



RESEARCH REPORT

การสร้างความตระหนักรู้ในการเปล่งเสียงระดับเสียงซ้อนในภาษาอังกฤษของนักเรียนไทย:
กรณีศึกษานักศึกษาสาขาวิชาภาษาอังกฤษชั้นปีที่หนึ่ง มหาวิทยาลัยธุรกิจบัณฑิตย์

RAISING AWARENESS OF ENGLISH PROSODY AMONG THAI LEARNERS: A CASE OF THAI FIRST-YEAR ENGLISH MAJOR STUDENTS AT DHURAKIJ PUNDIT UNIVERSITY

BY

**SOISITHORN ISARANKURA
DHURAKIJ PUNDIT UNIVERSITY**

**THIS RESEARCH PROJECT WAS GRANTED BY
DHURAKIJ PUNDIT UNIVERSITY
YEAR 2009**



Research Report

การสร้างความรู้ตระหนักรู้ในการเปล่งเสียงระดับเสียงซ้อนในภาษาอังกฤษของนักเรียนไทย
กรณีศึกษานักศึกษาสาขาวิชาภาษาอังกฤษชั้นปีที่หนึ่ง มหาวิทยาลัยธุรกิจบัณฑิตย์

Raising Awareness of English Prosody Among Thai Learners: A Case of Thai First-Year English Major Students at Dhurakij Pundit University

By

**Soisithorn Isarankura
Dhurakij Pundit University**

**This research project was granted by
Dhurakij Pundit University
Year 2009**

Table of Contents

		Page
	Table of Contents	i
	List of Tables	iii
	Abstract	1
1.	Introduction	2
2.	Literature Review	3
2.1	Linguistic Aspects of Prosody	3
2.1.1	Prosody	4
2.1.2	Pitch	4
2.1.3	Stress	4
2.1.4	Rhythm	5
2.1.5	Pausing	6
2.1.6	Intonation	6
2.2	First Language (L1) Transfer	7
2.3	Intelligibility	7
2.4	Research on Prosody	8
3.	Method	10
3.1	Speech Samples	10
3.2	Native Speaker Raters	11
3.3	Research Instrument	11
3.4	Data collection	11
3.5	Rating of Speech Samples	12
3.6	Analysis of Speech Samples	13

4.	Results and Discussion	14
4.1	Word Stress	14
4.2	Discourse Prosodic Features	17
4.3	L1 Transfer	26
4.4	Intelligibility	28
5.	Conclusion	30
6.	Implications of the Study	32
7.	Acknowledgements	33
8.	References	33
	Appendix	37

List of Tables		Page
Table 1	Score Summary of Word Stress by Group	15
Table 2	Individual Students' Scores on Word Stress	16
Table 3	Differences between Pretest (T1) and Posttest (T2) Scores of Word Stress	17
Table 4	Score Summary of Discourse Prosodic Features by Group	18
Table 5	Individual Students' Scores on Discourse Prosodic Features	19
Table 6	Differences between Pretest and Posttest Scores of Discourse Prosodic Features	20
Table 7	Individual Student Score Breakdown of Discourse Prosodic Features	23
Table 8	Score Summary of All Four Prosodic Features by Group	24
Table 9	Differences between Pretest and Posttest of All Prosodic Features	24
Table 10	Score Summary of Students' Performance on All Four Prosodic Features	25
Table 11	Score Summary of L1 Transfer by Group	26
Table 12	Differences between Pretest and Posttest of L1 Transfer	27
Table 13	Individual Students' Performance with Regard to L1 Transfer	28
Table 14	Score Summary of Intelligibility by Group	29
Table 15	Differences between Pretest and Posttest of Intelligibility	29

Raising Awareness of English Prosody among Thai Learners:

A Case of Thai First-Year English Major Students

at Dhurakij Pundit University

Abstract

This paper examined the extent to which the teaching of prosodic features improved the performance of nonnative speaker's (NNS) speech. It also investigated the extent to which the improvements in learners' speech had an impact on the increase in intelligibility and the decrease in the first language (L1) transfer effect in their performance. Thirty Thai students were drawn from a pool of 108 first-year English-major students in an English Phonetics course. Based on scores on three English pronunciation tests conducted earlier in the course, speech data of fifteen students who scored highest and fifteen students who scored lowest were selected and were placed in the High and Low groups. The students recorded their speech of 50 isolated words and an extended text before and after a three-week instruction of English prosodic features (i.e. word stress, sentence stress, rhythm, and intonation). The results revealed that both groups showed statistically significant improvement in their production of English prosody. The high group made most improvement in their performance on pausing, whereas the low group showed the highest degree of improvement in word stress on individual words. The data showed statistically significant increase in intelligibility and significant decrease of L1 transfer effect in the speech of the high-group students as a result of the training, but in the low group these results were not statistically significant. The information gained from the study suggests that although some prosodic features may be more challenging than others, it presents an argument in

support of the possibility of incorporating prosody in EFL classes for intelligible pronunciation.

1. Introduction

Prosody (or suprasegmentals)—i.e. stress, rhythm, pausing, intonation, etc.—plays a crucial role in communication (Morley, 1991; Levis, 1999; Hahn, 2004). Anderson-Hsieh et al. (1992) maintain that prosody has a greater influence on comprehensibility and intelligibility than the other elements of pronunciation—i.e. segmentals such as consonants and vowels. Language educators and researchers (e.g. Nunan, 1999; Greenwood, 2002) contend that prosody should be an essential component in EFL/ESL classrooms as well as English language teacher education because improving pronunciation ability can develop learners' skills to comprehend spoken English (Gilbert, 1993; Ur, 1984; Wong, 1987). A good understanding of English prosody is important for nonnative speakers (NNSs) to clearly interpret native speakers' (NSs) intended messages. Equally, mastery of prosody is essential if nonnative speakers are to make themselves understood (Taylor, 1993). Errors in prosody can lead to misinterpretation of speaker's intention or even serious miscommunication.

Although the important role of prosody in determining perceived comprehensibility and intelligibility has recently been recognized among many scholars (e.g., Munro and Derwin, 1995; Hahn, 2004), prosody has been a neglected feature in English language instruction. A few possible reasons that account for the neglect could be that prosody is too complicated and that it appears to be unteachable

support of the possibility of incorporating prosody in EFL classes for intelligible pronunciation.

1. Introduction

Prosody (or suprasegmentals)—i.e. stress, rhythm, pausing, intonation, etc.—plays a crucial role in communication (Morley, 1991; Levis, 1999; Hahn, 2004). Anderson-Hsieh et al. (1992) maintain that prosody has a greater influence on comprehensibility and intelligibility than the other elements of pronunciation—i.e. segmentals such as consonants and vowels. Language educators and researchers (e.g. Nunan, 1999; Greenwood, 2002) contend that prosody should be an essential component in EFL/ESL classrooms as well as English language teacher education because improving pronunciation ability can develop learners' skills to comprehend spoken English (Gilbert, 1993; Ur, 1984; Wong, 1987). A good understanding of English prosody is important for nonnative speakers (NNSs) to clearly interpret native speakers' (NSs) intended messages. Equally, mastery of prosody is essential if nonnative speakers are to make themselves understood (Taylor, 1993). Errors in prosody can lead to misinterpretation of speaker's intention or even serious miscommunication.

Although the important role of prosody in determining perceived comprehensibility and intelligibility has recently been recognized among many scholars (e.g., Munro and Derwin, 1995; Hahn, 2004), prosody has been a neglected feature in English language instruction. A few possible reasons that account for the neglect could be that prosody is too complicated and that it appears to be unteachable

and thus possibly unlearnable (Taylor, 1993; Thompson, 1995; Silveira, 2002). Moreover, many non-native teachers of English often have negative attitudes toward pronunciation teaching as opposed to other English language skills, and some may lack pronunciation proficiency themselves. It is, therefore, not surprising to find that many EFL classes omit the teaching of prosody. The lack of attention in prosodic features has resulted in limited knowledge about how to integrate appropriate instruction and EFL materials into EFL classrooms.

Apart from being neglected pedagogically, much less empirical research has been conducted on second language (L2) production of prosodic features than on other language skills. This study, therefore, aims (1) to evaluate the effectiveness of explicit teaching of English prosody, and (2) to determine the extent to which explicit teaching of English prosody can improve the intelligibility of the speech of Thai L1 speakers.

2. Literature Review

2.1 Linguistic Aspects of Prosody

Although it is nowadays acknowledged that prosody is a meaningful phonological part of the language that is significant for successful communication, the teaching of prosodic features is still considered by many educators to be notoriously challenging. Prosody, or suprasegmentals, include a number of complicated features, i.e. pitch, stress (lexical stress and sentence stress), rhythm, pausing, and intonation; it thus helps to have some understanding of some of the basic concepts regarding these features. We shall, therefore, look briefly at these first.

2.1.1 Prosody

Prosody, also known as *suprasegmentals*, refers to features that typically extend more than the level of individual sounds like consonants and vowels. English prosodic features mainly include stress, pitch, rhythm, pauses, and intonation. These features are characterized by the prominent quality of pitch, duration, and loudness (Jenkins, 1998; Cross, 2002; Nagamine, 2002).

2.1.2 Pitch

Pitch is determined by the fundamental frequency of the sound made by the vibration of the vocal cords and causes us to hear notes and sounds as relatively 'high' or 'low'.

2.1.3 Stress

Stress functions at both the word level and the sentence level. '*Lexical* (or word)' *stress* refers to the way in which greater prominence in pitch, duration and loudness is placed on a certain syllable than others in a word (Roach, 2000). Different languages have different systems of word stress placement. Some languages, such as English, manifest a free stress system. In other words, stress is movable and can potentially fall on any syllable of polysyllabic words. One needs to know the derivational morphology of words in order to know some rules that govern stress placement in English words. Other languages are characterized by a fixed stress system. Thai, for example, is a kinetic tone language, with a fixed stress position. The primary stress in Thai words almost always falls on the last syllable.

This is why most Thai learners of English have difficulty pronouncing English words with correct stress placement.

At the *sentence* level, not all words in a sentence receive the same amount of stress. In English, *content words* (words that carry information such as nouns, verbs, adjectives and adverbs) are usually stressed, whereas *function words* (words that carry grammatical functions such as articles, prepositions, and auxiliary verbs) are not, unless marked. In connected speech, however, sentence stress in English often introduces new information to the discourse context or marks contrastive information. Thai learners of English often fail to stress new information and de-stress old information. Instead, they tend to stress all words with more or less equal pitch, duration and volume, without one prominent stress to indicate new or contrastive information. This is supported by Wennerstrom's (1994) findings that native speakers of Thai, Japanese and Spanish failed to use pitch movement to signal new or contrastive information in the same manner that native English speakers do.

2.1.4 Rhythm

In English, the combination of word and sentence stress contributes to *rhythm*. The stressed syllables of the content words are aligned regularly into rhythmic beats, which normally occur at regular time intervals. English is thus considered to have a stress-time rhythm. The prosodic problems of Thai speakers of English appear to arise from the stress placement when Thai speakers usually place stress on almost every syllable in English including function words.

2.1.5 Pausing

In English, *pausing* is important in that it marks boundaries of tone groups, which serve to indicate syntactic units. A tone group contains a stressed syllable, usually found on the last prominent word assumed to be ‘new’ information upon which the speaker wishes to draw the hearer’s attention. Thus, pausing is important for effective communication as far as the hearer is concerned.

2.1.6 Intonation

Intonation is the melody of pitch changes of the utterance. It is one of the most significant features in English that guides the listener and helps the listener to follow. Intonation performs a number of important functions in English. For instance, it functions as a signal of grammatical structure and marks sentence, clause and other boundaries. It also conveys contrasts between different question types and the ways in which questions differ from statements. Intonation is used to convey distinctive meanings as well as the speaker’s attitude, emotion, or even social backgrounds.

As Thai is a tone language, intonation in Thai is a complex interplay between tone, word stress and sentence stress. The problems for Thai speakers come from the transfer of Thai prosodic system in terms of constraints of the pitch movement in different types of Thai syllable structures. Most Thai EFL learners often assign the Thai system of intonational contours to English discourse.

2.2 First Language (L1) Transfer

Language transfer is a general term describing the carryover of performance on the first (native) language to subsequent learning of a second or another language (Brown, 2000). Odlin (1989) defines ‘transfer’ as the influence resulting from similarities and differences between the target language and any other language previously acquired. Positive transfer usually occurs as a result of similarities between the two languages, whereby the prior knowledge—i.e. the first language (L1)—benefits the second language (L2) acquisition. Negative transfer occurs when the carryover of L1 disrupts the performance of a second language due to differences between L1 and L2.

In this study, L1 transfer refers to the negative transfer of the Thai sound system into the pronunciation of English as a result of the differences in the prosodic systems between English and Thai.

2.3 Intelligibility

Intelligibility in this study is broadly defined as “the extent to which a speaker’s message is actually understood by a listener” (Munro & Derwing, 1995:76). As a matter of fact, it is difficult to objectively assess intelligibility and there is no universally accepted way of assessing it (ibid). Some researchers measured intelligibility by counting the total number of words that listeners transcribed correctly; others counted percentages of key words recognized. In this study, native speaker raters were asked to rate intelligibility on the basis of their overall impression of the students’ speech, using a 5-point Likert Scale.

2.4 Research on Prosody

Intelligibility has been viewed, for several decades, as a major goal for effective communication. Prosody has come to be recognized among many scholars (e.g. Anderson-Hsieh et al., 1992; Munro & Derwing, 1995) to play an important role in determining perceived comprehensibility or intelligibility of L2 speech. Anderson-Hsieh et al. (1992) reported their study on the relationship between native speaker judgment of L2 pronunciation and actual deviance in segmentals, prosody, and syllable structure, using SPEAK Test tapes of speakers from eleven language groups. The results showed that among all the three elements investigated—segmentals, prosody, and syllable structure—prosody proved to have the strongest effect on the pronunciation ratings.

Macdonald et al. (1994) examined the improvement of English L2 pronunciation among 23 Chinese learners of English. They compared the patterns of change in spontaneous speech before and after four types of pedagogical inputs: (a) traditional drilling activities, (b) interactive activities, (c) self-study with tape recordings, and (d) a no-intervention control condition. It was found that none of the results appeared to favor one technique over another. Although the self-study method may yield greater changes toward target-like pronunciation, these changes were not consistent.

In Munro & Derwing's (1995) study of the interrelationships among accentedness, perceived comprehensibility and intelligibility in the speech of Mandarin speakers of English, their findings indicated that prosody or suprasegmentals have a great influence on the native-speaker (NS) judgment on

intelligibility of L2 speech. They found a correlation between accentedness and perceived comprehensibility among NS listeners; yet, the presence of a strong foreign accent does not, in all cases, result in reduced intelligibility or comprehensibility.

Nagamine (2002) conducted an experimental study on the teachability and learnability of English intonational aspect. He found that although the results indicate some deterioration in perceived comprehensibility by native speakers, the Japanese participants showed dramatic improvement as a result of instructional procedures. The findings also indicate that the improvement in F0 (fundamental frequency) and F0 contour does not always reflect the improvement on comprehensibility perceived by native speakers. However, errors in excessive use of phrase boundaries appeared to be the most influential factors to affect intelligibility in L2 speech.

Evidence has been presented to support the primacy of prosody over segmentals. Research (e.g., de Bot and Mailfert, 1982; Derwing, Munro and Wiebe, 1998; Pennington and Ellis, 2000) has shown that explicit instruction significantly improved learners' performance on prosodic features. The purpose of the present study was twofold:

(1) to evaluate the extent to which explicit training of prosody improved the speech performance of Thai first-year English-major students at Dhurakij Pundit University; and

(2) to investigate the extent to which improvements on prosodic features had an influence on the increase of intelligibility and the decrease of L1 transfer (accentedness) in the students' L2 speech.

Two hypotheses were formulated to correspond to the above two objectives:

(1) Explicit instruction of English prosody will significantly improve the student's speech performance; and

(2) Explicit training of prosody will alleviate the effect of L1 transfer and increase intelligibility in their L2 speech.

3. Method

The method involved selecting speech samples of Thai first-year students, rating the speech samples on four prosodic features—word stress, sentence stress and rhythm, pausing, and intonation, then analyzing the samples through statistical procedures.

3.1 Speech Samples

The speech samples used in the study were taken from the pool of audio-recordings of 108 first-year English major students who were studying in an English Phonetics course at Dhurakij Pundit University. From this original sample, thirty recordings were selected based on the speakers' scores on three previous pronunciation tests conducted earlier in the course. Speech data of fifteen students who scored highest and fifteen students who scored lowest were selected. They were placed in two pronunciation ability groups referred to as the High group and the Low group, respectively. The classification was made in order to examine variability in learners' development in their evolving interlanguage. The ratio of female to male speakers was 2 to 1. These students had minimal or no previous explicit formal instruction in English prosody prior to the study.

3.2 Native Speaker Raters

Three native English speaking teachers (NESTs), all males (one Australian, one American, and one British) participated as native-speaker raters of L2 speech.

3.3 Research Instrument

The instrument used in the study was a test material consisting of two parts. The first part contained 50 individual English words drawn from an extended text. The second part was the full text from which the 50 words listed in Part 1 were drawn. The text was retrieved from <http://www.manythings.org/listen/sleep.html>. A decision was made to use a prepared reading material to ensure that pronunciation—and not fluency or grammar—was being evaluated. The test was used as a pretest (T1) and posttest (T2).

3.4 Data Collection

The students were asked to read aloud and audio-record the two parts of the test in a laboratory without the researcher being present before and after a three-week explicit instruction of English prosodic features. A total of six ninety-minute training sessions of English prosody, in theory and practice, were conducted in the latter half of an English phonetics course to raise the students' awareness and help them understand the effective use of word stress, sentence stress, pausing, rhythm and intonation. Before the actual recording, the participants practiced their readings silently for 5 minutes, then they read the speech material once at normal speaking rate.

3.5 Rating of Speech Samples

The two parts of the test were assessed separately. The first part which contained 50 isolated words was evaluated for the students' performance on word stress by the researcher. Each word that the student pronounced with correct stress placement was given 1 point, whereas words produced with stress placed incorrectly or missing entirely received no point. The correctly stressed words were counted and raw scores were tabulated. The total score for this part was 50.

The second part (i.e. the full text) was rated by three experienced native English speaking teachers (NESTs) in the English Department of Dhurakij Pundit University. Twenty students' pretest (T1) and posttest (T2) speech data were randomly distributed to each rater. Judgments were made based on a 5-point scale (1 = poor, 5 = excellent) for the performance on three prosodic features, referred herein as *Discourse Prosodic Features*: (1) sentence stress and rhythm, (2) pausing, and (3) intonation. As sentence stress and rhythm contribute closely to each other, they were rated as one feature. The total score for the assessment of these three aspects was 15. The main focus of the assessment was to determine whether or not each speech data of the Thai participants was perceived to be better at post-training than at pre-training.

In addition to the discourse prosodic features, the 3 NESTs were also asked to judge the students' performance with regard to first language (L1) transfer and intelligibility on a 5-point scale. For intelligibility, 1 is low and 5 is high. For the effect of L1 transfer, the scale of 1 denotes poor performance due to excessive transfer of L1, resulting in using the L1 sound system in most words in connected speech. The score of 5 represents near-native pronunciation as a result of the

students' success in eliminating the influence of L1 from their speech production. These two categories were analyzed independently to investigate the extent to which students' improvements on prosodic features had an impact on the decrease in L1 transfer and the increase in intelligibility.

Prior to the evaluation, the raters were given an intensive training session, in which they were asked to rate eight speech samples, using headphones in a laboratory. The judgment was based on the scale and the criteria used for data analysis in this study. Each NEST assigned scores on the five above-described aspects to the eight speech data on a separate score sheet. Due to the difficulty in quantifying errors for each prosodic feature that the students had made, the raters' judgments were made on the basis of their overall impression of the students' speech. Scores were compared and disagreements over the judgment were resolved through discussion. Then, each NEST was asked to individually listen to twenty recordings in their own time, and each completed a separate score sheet.

3.6 Analysis of Speech Samples

After the scores were tabulated, quantitative analysis was conducted using the following statistics:

1. frequency distribution
2. mean scores
3. standard deviation
4. t-test

4. Results and Discussion

4.1 Word Stress

The group summary of the highest and lowest scores, the mean values and the standard deviations of the pre-training (T1) and post-training (T2) data on word stress are presented in Table 1.

The broader range of scores and the higher standard deviations in the performance of both T1 and T2 on word stress among the students in the low group indicate that the low-ability students appeared to have a wider within group variation than the high-ability students. The higher mean score difference of 7.40 in the low group as opposed to the mean score difference of 4.53 in the high group suggests that the low-ability students showed a greater degree of improvement in word stress than the high-ability students as a result of the intervention. However, as many of the students in the high group already obtained high scores at pre-training (considering the high mean score of 42.43), one must be cautious about the possibility of a ‘ceiling-effect,’ which means that “the measurement cannot take on a value higher than some limit or ‘ceiling,’ imposed not by the phenomenon being measured, but rather by the finite nature of the measuring instrument” (cited from Wikipedia) used in this study. When the students hit (or nearly hit) the ceiling of a test, it may imply that the test items were insufficiently challenging for the high-ability students to measure their true ability or knowledge.

Table 1: *Score Summary of Word Stress by Group*

Word Stress Test					
Group		Highest Score (50)	Lowest Score (50)	Mean Score	Std. Deviation
High	Pretest (T1)	46	34	42.43	0.975
	Posttest (T2)	50	42	47.07	0.621
	Difference (T2) – (T1)	4	8	4.53	-
Low	Pretest (T1)	40	15	32.6	6.653
	Posttest (T2)	46	23	40	5.819
	Difference (T2) – (T1)	6	8	7.40	-

In order to investigate within group and between group variations in greater depth, Table 2 below shows the students' performance on the pretest and posttest at the individual level.

As Table 2 indicates, only two students in the low group (L04 and L08) scored 40 at T1, whereas the remaining students in the group scored below 40. In the high group, only 3 students scored below 40 at T1, and 8 students scored 45 and above. At T2, two high-ability students pronounced all the 50 words with correct stress placement and obtained the full score of 50, while five students made only one error and scored 49 after the training. This could result in the 'ceiling-effect' experienced among many high-ability students as earlier mentioned. It is important to note that students, particularly those in the low group, who obtained low scores at T1 (e.g. L15, L02, L05, and L14) showed a much greater degree of improvement at T2 than those who already performed well at pre-training. The range of improvement in the high-ability group was between 2 and 8, with the mean value of 4.53, whereas in the low group the range was much wider—i.e. between 2 and 15, with the mean value of 7.40.

Table 2: *Individual Students' Scores on Word Stress*

High Group	Word Stress Test			Low Group	Word Stress Test		
	Pretest (50)	Posttest (50)	Difference		Pretest (50)	Posttest (50)	Difference
H01	45	50	5	L01	15	23	8
H02	42	45	3	L02	29	40	11
H03	46	49	3	L03	34	43	9
H04	45	47	2	L04	40	42	2
H05	46	49	3	L05	29	39	10
H06	37	45	8	L06	33	43	10
H07	45	49	4	L07	34	39	5
H08	38	46	8	L08	40	46	6
H09	43	45	2	L09	37	44	7
H10	34	42	8	L10	39	44	5
H11	45	49	4	L11	30	36	6
H12	45	50	5	L12	39	42	3
H13	46	49	3	L13	34	39	5
H14	41	45	4	L14	25	34	9
H15	40	46	6	L15	31	46	15
Mean (N=15)	42.53	47.07	4.53	Mean (N=15)	32.60	40	7.40

A t-test was used to investigate whether the improvement in the production of word stress (i.e. the difference between T2 and T1) was statistically significant in each sample group. The results revealed, as shown in Table 3, that the improvement was statistically significant in both groups at the .05 level.

Table 3: *Differences between Pretest (T1) and Posttest (T2) Scores of Word Stress*

Word Stress Test			
Group	Mean Difference	t	Sig. (2-tailed)
High	4.53*	8.361	.000
Low	7.40*	8.488	.000

*The mean difference is significant at the .05 level

4.2 Discourse Prosodic Features

As mentioned in Section 3.5, the discourse prosodic features, namely, sentence stress and rhythm, pauses, and intonation, were rated by 3 NESTs using a 5-point scale for each feature. Thus, the total score for the analysis of this part was 15.

Table 4 shows the score summary of the discourse prosodic features performed at T1 and T2 by group. There was a comparatively broader range of score performed by the high group at both T1 (score ranging from 4 to 12, with the mean value of 8.33) and T2 (score ranging from 6 to 14, with the mean value of 9.93). Also, the standard deviation, as presented in the last column, is relatively higher in the high group than in the low group. This indicates a wider within group variation among the high-ability students in their performance in connected speech. In contrast to word stress, the mean difference between T2 and T1 in the high group, as shown in the column headed Mean Score, was higher than that in the low group (i.e. 1.6 and 1 respectively). This suggests that the average improvement in the students' performance in connected speech was greater in the high group than in the low group. It should be noted that the overall improvement in the performance of the low group

on discourse prosodic features was lower than their improvement in the pronunciation of word stress. The lower scores in the production of connected speech than in individual words could indicate that sentence stress, rhythm and intonation at the discourse level are more challenging for low-ability students than word stress at the level of isolated words. This is in line with Benrabah's (1997) report that word stress seems to be the most accessible feature of all prosodic aspects. He suggested that word stress should therefore receive a high priority and serve as a starting point in pronunciation teaching.

Table 4: *Score Summary of Discourse Prosodic Features by Group*

Discourse Prosodic Features					
Group		Highest Score (15)	Lowest Score (15)	Mean Score	Std. Deviation
High	Pretest (T1)	12	4	8.33	2.769
	Posttest(T2)	14	6	9.93	2.314
	Difference (T2) – (T1)	2	2	1.6	-
Low	Pretest (T1)	9	3	5.53	2.167
	Posttest (T2)	10	3	6.53	1.922
	Difference (T2) – (T1)	1	0	1	-

To illustrate the improvement in the discourse prosodic features at the individual level, Table 5 below presents scores at T1 and T2 and the score differences at pre- and post-training performed by each student in both groups.

As Table 5 indicates, almost all the high-ability students showed some improvement in their pronunciation in connected speech. Only 2 students in the high group (H11 and H12) showed no measurable improvement. In the low group, 9

students performed better at T2 than at T1, whereas there was no improvement at T2 in 4 students (i.e. L09, L10, L14, and L15). Two low-ability students (i.e. L06 and L07) even deteriorated at post-training. Overall, there was a mean difference of 1.6 and 1 in the high group and low group respectively. This indicates a positive effect of the explicit training in both groups, resulting in some improvements in the students' production of English prosody.

Table 5: *Individual Students' Scores on Discourse Prosodic Features*

High Group	Discourse Prosodic Features			Low Group	Discourse Prosodic Features		
	Pretest (15)	Posttest (15)	Difference		Pretest (15)	Posttest (15)	Difference
H01	9	10	1	L01	3	6	3
H02	9	11	2	L02	5	6	1
H03	11	12	1	L03	5	6	1
H04	9	10	1	L04	3	6	3
H05	10	11	1	L05	7	9	2
H06	5	7	2	L06	8	7	-1
H07	12	13	1	L07	4	3	-1
H08	4	8	4	L08	5	7	2
H09	9	11	2	L09	7	7	0
H10	5	6	1	L10	7	7	0
H11	11	11	0	L11	3	6	3
H12	10	10	0	L12	5	6	1
H13	4	8	4	L13	9	10	1
H14	11	14	3	L14	3	3	0
H15	6	7	1	L15	9	9	0
Mean (N=15)	8.33	9.93	1.6	Mean (N=15)	5.53	6.53	1

The mean differences between the scores at T2 and T1 in the two groups were tested and the results from the t-test revealed that both groups made significant improvements in the production of the discourse prosodic features at the .05 level, as shown in Table 6.

Table 6: *Differences between Pretest and Posttest Scores of Discourse Prosodic Features*

Discourse Prosodic Features			
Group	Mean Difference	t	Sig. (2-tailed)
High	1.6*	4.989	.000
Low	1.0*	2.842	.013

*The mean difference is significant at the .05 level

Because the evaluation of the students' performance in connected speech is much more complicated than the assessment of the performance on word stress in isolated words, it was decided that they were conducted separately. However, it should be worthwhile to compare the students' scores of their performance on word stress in individual words with their scores of each prosodic feature performed in connected speech.

Table 7 below demonstrates the score breakdown of all four prosodic features investigated in this study, namely, word stress, sentence stress and rhythm, pausing, and intonation. Because the score on word stress was not reported on the same scale as were the other prosodic features rated, it was divided by 10 to equate the scale rated on each of the three discourse prosodic features. As a result, scores on word

stress are in decimals, while scores on the three discourse features are not. The mean value for each feature was then calculated based on the equal score of 5.

As Table 7 indicates, the high-ability students showed the greatest degree of improvement in the production of pausing (i.e. mean difference = 0.74) and the lowest degree of improvement in the production of sentence stress and rhythm (i.e. mean difference = 0.27). This suggests that stress and rhythm in connected speech seemed to be the most difficult feature of English prosody among the high-ability students, whereas pausing could be acquired more easily after the training. At the individual level, more than half of the high-ability students made improvements in pausing, and no students deteriorated in their performance at post-training. In the production of rhythm and intonation, in contrast, the results indicate that one student in the high group (H11) backslid toward non-targetlike pronunciation at T2, as shown in bold.

In the low group, the mean score differences indicate that the improvement was highest in the production of word stress (i.e. mean difference = 0.74) and lowest in the pronunciation of intonation (i.e. mean difference = 0.07). This suggests that the low-ability students found word stress to be the most accessible aspect, while intonation appeared to be the most challenging feature to acquire. The results at the individual level show that 4 students in the low group (L06, L07, L09, and L12) deteriorated at T2 in their performance on intonation (as shown in bold), while the speech data at T2 of 6 students (L02, L03, L10, L13, L14, and L15) were judged to show no improvement from their T1 speech. This is probably due to the students' lack of discourse comprehensibility, resulting in their difficulty in understanding the effective use of intonation. Sentence stress and rhythm seemed to be perceived by the

low-ability students as the second most difficult feature. It appears that students in the low group had difficulty putting sentence stress on proper content words, which constitutes proper stress-timed rhythmic patterns. This probably results from their insufficient knowledge of word classes in English. The students' inability to distinguish function words from content words was likely the source of their deviations in the English rhythmic patterns. As displayed in bold in Table 7, two low-ability students (L06 and L10) deteriorated in their performance on sentence stress and rhythm at post-training, while 5 students showed no improvement at T2.

As all students in the low group made some progress on word stress and no students deteriorated in the pronunciation of pausing, these two features appear to be an area of maximum overlap of teachability and communicative important.

To summarize the data in Table 7, the ordering of improvements (from highest to lowest) in the performance on the four prosodic features in the two ability groups is shown as follows:

- High: Pauses > Intonation > Word stress > Sentence stress and rhythm
- Low: Word stress > Pauses > Sentence Stress > Intonation

Table 7: Individual Student Score Breakdown of Discourse Prosodic Features

Group	Student	Word Stress (5)		Sentence Stress and Rhythm (5)		Pausing (5)		Intonation (5)	
		Pretest (T1)	Posttest (T2)	Pretest (T1)	Posttest (T2)	Pretest (T1)	Posttest (T2)	Pretest (T1)	Posttest (T2)
High Group	H01	4.5	5	3	3	3	4	3	3
	H02	4.2	4.5	3	4	3	3	3	4
	H03	4.6	4.9	4	4	3	3	4	5
	H04	4.5	4.7	3	3	3	4	3	3
	H05	4.6	4.9	4	4	3	4	3	3
	H06	3.7	4.5	2	2	1	2	2	3
	H07	4.5	4.9	4	4	4	4	4	5
	H08	3.8	4.6	1	2	2	3	1	3
	H09	4.3	4.5	3	4	3	4	3	3
	H10	3.4	4.2	1	2	2	2	2	2
	H11	4.5	4.9	4	3	3	5	4	3
	H12	4.5	5	4	4	3	3	3	3
	H13	4.6	4.9	2	2	1	3	1	3
	H14	4.1	4.5	4	5	4	5	3	4
	H15	4	4.6	2	2	2	2	2	3
		Mean	4.25	4.7	2.93	3.2	2.66	3.4	2.73
	Mean Diff	0.45		0.27		0.74		0.60	
Low Group	L01	1.5	2.3	1	2	1	2	1	2
	L02	2.9	4	1	2	2	2	2	2
	L03	3.4	4.3	1	2	2	2	2	2
	L04	4	4.2	1	2	1	2	1	2
	L05	2.9	3.9	2	3	3	3	2	3
	L06	3.3	4.3	3	2	2	3	3	2
	L07	3.4	3.9	1	1	1	1	2	1
	L08	4	4.6	2	3	2	2	1	2
	L09	3.7	4.4	2	2	2	3	3	2
	L10	3.9	4.4	3	2	2	3	2	2
	L11	3	3.6	1	2	1	2	1	2
	L12	3.9	4.2	2	2	1	3	2	1
	L13	3.4	3.9	3	4	3	3	3	3
	L14	2.5	3.4	1	1	1	1	1	1
	L15	3.1	4.6	3	3	3	3	3	3
		Mean	3.26	4	1.8	2.2	1.8	2.33	1.93
	Mean Diff	0.74		0.40		0.53		0.07	

If we add up the scores of all prosodic features to examine the overall progress in the two groups, as shown in Table 8 below, we find that the broader range of score and the standard deviation indicates that there was a wider within group variation among the students in the high group in the production of English prosody. The mean score differences of 2.053 in the high group and 1.740 in the low group show that the high-ability students made a greater improvement at post-training than those in the low-ability group.

Table 8: *Score Summary on All Four Prosodic Features by Group*

Four Prosodic Features					
Group		Highest Score (20)	Lowest Score (20)	Mean Score	Std. Deviation
High	Pretest (T1)	16.5	7.8	12.587	3.0190
	Posttest (T2)	18.5	10.2	14.640	2.4136
	Difference	2	2.4	2.053	-
Low	Pretest (T1)	12.4	4.5	8.793	2.4315
	Posttest (T2)	13.9	6.4	10.533	2.1757
	Difference	1.5	1.9	1.740	-

To test whether the improvement in prosody was significant, the t-test was used and the results revealed that the improvements in both groups at post-training were statistically significant at the .05 level, as shown in Table 9 below.

Table 9: *Differences between Pretest and Posttest of All Prosodic Features*

Four Prosodic Features			
Group	Mean Difference	t	Sig. (2-tailed)
High	2.053*	6.197	.000
Low	1.740*	5.147	.000

*The mean difference is significant at the .05 level

To examine the students' performance at the individual level, Table 10 summarizes the pre-training and post-training data of the four prosodic features performed by each student in both groups.

As Table 10 indicates, all students in the high group showed measurable improvement in the overall production of the four prosodic aspects, whereas in the low group, one student (L06) showed no improvement and one student (L07) deteriorated in performance at the post-training, as shown in bold.

Table 10: *Score Summary of Students' Performance on All Four Prosodic Features*

High Group	All Features			Low Group	All Features		
	Pretest (20)	Posttest (20)	Difference		Pretest (20)	Posttest (20)	Difference
H01	13.5	15	1.5	L01	4.5	8.3	3.8
H02	13.2	15.5	2.3	L02	7.9	10	2.1
H03	15.6	16.9	1.3	L03	8.4	10.3	1.9
H04	13.5	14.7	1.2	L04	7	10.2	3.2
H05	14.6	15.9	1.3	L05	9.9	12.9	3
H06	8.7	11.5	2.8	L06	11.3	11.3	0
H07	16.5	17.9	1.4	L07	7.4	6.9	-0.5
H08	7.8	12.6	4.8	L08	9	11.6	2.6
H09	13.3	15.5	2.2	L09	10.7	11.4	0.7
H10	8.4	10.2	1.8	L10	10.9	11.4	0.5
H11	15.5	15.9	0.4	L11	6	9.6	3.6
H12	14.5	15	0.5	L12	8.9	10.2	1.3
H13	8.6	12.9	4.3	L13	12.4	13.9	1.5
H14	15.1	18.5	3.4	L14	5.5	6.4	0.9
H15	10	11.6	1.6	L15	12.1	13.6	1.5
Mean	12.59	14.64	2.05	Mean	8.79	10.53	1.74

4.3 L1 Transfer

As mentioned earlier, L1 transfer was rated independently on a 5-point scale by the 3 NESTs where 1 = poor performance due to the highest degree of using L1 sound system and 5 = near-native performance with the least degree of L1 transfer. The group summary of scores on L1 transfer at pre-training and post-training are presented in Table 11.

The data in Table 11 show broader ranges of scores and higher standard deviations in the high group at both pre-training and post-training. This suggests that the high-ability students varied more in terms of applying the L1 sound system in their speech production. However, on the whole, the high group demonstrated a greater improvement than the low group in their attempt to eradicate L1 influence from their speech (as shown in the mean score difference of 0.73 in the high group as opposed to 0.13 in the low group).

Table 11: *Score Summary of L1 Transfer by Group*

L1 Transfer					
Group		Highest Score (5)	Lowest Score (5)	Mean Score	Std. Deviation
High	Pretest (T1)	4	1	2.47	1.060
	Posttest (T2)	5	2	3.20	1.014
	Difference	1	1	0.73	-
Low	Pretest (T1)	3	1	1.80	0.561
	Posttest (T2)	3	1	1.93	0.799
	Difference	0	0	0.13	-

To examine whether the mean score difference in each group was significant, the t-test was used. The results revealed, as shown in Table 12 below, that the high

group showed statistically significant improvement at the .05 level, but the improvement in the low group was not significant. This implies that L1 transfer appears to exert a greater impact on the low-ability students. An interesting point to note here is that although the students in the low group improved significantly in their pronunciation of prosody, this does not necessarily mean that they could manage to reduce the influence of the L1 sound system when pronouncing L2 speech. This suggests that, for lower-ability students, more time and effort may be necessary to alleviate the effect of L1 transfer.

Table 12: *Differences between Pretest and Posttest of L1 Transfer*

L1 Transfer			
Group	Mean Difference	t	Sig. (2-tailed)
High	0.73*	3.556	.003
Low	0.13	1.000	.334

*The mean difference is significant at the .05 level

To investigate the performance of each individual participant on this aspect, Table 13 presents the pre-training and post-training data of the students in both groups. The results indicate no deterioration among the high-group students. However, almost half of the group showed no change between the pre-training and post-training data in terms of L1 transfer. In the low group, 12 students did not show measurable improvement in eradicating the use of L1 sound system in their speech. Among these students, the post-training speech of one student (L02) was judged to be influenced more by L1 than the pre-training speech (as shown in bold). While 8

students in the high group showed some improvements in terms of L1 transfer, only 3 students in the low group made small improvement in this aspect.

Table 13: *Individual Students' Performance with Regard to L1 Transfer*

High Group	L1 Interference			Low Group	L1 Interference		
	Pretest (5)	Posttest (5)	Difference		Pretest (5)	Posttest (5)	Difference
H01	3	3	0	L01	1	1	0
H02	2	3	1	L02	2	1	-1
H03	4	5	1	L03	2	2	0
H04	4	4	0	L04	2	2	0
H05	2	4	2	L05	2	3	1
H06	1	2	1	L06	2	3	1
H07	3	5	2	L07	1	1	0
H08	2	2	0	L08	2	2	0
H09	3	3	0	L09	2	2	0
H10	1	2	1	L10	2	2	0
H11	4	4	0	L11	1	1	0
H12	2	3	1	L12	2	2	0
H13	1	3	2	L13	3	3	0
H14	3	3	0	L14	1	1	0
H15	2	2	0	L15	2	3	1
Mean	2.47	3.2	0.73	Mean	1.8	1.93	0.13

4.4 Intelligibility

As one of the objectives of this study was to examine to what extent the students' overall improvement in prosodic features would increase the native speaker's perceived comprehensibility, this aspect was also asked to be rated separately by the 3 NESTs on a 5-point scale, whereby 1 represents almost unintelligible and 5 highly intelligible. Table 14 presents the group summary of scores on intelligibility at pre-training and post-training.

The standard deviations displayed in Table 14 show that there was a wider within group variation in the high group than in the low group. The mean score difference between T2 and T1 was higher in the high group (i.e. $0.73 > 0.07$), indicating that there was some improvement among the high-ability students, but the improvement was lower in the low group.

Table 14: *Score Summary of Intelligibility by Group*

Intelligibility					
Group		Highest Score (5)	Lowest Score (5)	Mean Score	Std. Deviation
High	T1	4	1	2.87	1.060
	T2	5	2	3.60	0.986
	Diff	1	1	0.73	-
Low	T1	4	1	2.20	0.941
	T2	4	1	2.27	0.961
	Diff	0	0	0.07	-

In order to examine whether the improvement was significant in each group, the t-test was used and the results revealed, as shown in Table 15, that the improvement in the high group was statistically significant at the 0.5 level, whereas in the low group the improvement was not significant.

Table 15: *Differences between Pretest and Posttest of Intelligibility*

Intelligibility			
Group	Mean Difference	t	Sig. (2-tailed)
High	0.73*	4.036	.001
Low	0.07	0.367	.719

*The mean difference is significant at the .05 level

As this study investigated the performance of more than one prosodic feature in relation to intelligibility, the results do not allow conclusions to be drawn as to which feature most affects intelligibility and which does not. Because the students in the high group showed significant improvements in all prosodic aspects as well as in the reduction of L1 transfer effect, this might serve to justify the increase in intelligibility in their speech production as a result of the intervention. In the low group, however, the results showed that the students' performance on prosodic features were judged to improve significantly by native speakers, but their improvements in these features did not help to significantly decrease the influence of L1 transfer on the students' L2 speech, nor did it help to significantly increase intelligibility. As the relationship between each prosodic feature and intelligibility is so complex, further research is needed which investigates the extent to which each feature has an impact on intelligibility and also on the decrease of L1 transfer.

5. Conclusion

With regard to the first objective of this study, the findings have shown that explicit training of English prosody helps to significantly improve the speech performance of Thai first-year students. The results also reveal what aspect of prosody seems to evince the most and least improvements in the high and low groups as a result of the intervention. From the speech data of the individual students in this study, cases were found when no changes occurred at T2, and some students even deteriorated in their performance on some prosodic aspects. Macdonald et al. (1994) argued that these cases are, in fact, not uncommon. Indeed, an initial lack of improvement or even some deterioration in performance does not necessarily indicate a failure of method. The process of L2 learning depends to a large extent on an

individual experience and personality. Some students may not perceive a single learning event as beneficial as others; some may not be as fast at learning as their peers. Although the improvement may not occur immediately, the phenomenon may evidence the learning process at work. For some students, the improvement may start to be noticeable at some later time.

Generally, most EFL teachers expect the change in performance to happen immediately following some classroom activity in connection with the language aspects being focused. When no immediate improvement occurs, many teachers often doubt the technique or materials they use. Some may consider the intervention as a failure and want to abandon the activity altogether. This experiment, as well as many others, was conducted to examine the change in the performance immediately following the intervention. Little research has yet been conducted on measuring the delayed effect, which means that favorable changes may occur after an initial lack of improvement or even deterioration in performance. It should be interesting for further research to investigate the delayed effect of the feature(s) covered in earlier classes. Also, it should be equally interesting to examine the retention (long-term improvements) on the students' pronunciation of L2 feature(s) as a result of the training at some later time.

In response to the second objective of the study, the findings reveal that the statistically significant improvement in the pronunciation of prosodic features in the high group helped the high-ability students to significantly increase intelligibility and decrease L1 transfer effect in their L2 speech. However, in the low group the improvement in their performance on prosodic features did not help the students to

significantly decrease the influence of the L1 sound system in their speech, nor did it help them to increase intelligibility in their pronunciation after the training. This suggests that, for lower-ability students, it may take more time for the students to develop higher proficiency in terms of vocabulary and discourse comprehension ability in order to understand the effective use of prosody in English.

6. Implications of the Study

The findings of this study provide several implications. First, teachers should attempt to show their students that prosody plays an essential role in communication. Second, the teacher's goal should also be to help students select areas for practice based on empirical findings. This study has made a small contribution toward that goal by offering a means for teachers to select areas of prosodic features and set pedagogical priorities for the student to practice. Indeed, it is hoped that more research will follow which further investigates what aspects of prosody are more critical than others so that teachers can examine existing practices and develop more informed method of teaching pronunciation in EFL contexts.

Although this study has provided some insights into the way in which Thai EFL students acquire the English prosody, it clearly has some limitations. The first is to what extent the findings of this study are generalizable to other populations. The present study examined only Thai first-year English major students at Dhurakij Pundit University who were selected on the basis of the relative homogeneity of their EFL learning environment. The investigation may limit the generalizability to students in other contexts. The second limitation is that the study merely measured the students' performance immediately following the intervention. It did not allow sufficient time

for the students to have enough practice. For lower-ability students, sufficient practice may be necessary for the learning process to be at work.

In conclusion, the results of the study have suggested that English prosody can be taught and learned. The findings are hoped to serve as a baseline for English pronunciation teaching. Subsequent to this study, further research could be conducted to investigate what techniques are more effective than others so that teachers can consider a more informed model in teaching prosody to L1 speakers of Thai. Finally, the present study proposes an argument in support of incorporating English prosody into EFL classrooms for intelligible pronunciation.

7. Acknowledgements

This research study could not have been completed without the help of many people. I am particularly grateful to Dhurakij Pundit University and DPU research committee for providing me with funding for this project. My profound appreciation goes to Dr. Harald Kraus, Ajarn Thomas Smith and Ajarn Timothy Woodhouse for their continuing support and kind assistance in rating the speech data. I also wish to thank DPU research center and its staff for their support.

Finally, I owe a special word of thanks to Dr. Karl A. Kripps, who gave valuable suggestions and edited the first draft.

8. References

Anderson-Hsieh, J., Johnson, R., & Koehler, K. (1992). The relationship between native speaker judgments of nonnative pronunciation and deviance in segmentals, prosody, and syllable structure. *Language Learning*, 42/4:529-55.

for the students to have enough practice. For lower-ability students, sufficient practice may be necessary for the learning process to be at work.

In conclusion, the results of the study have suggested that English prosody can be taught and learned. The findings are hoped to serve as a baseline for English pronunciation teaching. Subsequent to this study, further research could be conducted to investigate what techniques are more effective than others so that teachers can consider a more informed model in teaching prosody to L1 speakers of Thai. Finally, the present study proposes an argument in support of incorporating English prosody into EFL classrooms for intelligible pronunciation.

7. Acknowledgements

This research study could not have been completed without the help of many people. I am particularly grateful to Dhurakij Pundit University and DPU research committee for providing me with funding for this project. My profound appreciation goes to Dr. Harald Kraus, Ajarn Thomas Smith and Ajarn Timothy Woodhouse for their continuing support and kind assistance in rating the speech data. I also wish to thank DPU research center and its staff for their support.

Finally, I owe a special word of thanks to Dr. Karl A. Kripps, who gave valuable suggestions and edited the first draft.

8. References

Anderson-Hsieh, J., Johnson, R., & Koehler, K. (1992). The relationship between native speaker judgments of nonnative pronunciation and deviance in segmentals, prosody, and syllable structure. *Language Learning*, 42/4:529-55.

- Benrabah, M. (1997). Word-stress – A source of unintelligibility in English. *International Review of Applied Linguistics in Language Teaching*, 35/3:157-165.
- Brown, D. (2000). *Principles of Language Learning and Teaching*. Fourth Edition. New York: Pearson Education.
- Cross, J. (2002). A comparison of Japanese and English suprasegmental pronunciation as an aid to raising learner awareness. *The Language Teacher Online*. Retrieved from [file:///F:/The Language Teacher Online Cross, April 2002.htm](file:///F:/The%20Language%20Teacher%20Online%20Cross,%20April%202002.htm).
- de Bot, K. and Mailfert, K. (1982). The teaching of intonation: Fundamental research and classroom applications. *TESOL Quarterly*, 16/1:71-77.
- Derwing, T.M., Munro, M.J., & Wiebe, G. (1998). Evidence in favor of a broad framework for pronunciation instruction. *Language Learning*, 48:393-410.
- Gilbert, J.B. (1993). *Clear speech: Communication and listening comprehension in North American English*, 2nd Edition. Cambridge: Cambridge University Press.
- Greenwood, J. (2002). The role of teaching English pronunciation: Issues and approaches. *International Conference IPBA 24-26, September 2002*.
- Hahn, L.D. (2004). Primary stress and intelligibility: Research to motivate the teaching of suprasegmentals. *TESOL Quarterly*, 38/2:201-223.
- Jenkins, J. (1998). Which pronunciation norms and models for English as an International language? *ELT Journal*, 52/2:119-126.
- Levis, J.M. (1999). Intonation in theory and practice, revisited. *TESOL Quarterly*, 33/1:37- 63.

- Macdonald, D., Yule, G. & Powers, M. (1994). Attempts to improve English L2 pronunciation: The variable effects of different types of instruction. *Language Learning*, 44/1:75-100.
- Morley, J. (1991). The pronunciation component in teaching English to speakers of other languages. *TESOL Quarterly*, 25/3:481-521.
- Munro, M.J. & Derwing, T.M. (1995). Foreign accent, comprehensibility, and intelligibility in the speech of second language learners. *Language Learning*, 45/1:73-97.
- Nagamine, T. (2002). An experimental study on the teachability and learnability of English intonational aspect: Acoustic analysis on F0 and native-speaker judgment task. *Journal of Language and Linguistics*, 1/4. Retrieved from http://www.shakespeare.uk.net/journal/1_4/nagamine1_4.htm on april 30, 2009.
- Nunan, D. (1999). *Second Language Teaching and Learning*. Boston, MA: Heinle and Heinle Publishers.
- Odlin, T. (1989). *Language Transfer: Cross-Linguistic Influence in Language Learning*. Cambridge: Cambridge University Press.
- Pennington, M.C., & Ellis, N.C. (2000). Cantonese speakers' memory for English sentences with prosodic clues. *The Modern Language Journal*, 84:372-389.
- Roach, P. (2000). *English Phonetics and Phonology*. Cambridge: Cambridge University Press.
- Silveira, R. (2002). Pronunciation instruction classroom practice and empirical research. *Linguagem & Ensino*, 5/1:93-126.

Taylor, D.S. (1993). Intonation and accent in English: What teachers need to know.

International Review of Applied Linguistics in Language Teaching, 31/1:1-21.

Thompson, S. (1995). Teaching intonation on questions. *ELT Journal*, 49/3:235-243.

Ur, P. (1984). *Teaching Listening Comprehension*. Cambridge: Cambridge University Press.

Wernerstrom, A. (1994). Intonation meaning in English discourse: A study of nonnative speakers. *Applied Linguistics*, 15/4:399-420.

Wong, R. (1987). *Teaching Pronunciation: Focus on English Rhythm and Intonation*. Englewood Cliffs, NJ: Prentice Hall Regents.

Appendix

Test of English Intonation

I. Read the following words aloud.

- | | | | | |
|-----------------|------------------|----------------|----------------|-----------------|
| 1. study | 11. second | 21. requires | 31. machine | 41. against |
| 2. university | 12. repeat | 22. suggested | 32. before | 42. between |
| 3. series | 13. similar | 23. studies | 33. understood | 43. recorded |
| 4. interference | 14. process (n.) | 24. listened | 34. training | 44. slept |
| 5. hundred | 15. information | 25. improve | 35. effects | 45. finger |
| 6. computer | 16. medical | 26. strengthen | 36. humans | 46. memory |
| 7. piano | 17. people | 27. professor | 37. protect | 47. publication |
| 8. recover | 18. movements | 28. appeared | 38. scientists | 48. learning |
| 9. after | 19. unclear | 29. produced | 39. better | 49. separate |
| 10. nature | 20. others | 30. recording | 40. students | 50. many |

II. Read the following paragraph aloud.

A Good Night's Sleep May Improve Memory

Many students try to study the whole night and not sleep before an exam. Two separate studies show this may do more harm than good. The studies found that a good night's sleep may improve memory. The findings of both studies appeared in the publication *Nature*. Scientists at the University of Chicago did one of them. They trained students to listen to unclear speech produced by a machine. Some students listened to the recording after a night of sleep. Others were tested twelve hours after the training, with no sleep. Guess what? The students who slept understood the recording better. Professor Daniel Jones* says sleep has at least two effects on learning. One is to strengthen memories and protect them against interference. The second is to recover memories that have been lost. The other study took place at Harvard Medical School in Massachusetts. Scientists trained one-hundred people to repeat two series of finger movements. The act was similar to playing notes on a piano. People who slept between learning the first series and the second did the best. The study suggested that memories are recorded in three steps. Scientists say the process is similar to the way a computer stores information. In humans, they say, the second step requires sleep.

From: <http://www.manythings.org/listen/sleep.html>

**The name has been changed for simpler pronunciation*