาอังกฤษ บ้างหรือไม่					

ข้อมูล	ระดับความถี่				
	ไม่เคย	น้อยมาก	บางครั้ง	บ่อย	บ่อยมาก
13.ท่านเคยเดินทางไปเรียนภาษาอังกฤษในต่างประเทศ หรือไม่					
14.ท่านเคยเดินทางไปเที่ยวต่างประเทศ และใช้ภาษาอังกฤษในการสื่อสาร บ้างหรือไม่					
15.ท่านเคยร่วมกิจกรรมนอกเวลาที่ใช้ภาษาอังกฤษ เช่น การได้วาที่ อิงลิชคลับ หรือ ตอบปัญหาชิงรางวัล บ้างหรือไม่					
16.ท่านฟังเพลงภาษาอังกฤษ และ ร้องเพลงภาษาอังกฤษ หรือไม่					
17.ท่านเคยดูวิดีโอ หรือ ภาพยนตร์ ซึ่งพากย์ด้วยเสียงภาษาอังกฤษ บ่อยมากน้อยเพียงใด					
18.ท่านเคยดูรายการข่าวภาษาอังกฤษ บ้างหรือไม่					
19.ท่านเคยดูภาพยนตร์ วิดีทัศน์ หรือ สารคดีภาษาอังกฤษ หรือไม่					
20.ท่านเคยดูคอนเสิร์ตของศิลปินที่ร้องเพลงภาษาอังกฤษ หรือไม่					
21.ท่านเคยเล่นเกมต่างๆเกี่ยวกับภาษาอังกฤษ เช่น Scrabble และ Cross words บ้างหรือไม่					
22.ท่านเคยอ่านประกาศ หรือ โฆษณาที่ใช้ภาษาอังกฤษ หรือไม่					
23.ท่านเคยฟังเทปหรือซีดี ที่สอนการฟัง – พูดภาษาอังกฤษ หรือไม่					
24.ท่านเคยสนทนากับชาวต่างประเทศด้วยภาษาอังกฤษ หรือไม่					
25.ท่านเขียนเรียงความ/ย่อความ/สรุปความ หรือ บันทึกประจำวัน เป็นภาษาอังกฤษ บ้างหรือไม่					

ขอขอบคุณสำหรับความร่วมมือ

Resource:

This recent version of questionnaire is adapted from CRSLP Questionnaire developed for the use in many research works under the supervision of Luksaneeyanawin at CRSLP. It has been used for investigating learners' English Language Experience or Exposure in the study of Sudasna Na Ayudhya (2002), Modehiran (2005), Limsangkass (2009), Pongprairat (2011), Wong-aram (2011), Tarnisarn (2012), and Thaworn (2012).

APPENDIX B: Scoring Criteria for English Language
Experience Questionnaire



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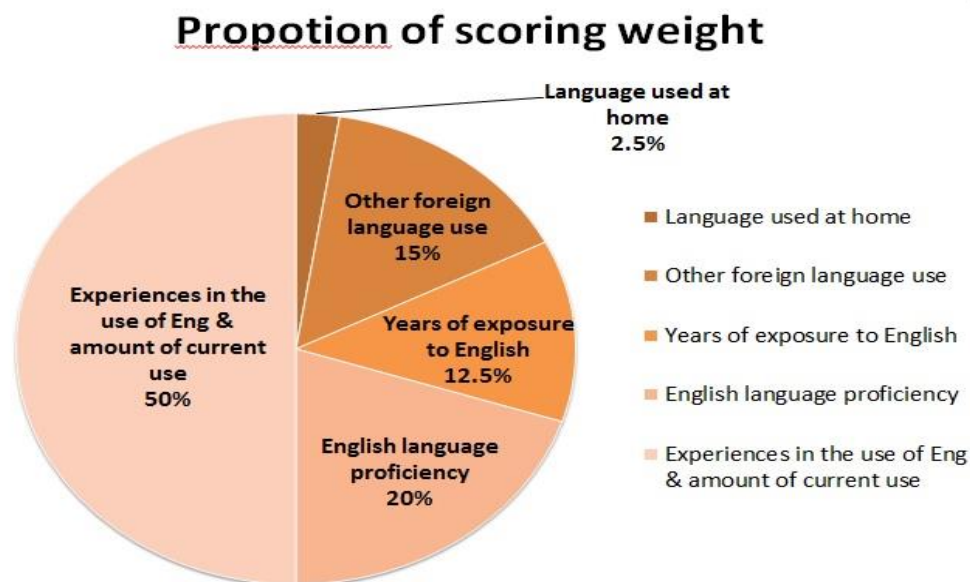
APPENDIX B: Scoring Criteria for English Language Experience Questionnaire

Part 1: Personal Information [No.1-4]

For this part, answers will provide the informants' demographic details. The information in this part will not be counted in scoring process.

Part 2: English Language Experience [No.5-9] (200 marks)

In this part, several types of experience will be marked. The total of maximum score is 200 marks. The scoring weight can be illustrated in the chart below:



1. Language used at home	2.5%	(No.5)
2. Other foreign language use (English or Non-English)	15%	(No.6)
3. Years of exposure to English	12.5%	(No.7)
4. English language proficiency	20%	(No.8)
5. Experiences in the use of English & amount of current use	50%	(No.9)
Total	100%	

The details of scores assigned for each answer are as follows:

5. Language used at home (5 marks)

English = 5 marks

6. Other foreign language use [2 items] (30 marks)

6.1 Listening & Speaking (15 marks)

- scoring from its rank

If English is at the first rank = 15 marks

If English is at the second rank = 10 marks

If English is at the third rank = 5 marks

6.2 Reading & Writing (15 marks)

- scoring from its rank

If English is at the first rank = 15 marks

If English is at the second rank = 10 marks

If English is at the third rank = 5 marks

7. Years of Exposure to English (25 marks)

Before nursery (at home) = 25 marks

Nursery = 20 marks

Kindergarten = 15 marks

Grade 1-3 = 10 marks

Grade 4-5 = 5 marks

8. English language proficiency [2 items] (40 marks)**8.1 Grade from high school (20 marks)**

A = 20 marks

B-B+ = 15 marks

C-C+ = 10 marks

D-D+ = 5 marks

F = 0 mark

8.2 Grade from Undergraduate/Placement Test (20 marks)

A = 20 marks

B-B+ = 15 marks

C-C+ = 10 marks

D-D+ = 5 marks

F = 0 mark

9. Experiences in the use of English & amount of current use [25 items] (100 marks)

Never (0%) = 0 marks

Rarely (1-25%) = 1 mark

Sometimes (26-50%) = 2 marks

Often (51-75%) = 3 marks

Always (76-100%) = 4 marks

Scores are calculated from number of questions multiply by scores from each answer. In this case, total numbers of questions are 25 and maximum scores from each answer are 4. So, total of maximum scores from this part (25x4) will be 100 marks.

APPENDIX C: Reading Aloud Task



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APPENDIX C: Reading Aloud Task

Passage Reading from How to Live and Learn on Campus Handbook

Read the following passage at a normal speed

David Beckham became a famous soccer player in the late 1990s, and in 2003 was the most recognizable athlete in the world. He was a popular player first in England for Manchester United and then in Spain for Real Madrid. They are both successful and very rich soccer teams. Beckham is a valuable player because he can take dangerous free kicks and pass the ball long distances. Beckham was a fantastic leader. He led his country, England, in the 2002 World Cup where they only lost to Brazil. His fans also respect him because he is a very hard worker on the field and on the training ground.

Reference:

School of Liberal Arts, Mae Fah Luang University. (n.d.). How to Live and Learn on Campus Handbook. (n.p.)

APPENDIX D: Data of Productions



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APPENDIX D: Data of Productions

NS-1

//David /Beckham be/came a /famous /soccer /player in the /late 19/90s // and in 200/3 was the /most recog/nizable /athlete in the /world // He was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real Mad/rid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham is a /valuable /player be/cause he can /take /dangerous /free /kicks and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans /also res/pect him be/cause he is a /very /hard /worker on the /field // and on the /training /ground //

NS-2

//David /Beckham be/came a /famous /soccer /player in the /late 19/90s // and in 200/3 was the /most recog/nizable /athlete in the /world // He was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real Mad/rid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham is a /valuable /player be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans /also res/pect him // be/cause he is a /very /hard /worker on the /field // and on the /training /ground //

NS-3

//David /Beckham be/came a /famous /soccer /player in the /late 19/90s // and in 200/3 // was the /most recog/nizable /athlete in the /world // He was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real Mad/rid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham is a /valuable /player be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans /also res/pect him // be/cause he is a /very /hard /worker on the /field // and on the /training /ground //



EFL-H1

// Da/vid Beck/ham be/came a fa/mous soc/cer /player in the /late 19/90s // and in 200/3 was the /most recog/nizable ath/lete in the /world // He was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham is a /valuable /player be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans /also res/pect /him // be/cause he is a ve/ry /hard /worker // on the /field //and on the train/ing /ground //

EFL-H2

// Da/vid Beck/ham be/came a fa/mous soc/cer /player in the /late 19/90s // and in 200/3 /was the /most recog/nizable /athlete in the /world // He was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and ve/ry /rich /soccer /teams //Beckham // is a valua/ble /player be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans al/so res/pect him be/cause he /is a /very /hard /worker on the /field // and on the /training /ground //

EFL-H3

// Da/vid /Beckham // be/came a fa/mous /soccer /player /in the /late 19/90s //and in 200/3 was the /most recog/nizable /athlete in the /world // He was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and ve/ry /rich /soccer /teams //Beckham is a /valuable /player // be/cause he can /take // /dangerous /free /kicks and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country, /England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans al/so res/pect him be/cause he is a /very /hard /worker on the /field // and on the train/ing /ground //

EFL-H4

// Da/vid /Beckham // be/came a fa/mous /soccer /player in the /late 19/90s // and in 200/3 // was the /most recog/nizable //athlete in the /world // He was a /popular /player /first in /England // for Man/chester U/nited // and /then in /Spain // for /Real /Madrid // They are /both // suc/cessful and /very /rich /soccer /teams //Beckham is a valua/ble /player // be/cause he can /take dange/rous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his coun/try // Eng/land // in the 200/2 /World /Cup // where they /only /lost to Bra/zil //His /fans al/so res/pect /him // be/cause he is a /very /hard wor/ker // on the /field and /on the /training /ground //

EFL-H5

// Da/vid Beck/ham be/came a fa/mous soc/cer pla/yer in the /late 19/90s //and /in 200/3 // was the /most recog/nizable /athlete // in the /world // He /was /a popu/lar pla/yer /first in /England for Man/chester Uni/ted // and /then in /Spain // for /Real /Madrid // They are /both success/ful and ve/ry /rich soc/cer /teams //Beckham is /a valua/ble // pla/yer be/cause // he /can /take /dangerous //free /kicks // and /pass the /ball //long /distances // Beck/ham /was a fan/tastic /leader // He /led his /country //England // in /the 200/2 /World /Cup // where they /only /lost //to // Bra/zil //His /fans al/so res/pect /him be/cause he is a ve/ry /hard wor/ker // on the /field and /on the train/ing /ground //

EFL-H6

// Da/vid /Beckham be/came a /famous /soccer /player in the /late 19/90s //and in 200/3 // was the /most recog/nizable /athlete in the /world // He /was a /popular /player //first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham /is a valua/ble /player // be/cause // he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led /his /country //England //in /the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans al/so /respect /him be/cause he /is a /very /hard /worker // on the /field // and /on the /training /ground //

EFL-H7

// Da/vid /Beckham be/came a fa/mous /soccer pla/yer // in the /late 19/90s // and in 200/3 // was the /most recog/nizable /athlete in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid //They are /both suc/cessful and /very /rich /soccer /teams //Beckham /is a valua/ble /player // be/cause // he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 //World /Cup // where they /only /lost to Bra/zil // His /fans //also res/pect him // be/cause he /is a /very /hard /worker // on the /field and on the /training /ground //

EFL-H8

// Da/vid /Beckham be/came a fa/mous /soccer /player // in the /late 19/90s //and /in 200/3 // was the /most recog/nizable /athlete in the /world // He /was a /popular /player //first // in /England for Man/chester U/nited // and /then // in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich soc/cer /teams //Beckham is a valua/ble /player be/cause he can /take /dangerous //free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 //World /Cup // where they /only /lost to /Brazil // His /fans al/so res/pect him be/cause he /is a /very /hard /worker // on the /field // and /on the /training /ground //

EFL-H9

// Da/vid /Beckham be/came a fa/mous /soccer /player in the /late 19/90s // and in 200/3 was the /most recog/nizable /athlete // in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham is a /valuable /player be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup //where // they /only /lost to Bra/zil // His /fans al/so res/pect him // be/cause he is a /very /hard /worker // on the /field // and /on the /training /ground //

EFL-H10

// Da/vid /Beckham be/came a fa/mous /soccer /player in the /late 19/90s // and in 200/3 // was the /most recog/nizable /athlete in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both success/ful and ve/ry /rich /soccer /teams //Beckham is a valua/ble pla/yer be/cause he can /take dange/rous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his coun/try, /England // in /the 200/2 /World /Cup // where they on/ly /lost // to Bra/zil // His /fans al/so res/pect him // be/cause he is a /very /hard /worker on the /field and /on the train/ing /ground //

EFL-H11

// Da/vid Beck/ham be/came /a // fa/mous soc/cer pla/yer in the /late 19/90s // and in 200/3 was the /most recog/nizable /athlete // in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich //soccer /teams //Beckham is a valua/ble /player // be/cause // he can /take /dangerous /free /kicks //and //pass the /ball /long /distances //Beckham was /a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans al/so res/pect //him // be/cause he /is a /very /hard /worker on the /field //and /on the /training /ground //

EFL-H12

// Da/vid /Beckham be/came a fa/mous /soccer /player in /the //late 19/90s //and /in 200/3 was the /most recog/nizable ath/lete // in the /world // He /was a /popular /player /first // in /England for Man/chester U/nited and /then in /Spain for /Real /Madrid // They are /both success/ful and ve/ry /rich /soccer /teams //Beckham /is a /valuable /player // be/cause // he can /take // dange/rous /free /kicks // and /pass the /ball //long /distances //Beckham was /a fan/tastic /leader // He /led /his /country //England //in //the 200/2 /World /Cup //where they /only //lost to Bra/zil //His /fans al/so res/pect /him // be/cause he /is a ve/ry /hard /worker on the /field /and //on the /training /ground //

EFL-H13

// Da/vid /Beckham be/came a fa/mous soc/cer pla/yer in the /late 19/90s // and in 200/3 was the /most recog/nizable //athlete in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then // in /Spain for /Real /Madrid // They are /both success/ful // and ve/ry /rich soc/cer /teams //Beckham /is a valua/ble /player // be/cause he can /take dange/rous /free /kicks // and /pass the /ball /long /distances //Beckham /was a fan/tastic /leader // He /led his /country //England // in /the 200/2 //World /Cup //where // they on/ly /lost to Bra/zil // His /fans al/so res/pect /him // be/cause he /is a ve/ry /hard /worker // on the /field // and /on the train/ing /ground //

EFL-H14

// Da/vid /Beckham be/came a fa/mous soc/cer /player in the /late 19/90s //and /in 200/3 // was the /most recog/nizable /athlete in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then // in /Spain // for /Real /Madrid // They are /both success/ful and ve/ry /rich /soccer /teams //Beckham is a valua/ble pla/yer be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in /the // 200/2 /World /Cup //where they on/ly /lost to Bra/zil // His /fans al/so /respect him be/cause he /is a ve/ry /hard /worker // on the /field and /on the train/ing /ground //

EFL-H15

// Da/vid /Beckham be/came a /famous /soccer /player in the /late 199/0s // and in 200/3 // was the /most // recog/nizable ath/lete in the /world // He was a /popular /player /first in /England // for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich /soccer /teams //Beckham // is a va/luable /player // be/cause he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost to Bra/zil // His /fans al/so /respect him be/cause // he is a /very /hard /worker // on the /field // and /on the /training /ground //



EFL-L1

// Da/vid /Beckham be/came // a fa/mous /soccer /player /in the /late 19/90s // and /in 200/3 was the /most recog/nizable ath/lete //in the /world // He /was a /popular /player /first in /England // for Man/chester Uni/ted // and /then in /Spain for /Real /Madrid // They are /both /successful and /very /rich /soccer /teams //Beckham is /a valua/ble /player be/cause // he can /take /dangerous /free /kicks // and /pass the /ball //long //distances //Beckham was a fan/tastic /leader // He /led his /country //England //in //the // 200/2 /World /Cup //where they /only //lost to Bra/zil // His /fans // al/so /respect him be/cause // he /is a /very //hard /worker // on the /field //and //on the /training /ground //

EFL-L2

// Da/vid Beck/ham be/came a fa/mous soc/cer pla/yer //in the /late 19/90s // and /in 200/3 // was the /most recog/nizable // ath/lete // in the /world // He /was a /popular //player //first in /England //for Man/chester Uni/ted // and /then // in /Spain for /Real /Madrid // They are /both success/ful // and /very /rich //soccer /teams //Beckham is /a // valua/ble /player // be/cause he can /take dange/rous /free /kicks // and /pass the /ball //long /distances //Beckham was /a fan/tastic /leader // He /led // his /country, /England // in /the // 200/2 //World /Cup //where they /only /lost to Bra/zil // His /fans al/so /respect him // be/cause he is a /very /hard wor/ker on the /field //and on the /training /ground //

EFL-L3

//David /Beckham // be/came a fa/mous /soccer /player in the /late 19/90s // and in 200/3 //was the /most recog/nizable // ath/lete // in the /world // He /was a /popular /player /first // in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both //successful // and /very /rich /soccer /teams //Beckham /is a /valuable //player // be/cause // he can /take /dangerous /free /kicks // and /pass // the /ball /long //distances //Beckham was a fan/tastic lea/der // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost // to Bra/zil // His /fans /also /respect him // be/cause // he /is a /very /hard /worker // on the /field // and /on the /training /ground //

EFL-L4

// Da/vid Beck/ham // be/came a fa/mous soc/cer pla/yer // in the /late // 19/90s // and /in 200/3 was the /most recogniza/ble ath/lete in the /world // He /was a popu/lar pla/yer /first // in /England for Man/chester U/nited // and /then // in /Spain // for /Real /Madrid // They are /both suc/cessful and /very /rich //soccer /teams //Beckham is a valua/ble /player be/cause he can /take dange/rous /free /kicks // and /pass the /ball /long /distances //Beckham was a fan/tastic /leader // He /led his /country // Eng/land // in /the // 200/2 //World /Cup // where they on/ly /lost to /Brazil // His /fans al/so /respect him // be/cause he /is a ve/ry /hard /worker on the /field //and on the /training /ground //

EFL-L5

//David /Beckham be/came // a fa/mous /soccer /play//er // in /the //late // 19/90s //and /in // 200/3 /was // the /most // recog/nizable //ath//lete in the /world // He /was /a //popular //player /first // in /England // for Man/chester U/nited // and /then //in /Spain //for //Real /Madrid // They are /both // success/ful and /very /rich //soccer /teams //Beckham //is a //valuable //player // be/cause // he can /take //dangerous /free /kicks // and /pass // the /ball /long //distances //Beckham //was // a fan/tastic //leader //He //led his /country //England // in /the 200/2 //World /Cup //where /they //only /lost // to Bra/zil //His /fans al/so /respect //him // be/cause // he /is a //very /hard /worker // on /the //field //and on /the //training /ground //

EFL-L6

// Da/vid Beck/ham be/came a fa/mous /soccer /player in the /late 19/90s //and /in 200/3 // was the /most recog/nizable ath/lete in the /world // He /was a /popular /player /first in /England // for Man/chester Uni/ted // and /then in /Spain for /Real /Madrid // They are /both /successful and ve/ry /rich //soccer /teams //Beckham is a /valuable /player be/cause // he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham was /a // fan/tastic /leader // He /led his /country //England // in the 200/2 //World /Cup //where /they // on/ly /lost to Bra/zil // His /fans al/so /respect him be/cause // he /is a /very /hard /worker on the /field // and /on the /training /ground //

EFL-L7

// Da/vid /Beckham // be/came /a /famous /soccer /player /in the /late 19/90s // and /in // 200/3 //was the /most // recogni/zable /athlete /in the /world // He /was /a /popular /player /first // in /England // for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both /successful and /very /rich /soccer /teams //Beckham is /a /valuable /player // be/cause // he can /take /dangerous /free /kicks and /pass // the /ball /long //distances //Beckham was /a // fan/tastic /leader // He /led his /country //England // in the 200/2 /World /Cup // where they /only /lost // to Bra/zil // His /fans // al/so /respect him be/cause // he is a /very /hard /worker on the /field and on /the /training /ground //

EFL-L8

//David /Beckham // be/came a /famous /soccer /player //in the /late 19/90s //and in 200/3 // was the /most recog/nizable /athlete in the /world // He /was a /pop//u/lar /player /first // in /England for Man/chester Uni/ted // and /then // in /Spain // for /Real /Madrid // They are /both success/ful // and /very /rich //soccer /teams //Beckham //is a valu/able /player // be/cause // he can /take /dangerous //free //kicks // and /pass the /ball /long //distances //Beckham /was a fan/tastic /leader // He /led his /country //Eng//land // in the 200/2 /World /Cup //where /they /only /lost // to /Brazil //His /fans al/so /respect him // be/cause // he /is a /very /hard /worker //on the /field // and /on the /training /ground //

EFL-L9

// Da/vid Beck/ham be/came a fa/mous soc/cer pla/yer in the /late // 19/90s //and in 200/3 was the /most // recogni/zable /athlete in the /world // He /was a /popular /player /first in /England // for Man/chester U/nited and //then // in /Spain for /Real /Madrid // They are /both //successful and /very //rich //soccer /teams //Beckham is a valu/able /player // be/cause // he can /take /dangerous //free /kicks // and /pass the /ball //long /distances //Beckham was a fan/tastic /leader // He /led his /country, /England // in /the 200/2 /World /Cup //where // they /only /lost // to Bra/zil // His /fans al/so /respect him be/cause // he /is a /very /hard /worker on the /field and /on the /training /ground //

EFL-L10

// Da/vid /Beckham be/came a fa/mous /soccer /player /in the /late // 19/90s // and /in // 200/3 //was the /most // recog/nizable //athlete //in the /world // He /was a //popular /player /first // in /England // for Man/chester U/nited // and /then // in /Spain // for /Real /Madrid // They are /both // suc/cessful /and /very /rich //soccer /teams //Beckham /is /a // valu/able //player be/cause // he can /take //dangerous //free /kicks //and //pass the /ball //long /distances //Beckham was /a fan/tastic /leader // He /led his /country //England // in /the // 200/2 /World /Cup // where they /only //lost to Bra/zil // His /fans // al/so /respect him be/cause he /is a /very /hard /worker //on the /field // and /on the /training /ground //

EFL-L11

// Da/vid Beck/ham be/came a fa/mous soc/cer /player in /the //late // 19/90s //and in 200/3 //was the /most recog/nizable ath/lete in the /world // He /was a popu/lar /player /first in /England for Manches/ter Uni/ted // and /then // in /Spain for /Real /Madrid // They are /both /successful // and ve/ry /rich /soccer /teams //Beckham is a /valuable /player be/cause he can /take /dangerous /free /kicks // and /pass // the /ball /long /distances //Beckham was a fan/tastic /leader // He /led /his /country //England // in /the // 200/2 /World /Cup //where //they //only /lost //to Bra/zil // His /fans al/so /respect him be/cause // he /is a ve/ry /hard //worker // on the /field //and on the /training /ground //

EFL-L12

// Da/vid Beck/ham be/came a fa/mous /soccer /player // in the /late 19/90s //and /in 200/3 //was the /most recogniz/able ath/lete in the /world // He /was a /popular /player /first in /England for Man/chester U/nited // and /then in /Spain for /Real /Madrid // They are /both /successful and ve/ry /rich //soccer /teams //Beckham /is a // valu/able /player // be/cause // he can /take /dangerous /free /kicks // and /pass the /ball /long /distances //Beckham /was a fan/tastic /leader // He /led /his /country //England // in the 200/2 /World /Cup //where /they /only /lost //to Bra/zil // His /fans al/so /respect him be/cause he /is a /very /hard /worker //on the /field // and /on the /training /ground //

EFL-L13

// Da/vid /Beckham // be/came a fa/mous /soccer //player // in the /late // 19/90s // and /in // 200/3 //was the /most recog/nizable // ath/lete // in the /world // He /was a popu/lar /player /first in /England //for // Man/chester U/nited // and /then // in /Spain // for /Real /Madrid // They are /both /successful and /very /rich //soccer /teams //Beckham /is a // valu/able /player // be/cause // he can /take /dangerous /free /kicks // and /pass // the /ball //long /distances //Beckham /was a fan/tastic /leader // He /led //his /country, /England //in the // 200/2 //World /Cup //where they /on//ly /lost // to Bra/zil //His /fans al/so /respect him // be/cause // he /is a ve/ry /hard /worker on the /field // and /on the /training /ground //

EFL-L14

// Da/vid Beck/ham be/came a fa/mous /soccer /player // in /the //late 19/90s // and /in // 200/3 //was the /most recog/nizable //athlete // in the /world // He /was a popu/lar /player /first // in /England for Man/chester Uni/ted // and /then in /Spain for /Real /Madrid // They are /both suc/cessful and /very /rich //soccer /teams //Beckham is /a // valu/able /player // be/cause // he can /take dange/rous /free /kicks // and /pass // the /ball //long /distances //Beckham was /a fan/tastic /leader // He /led his /country, /England // in /the // 200/2 /World /Cup //where // they on/ly //lost //to Bra/zil //His /fans al/so /respect him // be/cause he /is a /very /hard /worker //on the /field // and /on the train/ing /ground //

EFL-L15

//David /Beckham // be/came a /famous /soccer //player // in /the //late // 19/90s //
 and /in // 200/3 //was the /most // recogni/zable //athlete // in the /world // He /was a /popular
 /player /first in /England // for Man/chester // Uni/ted // and /then in /Spain for /Real /Madrid
 //They /are /both //successful and /very /rich //soccer /teams //Beckham is a valu/able /player
 be/cause he can /take dange/rous //free //kicks // and /pass the /ball //long //distances
 //Beckham was a fan/tastic /leader // He /led // his /country, /England //in the // 200/2 //World
 /Cup // where they /only //lost // to Bra/zil //His /fans /also /respect him // be/cause he /is a
 /very /hard /worker //on the //field // and /on the /training /ground //

APPENDIX E: Tone group boundaries



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APPENDIX E: Tone group boundaries

Number of tone groups performed by informants

Informant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NS (n = 3)	13	15	16												
EFL-High (n = 15)	16	15	15	22	23	19	21	21	18	15	22	23	22	18	21
EFL-Low (n = 15)	27	30	30	24	55	22	26	34	26	38	27	22	37	32	39

Values of Minimum, Maximum, Mean and Standard Deviation (SD.) of tone groups performed by each group

Group	Min	Max	Mean	SD.
NS (n = 3)	13	16	14.67	1.53
EFL-High (n = 15)	15	23	19.4	3.02
EFL-Low (n = 15)	22	55	31.27	8.57

Number of words per tone group

Informant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NS (n = 3)	8.31	7.2	6.75												
EFL-High (n = 15)	6.75	7.2	7.2	4.91	4.70	5.68	5.14	5.14	6	7.2	4.91	4.70	4.91	6	5.14
EFL-Low (n = 15)	4	3.6	3.6	4.5	1.96	4.91	4.15	3.18	4.15	2.84	4	4.91	2.92	3.38	2.77

Values of Minimum, Maximum, Mean and Standard Deviation (SD.) of number of words per tone group performed by each group

Group	Min	Max	Mean	SD.
NS (n = 3)	6.75	8.31	7.42	0.80
EFL-High (n = 15)	4.7	7.2	5.71	0.96
EFL-Low (n = 15)	1.96	4.91	3.66	0.83

Potential tone group boundaries performed by NS, EFL-High and EFL-Low group

Potential tone group boundaries	Degree	NS (n = 3)	EFL-High (n = 15)	EFL-Low (n = 15)
1	1	-	2	6
2	1	-	2	8
3	2	3	15	15
4	1	1	8	11
5	1	-	4	7
6	3	3	15	15
7	2	-	2	1
8	1	-	2	9
9	2	3	14	14
10	1	-	3	8
11	1	-	3	5
12	3	3	15	15
13	2	-	1	4
14	3	3	15	15
15	1	-	2	2
16	2	-	8	9
17	2	2	14	14
18	3	3	15	15
19	1	-	-	1
20	3	3	15	15
21	2	3	13	10
22	2	3	15	15
23	1	3	15	15
24	3	3	15	15
25	1	-	1	3
26	2	2	8	8
27	2	-	10	9
28	1	3	9	13
29	3	3	15	15

Non-potential existing tone group boundaries performed by the EFL-High
and the EFL-Low group

No.	Non-potential existing tone group boundaries	EFL-High (n = 15)	EFL-Low (n = 15)
1	became I* a famous soccer player	-	2
2	a I* famous soccer player	1	-
3	a famous soccer I* player	-	2
4	play I* yer	-	1
5	the I* late 1990s	1	4
6	in I* 2003	-	6
7	was I* the most recognizable athlete	-	1
8	the most I* recognizable athlete	1	5
9	the most recognizable I* athlete	2	7
10	ath I* lete	-	1
11	a I* popular player	-	2
12	pop I* pular	-	1
13	a popular I* player	-	2
14	first I* in England	2	7
15	for I* Manchester United	-	1
16	Manchester I* United	-	1
17	and I* then in Spain for Real Madrid	-	1
18	for I* Real Madrid	-	1
19	both I* successful	1	5
20	very I* rich soccer teams	-	1
21	very rich I* soccer teams	1	11
22	a I* valuable player	-	6

23	a valuable I* player	1	3
24	because I* he can take dangerous free kicks	4	11
25	take I* dangerous free kicks	2	2
26	dangerous I* free kicks	2	4
27	free I* kicks	-	2
28	and I* pass the ball long distances	1	1
29	pass I* the ball long distances	-	6
30	the ball I* long distances	1	5
31	long I* distances	-	6
32	was I* a fantastic leader	-	1
33	a I* fantastic leader	-	1
34	a fantastic I* leader	-	1
35	He I* led his country....	-	1
36	led I* his country	-	3
37	Eng I* land	-	1
38	in I* the 2002 World Cup	1	1
39	the I* 2002 World Cup	1	8
40	the 2002 I* World Cup	2	6
41	where I* they only lost to Brazil	2	3
42	where they I* only lost to Brazil	-	3
43	where they only I* lost to Brazil	1	-
44	on I* ly	-	1
45	lost I* to Brazil	2	10
46	to I* Brazil	1	-
47	respect I* him	1	-
48	because I* he is a very hard worker	1	9
49	a I* very hard worker	-	1

50	a very I* hard worker	-	1
51	a very hard I* worker	-	1
52	the I* field	-	2
53	and I* on the training ground	1	1
54	the I* training ground	-	1
Total (n = 197)		33	164
Percentage		16.75%	83.25%



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APPENDIX F: Foot boundaries



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APPENDIX F: Foot boundaries

Number of foot boundaries performed by informants

Informant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NS (n = 3)	63	63	63												
EFL-High (n = 15)	65	65	65	66	75	72	67	68	66	66	71	78	71	70	64
EFL-Low (n = 15)	74	72	68	68	84	71	73	76	69	77	74	76	76	76	74

Values of Minimum, Maximum, Mean and Standard Deviation (SD.) of foot boundaries performed by each group

Group	Min	Max	Mean	SD.
NS (n = 3)	63	63	63	0
EFL-High (n = 15)	64	78	68.6	4.12
EFL-Low (n = 15)	68	84	73.87	4.10

Potential foot boundaries performed by NS, EFL-High and EFL-Low group

No.	Potential foot boundaries	NS (n = 3)	EFL-High (n = 15)	EFL-Low (n = 15)
1	/David	3	0	4
2	/Beckham	3	11	8
3	be/came	3	15	15
4	/famous	3	2	3
5	/soccer	3	9	11
6	/player	3	11	12
7	/late	3	15	15
8	19/90s	3	14	15
9	200/3	3	15	15
10	/most	3	15	15
11	recog/nizable	3	15	10
12	/athlete	3	12	6
13	/world	3	15	15
14	/popular	3	14	11
15	/player	3	14	14
16	/first	3	15	15
17	/England	3	15	15
18	Man/chester	3	15	14
19	U/nited	3	15	8
20	/then	3	15	15
21	/Spain	3	15	15
22	/Real	3	15	15
23	Mad/rid	3	0	0

24	/both	3	15	15
25	suc/cessful	3	10	3
26	/very	3	8	12
27	/rich	3	15	15
28	/soccer	3	12	15
29	/teams	3	15	15
30	/Beckham	3	15	15
31	/valuable	3	4	5
32	/player	3	12	15
33	be/cause	3	15	15
34	/take	3	15	15
35	/dangerous	3	11	11
36	/free	3	15	15
37	/kicks	3	15	15
38	/pass	3	15	15
39	/ball	3	15	15
40	/long	3	15	15
41	/distances	3	15	15
42	/Beckham	3	14	15
43	fan/tastic	3	15	15
44	/leader	3	15	14
45	/led	3	15	15
46	/country	3	13	15
47	/England	3	14	14
48	200/2	3	15	15
49	/World	3	15	15
50	/Cup	3	15	15

51	/only	3	12	12
52	/lost	3	15	15
53	Bra/zil	3	14	2
54	/fans	3	15	15
55	/also	3	2	2
56	res/pect	3	12	0
57	be/cause	3	15	15
58	/very	3	10	12
59	/hard	3	15	15
60	/worker	3	13	14
61	/field	3	15	15
62	/training	3	9	14
63	/ground	3	15	15
	Percentage	100%	58.38%	41.62%

Non-potential existing foot boundaries performed by the EFL-High and
the EFL-Low group

No.	Non-potential foot boundaries	EFL-High (n = 15)	EFL-Low (n = 15)
1	Da/*vid	15	11
2	Beck/*ham	4	7
3	/*a	1	1
4	fa/*mous	13	12
5	soc/*cer	6	4
6	pla/*yer	4	3
7	/*in	1	5
8	/*the	1	4
9	199/*0s	1	0
10	/*and	6	6
11	/*in	4	11
12	/*was	1	9
13	recogni/*zable	0	4
14	recogniza/*ble	0	1
15	ath/*lete	3	9
16	/*in	0	3
17	/*was	10	15
18	/*a	1	2
19	popu/*lar	1	4
20	pla/*yer	1	1
21	/*for	0	2
22	Manches/*ter	0	1
23	Uni/*ted	0	7
24	/*in	0	1
25	/*for	0	1
26	/*Madrid	15	15
27	/*They	0	1
28	/*are	0	1
29	/*successful	0	5
30	success/*ful	5	3

31	/*and	0	1
32	ve/*ry	7	3
33	soc/*cer	3	0
34	/*is	4	6
35	/*a	1	5
36	va/*luable	1	0
37	valu/*able	0	7
38	valua/*ble	10	3
39	pla/*yer	3	0
40	/*can	1	0
41	dange/*rous	4	4
42	/*and	1	1
43	Beck/*ham	1	0
44	/*was	2	4
45	/*a	2	5
46	lea/*der	0	1
47	/*He	0	1
48	/*his	2	3
49	coun/*try	2	0
50	Eng/*land	1	1
51	/*in	2	3
52	/*the	6	8
53	/*where	4	10
54	/*they	0	5
55	on/*ly	3	3
56	/*to	1	3
57	/*Brazil	1	2
58	/*His	3	5
59	a/*so	13	13
60	/*respect	3	15
61	/*him	7	1
62	/*is	8	13
63	ve/*ry	5	3
64	wor/*ker	2	1
65	/*on	0	5

66	/*the	0	1
67	/*and	3	5
68	/*on	11	10
69	/*the	0	2
70	train/*ing	6	1
	Total (n = 519)	216	303
	Percentage	41.62%	58.38%



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APPENDIX G: Comprehensibility Rating Scales



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APPENDIX G: Comprehensibility Rating Scales

Rater's Name: _____

Please listen to each speech performed by each speaker and then rate the degree of comprehensibility scores towards their readings. Your rating scores should be based on the rhythm in their speech: how the speakers chunk the information into smaller units (the meaningful units) and their stress patterns (accentual systems).

For you, how easy is it to understand each speech?

To mark scores, please tick in the box of a rating scale on the form of comprehensibility ratings.

1	2	3	4	5
Very difficult to understand <input type="checkbox"/>	Difficult to understand <input type="checkbox"/>	Neutral <input type="checkbox"/>	Easy to understand <input type="checkbox"/>	Very easy to understand <input type="checkbox"/>

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...Now, the recording will start...

(Please turn to the next page for rating scores)

Speaker 1

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 2

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 3

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 4


1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 5

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....


Speaker 6



1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 7



1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 8

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 9

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 10

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 11

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 12

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 13

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 14

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 15

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 16

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 17

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 18

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 19

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 20

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 21

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 22

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 23

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

.....

Speaker 24

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 25

1	2	3	4	5
Very difficult to understand <input type="checkbox"/>	Difficult to understand <input type="checkbox"/>	Neutral <input type="checkbox"/>	Easy to understand <input type="checkbox"/>	Very easy to understand <input type="checkbox"/>


.....

Speaker 26

1	2	3	4	5
Very difficult to understand <input type="checkbox"/>	Difficult to understand <input type="checkbox"/>	Neutral <input type="checkbox"/>	Easy to understand <input type="checkbox"/>	Very easy to understand <input type="checkbox"/>

.....

Speaker 27



1	2	3	4	5
Very difficult to understand <input type="checkbox"/>	Difficult to understand <input type="checkbox"/>	Neutral <input type="checkbox"/>	Easy to understand <input type="checkbox"/>	Very easy to understand <input type="checkbox"/>

.....

Speaker 28

1	2	3	4	5
Very difficult to understand <input type="checkbox"/>	Difficult to understand <input type="checkbox"/>	Neutral <input type="checkbox"/>	Easy to understand <input type="checkbox"/>	Very easy to understand <input type="checkbox"/>

Speaker 29

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Speaker 30

1	2	3	4	5
Very difficult to understand	Difficult to understand	Neutral	Easy to understand	Very easy to understand
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

😊 Thanks for your time. Your help is really appreciated 😊

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APPENDIX H: Comprehensibility Ratings Judged by L1
English English Teachers (L1EET) and L1 Thai English
Teachers (L1TET)



APPENDIX H: Comprehensibility Ratings Judged by L1 English English Teachers (L1EET) and

L1 Thai English Teachers (L1TET)

Ss	L1E1	L1E2	L1E3	L1E4	L1E5	L1E6	Sum	L1T1	L1T2	L1T3	L1T4	L1T5	L1T6	Sum	Total
H1	2	1	4	4	5	1	17	4	4	2	3	3	4	20	37
H2	4	5	4	5	4	2	24	5	3	5	4	5	5	27	51
H3	3	4	4	2	3	1	17	3	2	2	2	3	4	16	33
H4	2	3	3	2	3	2	15	3	2	5	3	3	4	20	35
H5	4	4	3	4	4	3	22	3	2	3	3	3	3	17	39
H6	4	4	3	5	3	3	22	5	5	4	3	2	4	23	45
H7	2	3	3	4	3	2	17	3	2	4	2	2	3	16	33
H8	3	3	3	3	3	3	18	3	2	3	2	3	4	17	35
H9	4	3	3	4	4	4	22	5	4	3	2	2	5	21	43
H10	5	4	4	5	4	3	25	4	3	4	4	3	4	22	47
H11	5	3	3	5	4	2	22	4	3	3	3	4	5	22	44
H12	2	2	2	2	3	1	12	3	2	2	2	2	3	14	26
H13	3	3	3	3	3	2	17	3	2	3	2	3	4	17	34
H14	2	2	3	4	4	3	18	4	2	3	2	2	4	17	35
H15	2	3	4	5	5	4	23	5	3	4	5	3	5	25	48
Sum	47	47	49	57	55	36	291	57	41	50	42	43	61	294	585
Mean	3.13	3.13	3.27	3.80	3.67	2.40	19.40	3.80	2.73	3.33	2.80	2.87	4.07	19.60	39
Min	2	1	2	2	3	1	12	3	2	2	2	2	3	14	26
Max	5	5	4	5	5	4	25	5	5	5	5	5	5	27	51
SD	1.13	0.99	0.59	1.15	0.72	0.99	3.72	0.86	0.96	0.98	0.94	0.83	0.70	3.72	6.99
L1	2	2	3	2	3	2	14	3	2	2	2	2	3	14	28
L2	4	2	3	4	4	3	20	3	2	3	3	3	5	19	39
L3	1	2	2	2	3	2	12	2	1	1	1	2	3	10	22
L4	2	2	3	2	3	2	14	3	1	3	2	3	4	16	30
L5	1	2	3	3	3	2	14	1	1	2	1	2	3	10	24
L6	4	4	3	4	4	3	22	3	2	3	3	2	4	17	39
L7	4	2	3	2	3	3	17	3	1	2	2	2	4	15	32
L8	3	2	3	2	3	3	16	2	1	2	2	2	4	13	29
L9	4	3	4	3	4	3	21	4	3	3	3	3	5	21	42
L10	2	2	2	2	3	3	14	2	1	2	1	2	3	11	25
L11	3	3	2	2	3	3	16	3	2	2	2	2	3	14	30
L12	3	2	3	4	4	3	19	4	3	4	3	2	5	21	40
L13	2	2	3	2	3	2	14	3	1	2	2	2	3	13	27
L14	3	2	3	4	3	3	18	3	2	3	2	3	4	17	35
L15	3	1	3	3	3	2	15	3	1	2	2	2	4	14	29
Sum	41	33	43	41	48	40	246	42	24	36	32	34	57	225	471
Mean	2.73	2.20	2.87	2.73	3.20	2.67	16.40	2.80	1.60	2.40	2.13	2.27	3.80	15	31.4
Min	1	1	2	2	3	2	12	1	1	1	1	2	3	10	22
Max	4	4	4	4	4	4	22	4	3	4	3	3	5	21	42
SD	1.03	0.68	0.52	0.88	0.41	0.62	3.00	0.77	0.74	0.74	0.74	0.46	0.77	3.53	6.24

APPENDIX I: Problems found in Thai Learners' productions



APPENDIX I: Problems found in Thai Learners' productions

Speakers	Problems found in the participants' productions		
	Tone group boundaries	Foot boundaries	Total
H1	0	9	9
H2	0	10	10
H3	2	8	10
H4	2	13	15
H5	6	31	37
H6	1	14	15
H7	2	9	11
H8	2	12	14
H9	1	7	8
H10	2	15	17
H11	5	16	21
H12	8	22	30
H13	3	21	24
H14	1	20	21
H15	2	8	10
Mean	2.47	14.33	16.80
L1	8	20	28
L2	7	23	30
L3	9	10	19
L4	4	23	27
L5	31	25	56
L6	6	18	24
L7	9	16	25
L8	9	20	29
L9	13	17	30
L10	17	20	37
L11	9	24	33
L12	4	24	28
L13	13	23	36
L14	14	25	39
L15	17	18	35
Mean	11.33	20.40	31.73

Errors of tone group boundaries performed by informants

Number of errors found in tone group boundaries performed by EFL-High and EFL-Low

Informant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EFL-High (n = 15)	0	0	2	2	6	1	2	2	1	2	5	8	3	1	2
EFL-Low (n = 15)	8	7	9	4	31	6	9	9	13	17	9	4	13	14	17

Values of Minimum, Maximum, Mean and Standard Deviation (SD.) of errors found in tone group boundaries performed by EFL-High and EFL-Low

Group	Min	Max	Mean	SD.
EFL-High (n = 15)	0	8	2.47	2.23
EFL-Low (n = 15)	4	31	11.33	6.82

Errors of foot boundaries performed by informants

Number of errors found in foot boundaries performed by EFL-High and EFL-Low

Informant	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EFL-High (n = 15)	9	10	8	13	31	14	9	12	7	15	16	22	21	20	8
EFL-Low (n = 15)	20	23	10	23	25	18	16	20	17	20	24	24	23	25	18

Values of Minimum, Maximum, Mean and Standard Deviation (SD.) of errors found in foot boundaries performed by EFL-High and EFL-Low

Group	Min	Max	Mean	SD.
EFL-High (n = 15)	7	31	14.33	6.73
EFL-Low (n = 15)	10	25	20.40	4.14

APPENDIX J: Pearson Correlations (r) between the
problems in the participants' English rhythmical patterns
and comprehensibility ratings

APPENDIX J: Pearson Correlations (r) between the problems in the participants' English rhythmical patterns and comprehensibility ratings

Ss	Problems	Comprehensibility
H1	9	37
H2	10	51
H3	10	33
H4	15	35
H5	37	39
H6	15	45
H7	11	33
H8	14	35
H9	8	43
H10	17	47
H11	21	44
H12	30	26
H13	24	34
H14	21	35
H15	10	48
L1	28	28
L2	30	39
L3	19	22
L4	27	30
L5	56	24
L6	24	39
L7	25	32
L8	29	29
L9	30	42
L10	37	25
L11	33	30
L12	28	40
L13	36	27
L14	39	35
L15	35	29
Pearson's Correlation	$r =$	-0.54

VITA

Miss Tipparat Eiamworawuttikul was born on 24 December 1988 in Bangkok, Thailand. She graduated with a Bachelor of Arts in English (First Class Honours) from the School of Liberal Arts, Mae Fah Luang University in 2011.

Upon her Bachelor's degree graduation, she has received a scholarship from Mae Fah Luang University to pursue her Master's Degree in English as an International Language Program at Chulalongkorn University since 2011. After her M.A. graduation, she will serve as an English teacher at the School of Liberal Arts, Mae Fah Luang University.





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