English Language & Literature Teaching, Vol. *15*, No. 2 Summer 2009

Teaching English Stress Using a Drum: Based on Phonetic Experiments*

Dokyong Yi
(Inje Universtiy)

Yi, Dokyong. (2009). Teaching English stress using a drum: Based on phonetic experiments. *English Language & Literature Teaching, 15*(2), 261-280.

This study focuses on providing the pedagogical implications of stress in English pronunciation teaching since stress is one the most important characteristic factors in English pronunciation (Bolinger, 1976; Brown, 1994; Celce-Murcia, Brinton & Goodwin, 1996; Kreidler, 1989). The author investigated stress production regarding in terms of duration, pitch, and intensity by a group of native speakers of English and a group of low-proficiency South Kyungsang Korean college students for their pre-test. For both of the pre- and post-test, the same stimuli, which consisted of a one-syllable word, two two-syllable words, three three-syllable words, and three four-syllable words, were used along with the various sentence positions: isolation, initial, medial, and final. Soft ware programs, ALVIN and Praat, were used to record and analyze the data. Since Celce-Murcia et al. (1996), Klatt (1975), and Ladefoged (2001) treat duration of the stressed syllable more significantly than other factors, pitch and intensity, with respect to the listener's point of view, the author developed a special method of teaching English stress using a traditional Korean drum to emphasize duration. In addition, the results from the native speakers' production showed that their main strategy to realize stress was through lengthening stressed syllables. After six weeks of stress instruction using the drum, the production of the native speakers and the SK Korean participants from the pre- and post-test were compared. The results from the post-test indicated that the participants showed great improvement not only in duration but also in pitch after the stress instruction. Pitch improvement was unexpected but well-explained by the statement that long vowels receive accent in loan word adaptation in North Kyungsang Korean. The results also showed that the Korean participants' pitch values became more even in their duration values for each syllable as the structure of the word or the sentence became more complex, due to their dependency upon their L1.

[stress/suprasegmental/low-proficienty Korean learners/duration/pitch/intensity]

* This work was supported by Inje University Research Fund 2008.

I. INTRODUCTION

In English pronunciation, one of the most important characteristic factors is stress (Bolinger, 1976; Brown, 1994; Celce-Murcia et al., 1996; Kreidler, 1989). However, many Korean learners of English are not aware of it since the English suprasegmentals are different from the Korean ones. English is classified as a stress-timed language, whereas Korean as a syllable-timed one. Each English word has a unique stress pattern with certain syllables more prominent than others. Many Korean learners of English do not have accurate knowledge about stressed syllables nor do they produce English stress pattern properly; they give all syllables equal stress due to the influence of their L1, which is a syllable-timed language (Celce-Murcia et al., 1996; Tarone, 1978).

Despite the need for suprasegmental pedagogy in EFL setting in Korea (Goodwin, 2001; Morley, 1994; Pica, 1984), little research on teaching stress has been conducted so far (Choi, 2007; Park, 2004). In order to provide a suitable method for teaching stress, it is necessary to investigate what the problems are in producing stress regarding in terms of duration, pitch, and intensity. In addition, it is significant to analyze the problems in relation to the effect of the learners' L1 accent pattern. When the findings can actually be used in classrooms, they have to be properly modified for the learners' proficiency levels. High-proficiency learners are usually well-motivated while low-proficiency learners are not; in fact, some low-proficiency learners are not motivated at all. Since there is significant correlation between learners' interest in English and motivation for self-improvement, increasing the low-proficiency learners' interest in learning stress needs to be present for learning to be efficient (Crookes & Schmidt, 1991; Deci, 1992; Gardner & Lambert, 1972).

The most reliable cue for a listener to identify stress is that a stressed syllable often has a longer vowel sound, and duration of the stressed syllable is treated more significantly than other factors (Ladefoged, 2001). There are no doubts that pitch and intensity are also important components of stress. When these three factors are not properly realized, the listeners of native speakers of English can be hindered and frustrated in comprehension.

This study focuses on providing the pedagogical implications of stress in English education. For that purpose, the author investigated stress production by a group of low-proficiency South Kyungsang (henceforth, SK) Korean college students for the pre-test. For both of the pre- and post-test, the same stimuli were used. After six weeks of stress instruction using a traditional Korean drum and methods developed for teaching English stress, the production of the native speakers and the SK Korean participants from the pre- and post-test were compared. It was expected to improve not only duration of stressed syllables but also their pitch after the stress lessons using the drum since high pitch falls on

long vowels in loan word adaptation in English (Chung, 1991; Kenstowicz & Sohn, 2000; Kim, 1988; Sohn, 1999).

II. LITERATURE REVIEW

1. English Stress

Stress is the combined function of loudness, pitch, and length (Ladd, 1996; Ladefoged, 2001; Picket 1980; van Heuven & Sluijter 1996). It can be measured by intensity (in decibels), frequency (in Hertz), and duration (in milliseconds). Acoustical components of stress can be divided into duration, fundamental frequency, and intensity. Universally, stressed vowels have longer duration than those same vowels when unstressed. Comparatively, unstressed vowels are shorter in duration whether or not they are reduced to a schwa (Klatt, 1973). The Difference in duration among stressed or unstressed syllables is also important in the production or perception of English stress. This temporal parameter should be identified as a relative ratio rather than an absolute value, since speaking rate will greatly affect syllable duration. In addition, the stressed syllable is produced more elaborately, thus more slowly, than the unstressed syllable (Johnson, 1997; van Heuven & Sluijter, 1996).

Celce-Murcia et al. (1996) state that from the listener's point of view the most important aspect of stress is longer vowel duration for the stressed syllable and its relatively higher pitch. Ladefoged (2001) states that a stressed syllable is often, but not always, louder than an unstressed syllable, and it is usually, but not always on a higher pitch. The most reliable cue for a listener to identify is that a stressed syllable often has a longer vowel sound. Moreover, it is assumed that an increase in duration seems to have the primary purpose of marking syntactic units for the listener (Klatt, 1975). Therefore, Celce-Murcia et al. (1996), Klatt (1975), and Ladefoged (2001) treat duration of the stressed syllable more significantly than other factors with respect to the listener's point of view.

It is identified that English stressed vowels in word-final syllables of phrase-final words were significantly longer than vowels in any other position (Kim 1974; Klatt 1973; Oller 1973). In addition, it is assumed that it increases in duration seemed to have the primary purpose of marking syntactic units for the listener, and that speech perception is an easier process if acoustic cues to phrase boundary locations are present. Kim's psychological analysis on the phenomenon is that the pause is expected as we move on to the final syllable and therefore lengthening occurs.

Since Korean is a syllable-timed language, it is expected that learners of English may have a tendency to produce each syllable with an equal amount of time, but Koo (1997)

and Chun (1988) investigate how syllables move toward the final syllable and find out that Korean learners produce the final syllable with lower pitch and shorter duration than other syllables.

2. Pedagogical Aspects of Stress

From the mid 1980s, it became clear that pronunciation was a key to gaining full communicative competence with greater attention to grammatical structures as important elements in discourse, to a balance between fluency and accuracy, and to the explicit specification of pedagogical tasks that a learner should accomplish (Krashen, 1985; Long & Richards, 1987).

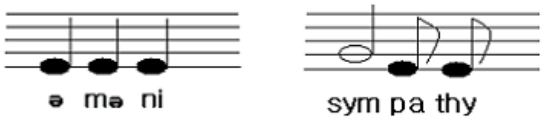
It is claimed that a learner's command of segmentals which are phonemes and allophones is less critical to communicative competence than a command of suprasegmentals which are stress and intonation since the suprasegmentals carry more of the overall meaning load than do the segmentals (Pierrehumbert, 1980; Roca & Johnson, 1999).

Suprasegmental features, stress and intonation, must form the base for the teaching of the language's pronunciation (Choi 2007; Park 2004). These include the correct reduction of unaccented grammatical items. With suprasegmentals and connected speech; however, the misunderstanding is apt to be of a more serious nature. Learners who use incorrect rhythm patterns or who do not connect words together are at best frustrating to the native listener; more seriously, if the stress and rhythm patterns are too nonnative-like, the speakers who produce them may not be understood at all or can be perceived as abrupt, or even rude.

For most Korean learners of English, simply hearing the elements in a sentence received stress may be difficult initially and obscure the distinction between stressed and unstressed syllables in English. The learners do not have accurate knowledge about stressed syllables; therefore, they do not realize English stress patterns. The learners believe that they are most clearly understood when they pronounce each word and syllable distinctly, due to the characteristic of their L1. In fact, the learners are usually quite surprised to find that giving all syllables equal stress actually hinders native speaker's comprehension; therefore, it is essential for the learners to understand the rhythmic difference between English and Korean. For more convincing and effective understanding of stress, musical notes can be used to describe the duration and pitch of each syllable.

FIGURE 1

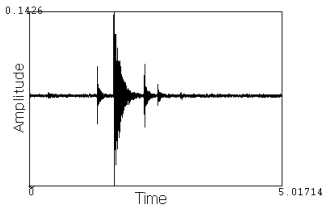
Musical Notes of Korean and English words: [*əməni*] and *sympathy*



In order to teach the learners duration, a reasonable size of a drum would be suitable. The instrument cannot produce various levels of pitch, but it can nicely be controlled to produce various lengths of duration and intensity. Figure 2 is a wave-form that shows a four-syllable word with the second syllable stressed with the drum. The wave-form expresses the duration and intensity of the stressed syllable very clearly.

FIGURE 2

A Wave-Form of a Beat Played by a Traditional Korean Drum



In addition, the learners should understand that there is a basic hierarchy in correctly determining stress placement within an utterance. This involves knowing the stress patterns for the individual multisyllabic words in an utterance and deciding which words in an utterance would normally be stressed. Therefore, it is a major priority in the pronunciation classroom to explain and illustrate for students the stress-timed nature and rhythm of English. Teachers should build upon students' knowledge of word stress to help them begin to understand sentence stress in English (Morley, 1994). Since the learners' L1 is Korean, which is a syllable-timed language, they would have a great difficulty assigning greater length to the stressed syllables of content words within a sentence; they would also be challenged to appropriately reduce the length of function words and all unstressed syllables to maintain the characteristic of stress-timed rhythm of English. Duration of a stressed vowel is treated as the most different aspect between English and Korean, and is the biggest obstacle in English production for most Korean learners of English.

III. METHODS AND PROCEDURES

1. Participants

A total of twenty-six participants were chosen: four native speakers and twenty-two SK Korean speakers. All of the native speakers were male and aged from their late twenties to their late thirties. All have lived in Korea from three to five years and have been teaching English in Kyungnam Province for three to four years. All have normal hearing and health. Selection of Koreans was based on the answers to a questionnaire presented to each participant (See Appendix A). All the Korean participants were born and raised in Pusan or South Kyungsang Province. All selected participants spoke South Kyungsang Korean. Their TOEIC scores were ranged from 130 to 320, and all were freshmen and majoring in engineering. All participants voluntarily participated in the experiment.

2. Stimuli

Speech samples included nine words and twenty seven sentences. The nine words were consisted of a one-syllable word, two two-syllable words, three three-syllable words, and three four-syllable words. In collecting speech samples, the number of syllables in each word and the position of stress for each word were considered to be important; however, the quality of stressed vowels did not seem important or relevant. For this study the words with the typical syllabic counts, which are a one-syllable word, two two-syllable words, three three-syllable words, and three four-syllable words, were used along with the various stress positions: isolation, initial, medial, and final. Altogether, twenty seven sentences were prepared to test acoustic features within the sentences (See Appendix B).

3. Data Collection

A Samsung Laptop Sense 28 was utilized to make recordings in a quiet office. Stimuli were typed in the recording stimulus file of ALVIN, a software program for speech perception research. Each typed-in sample appeared twice randomly in the ALVIN window on the laptop monitor.

The Praat software package was used to analyze recorded samples. In order to measure duration, pitch, and intensity of stressed and unstressed syllables, a script was created to run each sound file, and each recorded sample was subjected to spectrographic analysis. Measured pitch was ranged from 74 Hz to 500 Hz regardless of subjects' gender, and measured intensity was varied from 0 dB to 100 dB in the spectrogram. For the use of the spectrogram, the researcher set each syllable and measured their duration in milliseconds.

In measuring duration, pitch, and intensity of a syllable, a whole syllable was measured, including consonants and vowels (Ladefoged, 2001). For accuracy of pitch and intensity analysis, minimum and maximum pitches were measured to obtain an average pitch and an average intensity for each syllable. All calculations and data processing were performed using Microsoft Excel.

4. Procedures

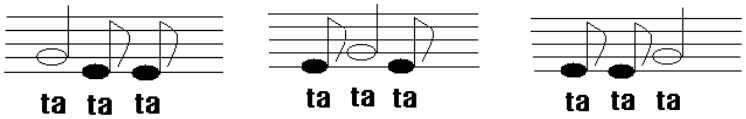
This study was conducted over eight weeks: a week for the pre-test, six weeks for the actual instruction, and another week for the post-test.

For the pre-test, all twenty six participants were asked to click the RECORD button, to read a given word or sentence on the screen into the microphone connected to the laptop, and to click the STOP button. The participant moved on the next stimulus by clicking the NEXT button and repeated the procedure.

For the actual instruction, the researcher explained to the students how English stress functions, how it can make English sound different from Korean as showing in Figure 2, and what can cause in case of misproduction of it — used sample words were *important* and *impotent*. After the introduction, the researcher wrote a few words that consisted of two-syllables and were familiar to the students on the board, e.g., *water*, *mother*, and *pattern*, and recited the words as playing the drum. The students repeated after her playing the drum. They repeated the procedure using different words. They seemed interested and motivated. For the following lesson, the researcher introduced three nonsense words in Korean: *TA ta ta, ta TA ta*, and *ta ta TA* , as in Figure 3, and spoke the words rhythmically and slowly using the drum.

FIGURE 3

Musical Notes of Nonsense Words



The students repeated the words while the researcher was playing the drum. The researcher also had to explain how unstressed syllables should be produced in order to make stressed syllables prominent and asked the students to produce the nonsense words with stress on the first syllable, on the second syllable, and on the final syllable respectively. As they practiced these words, they seemed to understand that English has to be pronounced differently from Korean. After practicing the nonsense words, the

researcher wrote two Korean words, [əməni] *mothe*r and [abəji] *father*, on the board and asked them to produce the words with stress on the first syllable, on the second syllable, and on the final syllable respectively, e.g., [Əməni], [əmƏni], [əmənɪ̇].

The researcher was able to feel the difference of the class atmosphere when she brought the drum and when she did not. Bringing the drum to the class was an excellent way to grab the students' attention. Some of the students requested that the researcher bring the drum every time; it means that they were motivated. Their request proved that using the drum motivated the students. Four-syllable nonsense words were also used: *TA ta ta ta, ta TA ta ta*, and *ta ta TA ta*. After the practice using the nonsense words, actual English words were presented, e.g., *dictionary, geography*, and *information*.

After six weeks of actual instruction, the post-test was conducted. Twenty two Korean participants took the post-test, and the stimuli used for the pre-test was used again for the post-test.

IV. RESULTS AND DISCUSSION

1. Analysis of the Native Speakers' Production

Figure 4, 5, and 6 clearly show that the native speakers' main strategy used in producing the stressed syllable was duration. The value of duration on the stressed syllables was always higher than any other syllables, but the value of pitch on the stressed syllables was not always higher. The results show that stressed syllable was often, but not always, louder than an unstressed syllable while a stressed syllable frequently has a longer vowel sound, and duration was treated more significantly than other factors as Celce-Murcia et al. (1996), Klatt (1975), and Ladefoged (2001) state. As Kim (1974), Oller (1973), Klatt (1973) identify that English stressed vowels in word-final syllables of phrase-final words were significantly longer than vowels in any other position, lengthening occurred in the native speakers' production.

FIGURE 4

Syllabic Analysis of the Word, *ordinary*, Produced by the Native Speakers

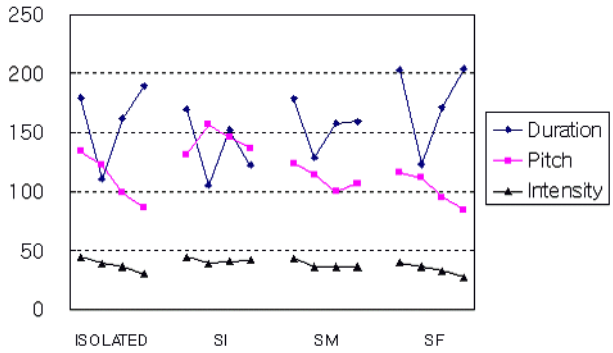


FIGURE 5

Syllabic Analysis of the Word, *sympathy*, Produced by the Native Speakers

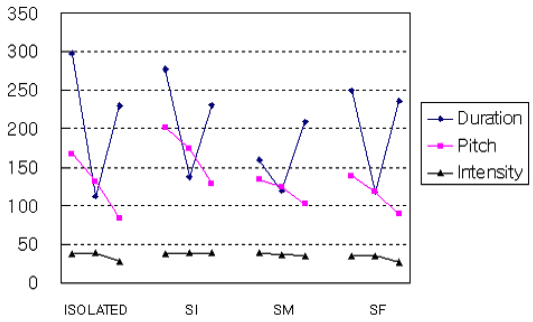
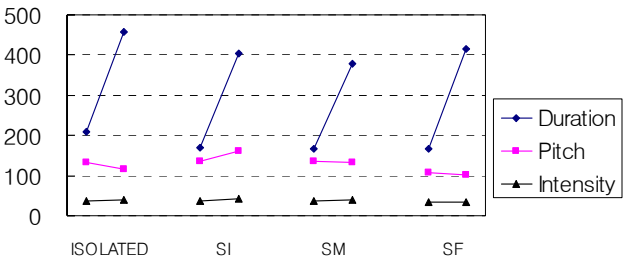


FIGURE 6

Syllabic Analysis of the Word, *concern*, Produced by the Native Speakers



2. Analysis of the Korean Participants' Production

1) Duration

The results of the post-test show that the participants lengthened the duration of the stressed syllable at the sentence positions, but not in isolation, while shortening the duration of the unstressed syllable. Their relative ratio between unstressed and stressed syllables has been improved, as seen in Figure 7.

FIGURE 7

Comparison of the Duration Values of the Word, *concern*, from the Pre- and Post-Test

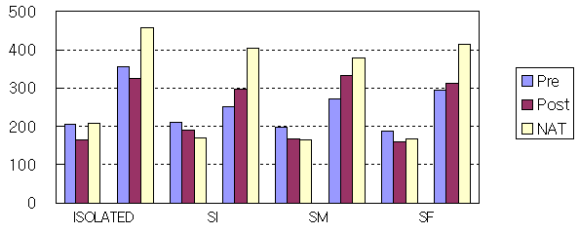
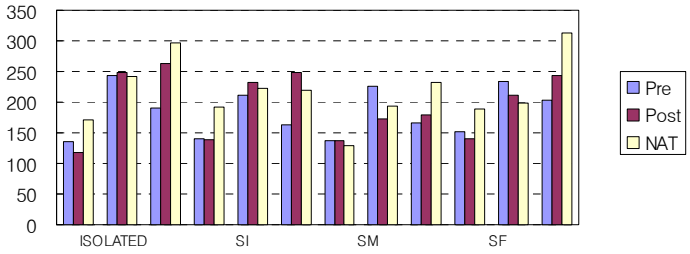


Figure 8 shows that duration of the post-test result is further reduced, but with careful observation it is clear that the ratio from the first syllable, which is stressed, to the second syllable, which is unstressed, became bigger in the post- test than in the pre-test. Therefore, they produced the stressed syllables more prominently after the instruction.

FIGURE 8

Comparison of the Duration Values of the Word, *sympathy*, from the Pre- and Post-Test

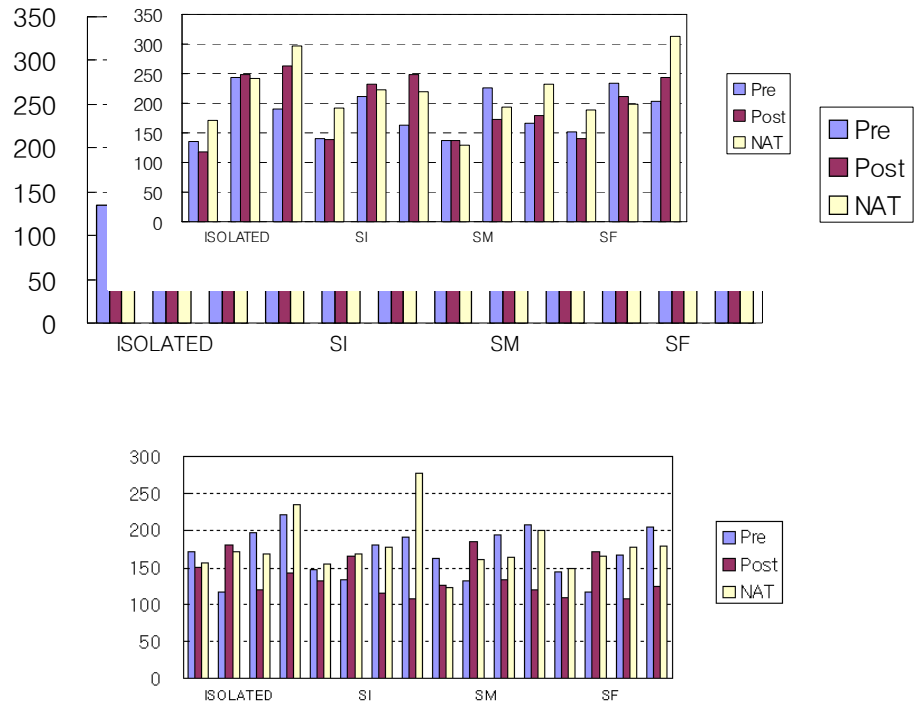


The results from the words, *employee* and *philosophy*, in Figures 9 and 10 are more proximate to the native speakers' results in their post-test comparing them with their pre-test. In the case of the words, *philosophy*, lengthening the stressed syllable in all four positions is very clear and prominent. In their pre-test, they lengthened the first syllables,

which is unstressed. Obviously, their realization of the duration has been improved after the instruction.

FIGURE 9

Comparison of the Duration Values of the Word *employee* from the Pre- and Post-Test



2) Pitch

Figure 11 shows that the participants improved realizing pitch in the post-test. In their pre-test, pitch was not realized correctly. An interesting finding from this result is that the main purpose of teaching stress using the drum was to lengthen stressed syllables, but according to Figure 11 and 12 they improved realizing not only duration but also pitch.

FIGURE 11

Comparison of the Pitch Values of the Word, *concern*, from the Pre- and Post-Test

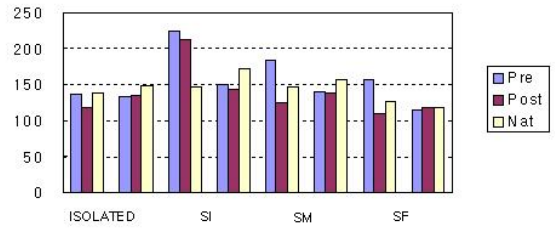


Figure 12 shows that pitch values were improved a little at sentence-initial and sentence-medial positions at the post-test, but the values were not improved in isolation and at sentence-final position.

FIGURE 12

Comparison of the Pitch Values of the Word, *sympathy*, from the Pre- and Post-Test

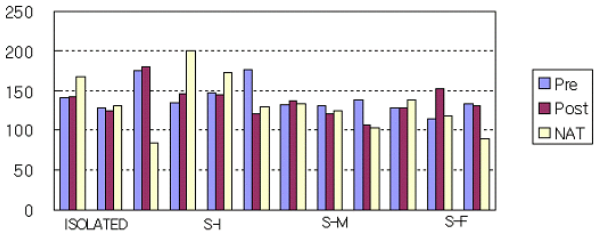
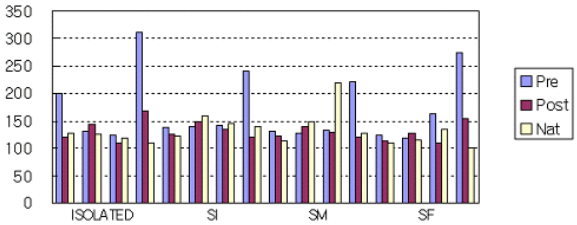


Figure 13 shows that the participants improved realizing pitch greatly in the post-test, especially at sentence-initial position.

FIGURE 13

Comparison of the Pitch Values of the Word, *philosophy*, from the Pre- and Post-Test



3) Intensity

One interesting phenomenon of intensity realization in the post-test is that the participants increased intensity value, which is 10 dB higher, for all syllables. Relative ratio of intensity from the unstressed syllable to the stressed one in Figure 14 became greater in the post-test, but for the three-syllable word, *sympathy*, intensity of the stressed-syllable was not successfully realized in Figure 15.

FIGURE 14

Comparison of the Intensity Values of the Word, *concern*, from the Pre- and Post-Test

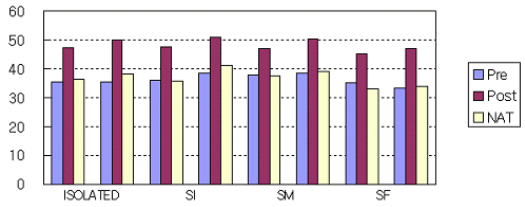
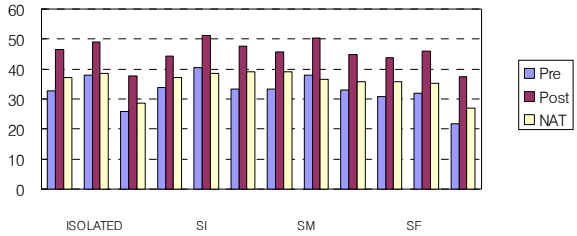


FIGURE 15

Comparison of the Intensity Values of the Word, *sympathy*, from the Pre- and Post-Test



In the case of the three-syllable word, *employee*, stress falls on the third syllable theoretically. Most of the participants increased intensity on the stressed syllables after the stress instruction, but interestingly the native speakers' production showed maximum intensity on every second syllable in Figure 16.

Figure 17 shows that intensity was properly realized in both of the pre- and post-tests, but the relative ratio from the stressed syllable to the unstressed one and vice versa became greater after the stress instruction.

FIGURE 16

Comparison of the Intensity Values of the Word, *employee*, from the Pre- and Post-Test

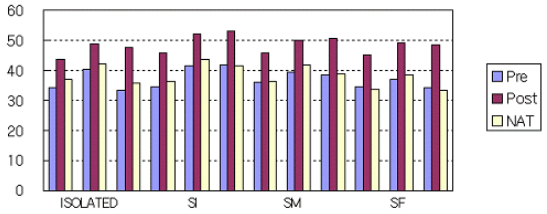
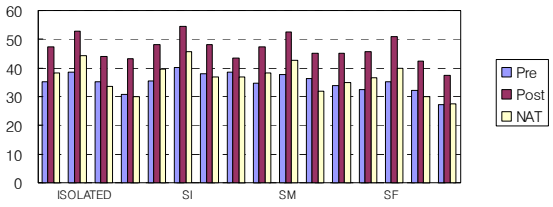


FIGURE 17

Comparison of the Intensity Values of the Word, *philosophy*, from the Pre- and Post-Test



The post-test proves that the stress instruction using the drum was effective. The results show that the participants improved realizing duration on stressed syllables, and surprisingly they even improved realizing pitch as Kenstowicz & Sohn (2000) state that long vowels receive accent in loan word adaptation in North Kyongsang Korean. Another improvement was that the relative ratio of duration, pitch, and intensity between unstressed and stressed syllables or between stressed and unstressed syllables. Consequently, their production of stressed syllables became more prominent. Finally, the SK Korean participants produced final syllables at utterance-final positions with longer duration and lower pitch than other syllables while Seoul Korean speakers of English learners produced them with shorter duration and lower pitch (Chun, 1988; Koo, 1996).

V. CONCLUSION

Production of the stimuli by the SK Korean speakers and the native speakers of English was analyzed into duration, pitch, and intensity. Two experiments, the pre-test and the post-test, were conducted to provide phonetic accounts and pedagogical implications. For the first experiment, twenty two SK Korean speakers and four native speakers participated. The stimuli (Appendix B) were typed in the recording stimulus file of ALVIN, and each

participant was asked to produce the typed-in sample appeared twice randomly in the ALVIN window on the laptop monitor. The Praat software package was used to analyze the recorded samples. In order to measure duration, pitch and intensity of stressed and unstressed syllables, a script was created to run each sound file.

After the pre-test was conducted, the Korean participants had six weeks of stress lessons using a traditional Korean drum. The instrument can only express duration and intensity but not pitch, but the instrument would be proper since the most reliable cue for a listener to detect is longer vowel sound (Ladefoged, 2001; Lass, 1996). The results from the first experiment indicated that the native speakers' main strategy used in producing stressed syllables was duration. Since duration played an important role in stress production of the native speakers, it could be effective to teach how to emphasize duration of stressed syllables using the drum. For the stress lessons, musical notes and nonsense words were also used for better understanding. Due to the participants L1, which was a syllable-timed language, they did not have any knowledge on stress. After the stress lessons, the post-test was conducted, and the same method and stimuli were used.

In the native speakers' production, lengthening occurred on the last syllable of every test word in isolation and sentence-final position, as expected by the utterance-final lengthening in English. In producing tri-syllabic words with initial stress, they lengthened the stressed syllables while they dropped pitch on the same syllables. In addition, duration of the unstressed syllable next to the stressed syllable was very short. This phenomenon supports Ladefoged's (2001) and Lass' (1996) claim that a stressed syllable is usually but not always on a higher pitch and that the most reliable cue for a listener to detect is a longer vowel sound.

In comparing duration value between the two groups, the Korean participants became more even in their duration values for each syllable as the structure of the word or the sentence became more complex. This indicated that the Korean participants' dependency upon their L1 as well as resulting in interlanguage production (Gass & Selinker, 1983; Park, 2001). The experiment showed that the Korean participants produced final syllables at utterance-final positions with longer duration and lower pitch than other syllables while Seoul Korean speakers of English learners produced them with shorter duration and lower pitch (Chun, 1988; Koo, 1996).

The results from the post-test indicated that the participants showed great improvement not only in duration but also in pitch. Pitch improvement was unexpected but well-explained by the statement that long vowels receive accent in loan word adaptation in North Kyungsang Korean (Kenstowicz & Sohn, 2000).

As pedagogical implications, this study provides insight into stress education of English. Since duration turned out to be a crucial factor in producing stress, teaching methods should be based on making up for the lack of duration to provide an effective way of

teaching English stress. Teaching English stress to the low-proficiency Korean learners using the drum turned out to be effective and successful in motivating them.

REFERENCES

Bolinger, D. (1976). Length, vowel, juncture. *Bilingual Review, 3*, 43-61.

Brown, H. D. (1994). *Teaching by principles* (1st ed.). Upper Saddle River, NJ: Prentice Hall.

Celce-Murcia, M., Brinton, D., & Goodwin, J. (1996). *Teaching pronunciation*. Cambridge: Cambridge University Press.

Choi, J. O. (2007). Teaching English pronunciation and listening skills. *English Language & Literature Teaching, 13*(2), 1-23.

Chun, D. (1988). Teaching intonation as part of communicative competence: Suggestions for the classroom. *Die Unterrichtspraxis, 21*, 81-88.

Chung, Y. H. (1991). *The lexical tone system of North Kyungsang Korean*. Ph. D. Dissertation, Ohio State University.

Crookes, G., & Schmidt, R. (1991). Motivation: Reopening the research agenda. *Language Learning, 41*, 469-512.

Deci, E. L. (1992). *Intrinsic motivation*. New York: Plenum Press.

Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second language learning*. Rowley: Newbury House Publishers.

Gass, S. M., & Selinker, L. (1989). *Language transfer in language learning*. Rowley, Massachusetts: Newbury House Publishers.

Goodwin, J. (2001*). Teaching pronunciation.* In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (pp. 117-137). Cambridge: Cambridge University Press.

Johnson, K. (1997). *Acoustic auditory phonetics*. Cambridge: Blackwell.

Kenstowicz, M., & Sohn, H. S. (2000). *Accentual adaptation in North Kyungsang Korean.* In M. Kenstowicz (Ed.), *Ken Hale: A life in language* (pp. 56-77). Cambridge: The MIT Press.

Kim, G. R. (1988). *The pitch accent system of the Taegu dialect*. Ph. D, Dissertation. University of Hawaii.

Kim, K. O. (1974). *Temporal structure of spoken Korean: An acoustic phonetic study*. Ph. D. Dissertation. University of Southern California.

Klatt, D. H. (1973). Interaction between two factors that influence vowel duration. *Journal of the Acoustical Society of America, 54,* 1102-1104.

Klatt, D. H. (1975). Vowel lengthening is syntactically determined in a connected discourse. *Journal of Phonetics, 3*, 129-140.

Koo, H. S. (1997). A study using acoustic measurement and perceptual judgment to identify prosodic characteristics of English as spoken by Koreans. *Speech Sciences, 2*, 95-108.

Krashen, S. (1985). *The input hypothesis: Issues and implications*. London: Longman.

Kreidler, C. (1989). *The pronunciation of English*. Cambridge: Blackwell.

Ladd, D. (1996). *Intonational phonology*. New York: Cambridge University Press.

Ladefoged, P. (2001). *A course in phonetics* (4th ed.). Boston, Heinle & Heinle.

Lass, N. J. (1996). *Principles of experimental phonetics*. New York: Mosby.

Long, M., & Richards, J. C. (1987). *Methodology in TESOL*. Boston: Heinle & Heinle.

Morley, J. (1994). *Pronunciation pedagogy and theory: New views, new dimensions*. Alexandria, VA: TESOL.

Oller, D. K. (1973). The duration of speech segments: the effect of position in utterance and word length. *Journal of the Acoustical Society of America, 54*, 1235-1273.

Park, M. A. (2001). Markedness and pronunciation difficulties: Coda clusters in Korean-English interphonology. *English Language Teaching, 15*(4), 25-46.

Park, S. B. (2004). Errors of English stress by Korean speakers. *English Language & Literature Teaching, 10*(3), 177-190.

Pica, T. (1984). Pronunciation activities with an accent on communication. *English Teaching Forum, 22*(3), 2-6.

Pickett, J. M. (1980). *The sounds of speech communication: A primer of acoustic phonetics and speech perception.* Baltimore: University Park Press.

Pierrehumber, J. (1980). *The phonology and phonetics of English intonation*. Ph. D. Dissertation. MIT.

Roca, I., & Johnson, W. (1999). *A course in phonology*. Malden: Blackwell.

Sohn, H. S. (1999). The NPI and phonological phrasing in North Kyungsang Korean. *The Journal of Linguistic Science, 16*, 273-301.

Tarone, E. (1978). The phonology of interlanguage. In J. C. Richards (Ed.), *Understanding second and foreign language learning: Issues & approaches*. Rowley: Newbury House.

Van Heuven, V., & Sluifter, A. (1996). Notes on the phonetics of word. In R. Goedemans, H. van der Hulst & E. Visch (Eds.), *Stress of the Word Part 1: Background* (pp. 21-45). The Hagua: Holland Academic graphics.

APPENDIX A
Questionnaire

Name:
Initial:
Age:
Gender:
Home town:
Recent TOEIC score:

1. Have you ever lived in an English speaking country?
   _____ yes _____ no
   If so, how long? _____
2. Are you taking any English courses this semester?
   _____ yes _____ no
   If so, what are they? _____
3. My interest in English is
   _____ very high _____ high _____ low _____ not interested
4. Please number the categories from the most important to the least important.
   _____ Listening _____ Speaking _____ Reading _____ Writing
5. I have heard of 'stress' before.
   _____ yes _____ no
6. I think I know what stress is.
   _____ yes _____ no
7. I think stress is _____.
   _____ very important _____ important _____ unimportant
8. I believe misunderstanding can occur when English stress is improperly produced.
   _____ yes _____ no

Appendix B
Stimuli

One-syllable word
(1) moon

Two-syllable words
(2) making: stress falls on the first syllable
(3) concern: stress falls on the second syllable

Three-syllable words
(4) sympathy: stress falls on the first syllable
(5) important: stress falls on the second syllable
(6) employee: stress falls on the third syllable

Four-syllable words

(7) ordinary: stress falls on the first syllable
(8) philosophy: stress falls on the second syllable
(9) information: stress falls on the second syllable

The twenty seven sentences are as follows:

The nine words at sentence initial positions:

(1) Moon's son lives in Paris.
(2) Making money is his first concern.
(3) Concern for human rights has always been important.
(4) Sympathies lie firmly with the Conservative Party.
(5) Important people usually have dinner here.
(6) Employees usually complain about their work.
(7) Ordinary people wouldn't do such a thing.
(8) Philosophy is a difficult subject.
(9) Information super highway is another name for the Internet.

The nine words at sentence-medial positions:

(10) The owner of Sun and Moon is my sister.
(11) He was making coffee in the middle of night.
(12) His main concern is making more money.
(13) There was no sympathy between them.
(14) People who are important usually have a lot of power.
(15) Our school employees work very hard.
(16) Anything out of ordinary makes her depressed.
(17) Peter studied philosophy at university.
(18) Giving unnecessary information can harm you.

The nine words at sentence-final positions:

(19) We will soon travel the moon.
(20) Her first interest is money-making.
(21) His affair was none of her concern.
(22) She wrote a letter expressing her sympathy.
(23) It makes them feel important.
(24) The meeting is only for new employees.
(25) She can't stand anything out of the ordinary.
(26) Language is a part of philosophy.
(27) This book is packed with useful information.

Examples in: English
Applicable Language: English
Applicable Levels: All Levels

Dokyong Yi
Institute of Foreign Language Education
Inje University
605 Ubang-dong
Kimhae-si Kyungsangnam-do, 621-749 Korea
Tel: (055) 320-3380
Fax: (055) 333-8231
Email: yicathy@hitel.net

Received in April, 2009
Reviewed in May, 2009
Revised version received in June, 2009