PRONUNCIATION DIFFICULTIES OF ENGLISH AND JAPANESE LEARNERS OF KOREAN IN TERMS OF PROSODIC FEATURES

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ABSTRACT

Title: Pronunciation difficulties of English and Japanese learners of Korean in terms of prosodic features

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This action research project is about identifying possible pronunciation difficulties of English and Japanese learners of Korean in terms of prosodic features. It was predicted that English speakers would have greater variation in syllable duration due to the vowel shortening and lengthening characteristic of their stress timed L1, and that Japanese speakers would have sharper L or H tones with a wider pitch range due to their pitch accented L1. Three experiments (Korean sentence production, greeting intonation production, and a family photo description task) were conducted to recognize the L1 influence in learning Korean. The result came out as predicted.

As a next step, a short pilot teaching was also conducted to see if explicit instruction on prosodic features would enhance fluency and comprehensibility. A slight improvement was shown as a result of the pronunciation instruction, implying the importance of teaching instruction on the prosodic features in a classroom.
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DEPARTMENT OF LINGUISTICS, COLLEGE OF ARTS AND SCIENCES

MA TERMINAL PROJECT APPROVAL FORM

August 10, 2007

The examining committee appointed by the Department of Linguistics for the Terminal Project submitted by Heeyeong Jung has read this terminal project and determined that it satisfactorily fulfills the program requirement for the degree of Master of Arts.


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CHAPTER 1: INTRODUCTION

There are more and more people learning Korean as a second or foreign language these days for various reasons. Unlike learning Korean as a second language, in a KFL setting, where learners are less exposed to the target language and authentic materials, Korean language learners depend significantly on classroom language teaching in order to achieve proficiency in the language, implying the importance of classroom instruction.

Considering the increasing Korean learner population in the USA, I am investigating students in that population from different L1 backgrounds (English, Japanese) with a focus on difficulties in learning Korean in terms of prosodic aspects. Different L1 backgrounds with different prosodic systems such as English, a stress language with stress timing, and Japanese, a pitch accent language with mora timing, may influence learning Korean in a certain way and each group may have difficulties in different areas.

Recently prosodic features such as sentence stress, intonation, and rhythm, have been emphasized as required elements for improving fluency and comprehensibility of the target language. These “invisible” features have various functions from simply giving emphasis to a word to conveying a special meaning nonverbally. Unlike ESL/EFL pronunciation classes in the past, which mainly focused on consonants and vowels, current pronunciation classes provide information on suprasegmental features as well as segmental content. Both types of features should not be separated when teaching a language.

I conducted a pilot study investigating English and Japanese native speakers’ different tonal patterns and vowel durational patterns in the production of Korean sentences. The role of the first language prosody of English and Japanese speakers learning Korean was examined.

As the next step in the research, I decided to find out whether an emphasis placed on prosodic aspects in teaching Korean would improve students’ fluency and comprehensibility as Derwing and Rossiter (2003) found in their study on learners of English. They found that a group of students who had global pronunciation instructions in terms of suprasegmental features such as word and sentence stress, intonation, speech rate, and rhythm, showed the most improvement and rated highest in comprehensibility and fluency in spontaneous speech, when compared to a group who had segmental instruction and another group without instruction.
The third step was to determine what causes difficulties in learning Korean in terms of prosody and how to deal with the difficulties related to prosodic aspects, and to find out what materials and pedagogical techniques are most effective in dealing with these issues.
CHAPTER 2: REVIEW OF THE LITERATURE

Background of Korean Prosody

The most distinctive feature differentiating Korean and English is that the former is a syllable-timed language while the latter is stress-timed. Korean, as a typical syllable-timed language, does not reduce unstressed vowels, which produces a rhythm in which syllables are evenly timed (Yavas, 2005). In standard Korean, vowel length, intonation, juncture, and tonal patterns are the major prosodic features although vowel length no longer appears in the younger generation of Seoul Korean. The short and long vowels differentiating meaning only remain in southern dialects in Korea.

Intonation is one of the most difficult features for foreigners to learn as it requires understanding discourse levels of knowledge. (Kim, J., Park, D., Lee, B., Lee, H. Jung, H., Choi, J., & Huh, Y., 2005). It is easily recognized that falling intonation indicates a statement while rising intonation does a question, as in English. Although it is true that typical intonation indicates types of sentences, there are sentences that can be interpreted in a different way due to the use of different tones (Oh & Lee, 1993). Oh and Lee give examples of structure phrases that deliver different meanings with different tones. For example, ᄀ.xls/x8017 , ye, meaning ‘yes’ has nine nuclear tones; low flat tone is used in a formal business setting while middle flat tone implies intimate relationship (Lee, 2004). ᄀ.xls/x8122 , ung, with a falling intonation, means ‘yes’ to a question while it means ‘What?’ with a rising intonation. It also means ‘I see’ with repeated and lengthened falling and rising intonation. (Kim, J., Park, D., Lee, B., Lee, H. Jung, H., Choi, J., & Huh, Y., 2005).

According to Jun (1996, 1998, 2000), Korean has two prosodic units which are marked by intonation: the intonation phrase (IP) and the accentual phrase (AP). The IP consists of one or more APs, is demarcated by a boundary tone, and usually followed by a pause. An IP-final syllable is subject to final lengthening. Such syllables are about 1.8 times longer than IP medial syllables. Meanwhile, an AP is never followed by a pause unless it is the last phrase of the IP. In addition, the tonal specification of an AP-final syllable is realized by the boundary tone of the IP-final syllable.

In English, the prosodic units corresponding to an AP in Korean are intermediate phrases. English intermediate phrases are delimited by a phrase accent H- or L- while Korean APs are
marked by a phrase-final high tone. Unlike English, Japanese AP can have a lexical pitch accent specific to its component word in addition to a phrasal tone (Jun, 1998).

The tonal pattern of the AP in Seoul is Low-High-Low-High (LHLH) or High-High-Low-High (HHLH) (Jun, 1996; 1998; 2000). When the segment is either aspirated or tense, the AP begins with H tone. As for utterances with fewer syllables such as 1~2 syllables, the tonal pattern is realized as LH or HH with undershoot of the initial H tone and the following L tone. For utterances with 3 syllables, LLH or HLH/ LHH or HHH are observed. The tonal pattern of final APs that have four syllables is LHLL due to the influence of IP boundary tone (Jun, 1998).

Comparative Analysis in terms of Suprasegmental Features

Korean vs. English and Japanese

Korean, a syllable-timed language and Japanese, a mora-timed language are similar in corresponding grammatical structures. Both have the same sentence order. Also both languages have an AP, a prosodic unit larger than a phonological word (PW), and smaller than an IP. However, Japanese has lexical pitch accent which often results in an H or L tone linked to the accented syllables (Uemymama & Jun, 1998; Jun, 1998). In Japanese, pitch accents are the most straightforward component of an intonation contour. The accent placement on a syllable is lexically contrastive, differentiating words of the same structure and pronunciation (Beckman & Pierrehumbert, 1986). Korean AP tones are merely phrasal tones while Japanese tones are influenced by lexical pitches.

Aoyama and Guion (2007) examined prosodic aspects of native and non-native (native Japanese) speech in American English, and they found that syllable durations were longer in Japanese utterances than in those of native speakers. This supports that Japanese, a mora-timed language, influences stress-timed English production. Their second hypothesis that “Japanese speakers used F0 (fundamental frequency) more than the natives to indicate English stress because the pitch is the only consistent cue for accented syllables in Japanese” (Aoyama & Guion, 2007) turned out as expected.

Korean and English are very different languages in terms of grammatical structure, and also different in how their prosodic systems encode information. Korean has no lexical stress, no prominence caused by phrasal tones, and no final lengthening at the end of APs. Cho and
Keating (2001) claimed that compared to English, French, and Taiwanese, Korean had the strongest and most consistent initial strengthening.

In this study, it was expected that Japanese speakers would have more native-like syllable durations than English speakers in Korean production. The variation in duration was also examined. In addition, Japanese speakers were expected to show wider pitch range than both English speakers and the control group due to their L1 influence. On the other hand, English speakers were expected to have unequal vowel duration when producing a Korean syllable because English tends to shorten or lengthen vowels depending on the fall of stress.

This study shows how similar or different the production of the tonal structure of an AP by English and Japanese speakers is. It also answers questions such as what issues the L2 learners faces in this regard.
CHAPTER 3: METHODOLOGY

In this study, three experiments were conducted in order to recognize possible pronunciation difficulties of Korean learners from different language backgrounds in terms of prosodic features. The first experiment was to identify tonal patterns of Korean accentual phrases produced by participants due to different L1s (Japanese and English) and compare the production data with those of the control group, native Korean speakers. The second experiment was to compare the intonation of simple greeting sentences produced by participants with different L1s with the intonation of the control group. The third experiment was a description task of a family photo, which gave information about participants’ fluency level by analyzing the number of syllables in an AP, syllable duration, and the number of pauses in an IP.

Experiment One: Korean Sentence Production

Procedures.

Student survey sheets about language background of the participants (Appendix A) were filled out before the experiment in order to obtain detailed information about subjects including bio data.

First, three Korean sentences typed on a paper (Appendix C) were shown to participants. The subjects were instructed to read each sentence two or three times in as colloquial a way as possible. The subjects were given a couple of minutes to read and practice the sentences several times before recording, so that they could be comfortable to make it colloquial. Depending on the subjects’ proficiency level, a few had more time to practice until they were ready to pronounce correctly. The same sentences were shown with Romanization for the subject who couldn’t read Korean.

The utterances were recorded by a voice recorder in an EALL GTF office, the sound files were transferred to a computer, and each utterance was pitch-tracked in the Praat sound analysis program. The second AP of Sentence 1 & 2, 사과를 sagwaril meaning ‘apples’, was selected in order to analyze the different syllable duration among native Korean speakers (NKSs), native English speakers (NESs), and native Japanese speakers (NJSs). Some
recordings had minor noise interference as the voice recorder had a built-in microphone without a headset. This should be considered for further experiments in other studies.

Participants.

Six native Korean speakers (NKS) in the Language Teaching Specialization (LTS) program participated in the experiment as the control group. Four of the NKSs (Subjects 1~4) were born and raised in Seoul. Subject 5 was born in Seoul, and moved to Canada when she was 10 years old. Subject 6 is from Daegu where the southern dialect of the Korean language is spoken. Her southern dialect accent is not very strong but is noticeable.

Subject 7, a male native English speaker (NES), lived in Seoul for about three years teaching English and self-studied Korean without formal instruction. His pronunciation is relatively good as he was exposed to the target culture while learning the language. Still, he has an American English accent. Subject 8, a male NES is fluent in both Chinese and Japanese, and he wanted to learn Korean for his academic study. He had a Korean tutor while self-studying. Subject 9 studied Korean in a formal institution for a year while he was staying in Korea. This native French speaker can also speak some Japanese as he stayed in Japan for several years teaching English. With his long years of living in the States and teaching experiences, he was categorized as a native English speaker in the experiments. Subject 10, a female NES is able to read Hanguel, the Korean written language, at a very basic level.

Regarding the NJSs, Subject 11 and 12 learned Korean from a Korean tutor in an informal study group. They can read and write Hanguel at a basic level. Even though they can differentiate plain/aspirate/tense consonant sets, which are very different from voiced/voiceless sets in Japanese and English, they have strong Japanese accent in production. Subject 13 self studied Korean for less than 3 months for reasons of personal curiosity. In fact, she could not read Hanguel and had to read Romanization-attached sentences for the experiment. Before recording, I helped her with the pronunciation of certain AP for smooth connection of each syllable, but I don’t think this quick reading assistance for her considerably affected her production of the sentences as she has a very strong Japanese accent.

Subject 14 and 15 are the University of Oregon (U of O) exchange students from Waseda University in Japan, where they took the same Korean class. Subject 14 is more fluent in
Korean, and has relatively better pronunciation than subject 13. Both can read and write in Korean.

Subjects 16–22 are all the U of O students taking Korean classes. Subject 16, a male NJS, has been studying Korean for two years at the U of O. He is not very communicatively fluent in Korean but has relatively good pronunciation. Subject 17, a male NJS, has been studying Korean for a year at the U of O. Subjects 18–22 are Korean heritage students in the U of O Korean classes. Subject 18, a female NES, who has been studying Korean for about 5 years, is the most fluent of all participants. Although Subjects 19–22 have taken the second year Korean classes at the U of O, there were proficiency level differences among the these subjects. Subject 20 had the least English accent in producing Korean sentences while Subject 22 had the strongest foreign accent. Table 1 below shows approximate information about all participants.

Table 1

Participant Information of Experiment One

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Proficiency level</th>
<th>Length of study</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>NKS (Seoul/Canada)</td>
<td>0–10 years</td>
<td>Born in Seoul Raised in Canada (since 10yr) LTS student</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>NNS (Daegu)</td>
<td></td>
<td>Born/raised in Daegu</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>NES (low intermediate)</td>
<td>2.5 yrs of self study, No formal Instruction</td>
<td>Stayed in Seoul for three yrs, LTS student</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>NES (beginner)</td>
<td>Less than a month self study, Korean tutor</td>
<td>No stay in Korea Fluent Chinese/Japanese</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>NES (high beginner)</td>
<td>One year of formal instruction in Korea</td>
<td>Stayed in Korea for 2 years AEI instructor</td>
</tr>
<tr>
<td>10</td>
<td>F</td>
<td>NES (beginner) Can read Hanguel</td>
<td>No formal instruction</td>
<td>No stay in Korea Ling faculty</td>
</tr>
<tr>
<td>Subject</td>
<td>Gender</td>
<td>Proficiency level</td>
<td>Length of study</td>
<td>Details</td>
</tr>
<tr>
<td>---------</td>
<td>--------</td>
<td>-------------------------</td>
<td>---------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>11</td>
<td>F</td>
<td>NJS (beginner)</td>
<td>No formal instruction</td>
<td>No stay in Korea EALL instructor</td>
</tr>
<tr>
<td>12</td>
<td>F</td>
<td>NJS (beginner)</td>
<td>No formal instruction</td>
<td>No stay in Korea EALL Ph.D/GTF</td>
</tr>
<tr>
<td>13</td>
<td>F</td>
<td>NJS (zero beginner)</td>
<td>No formal instruction</td>
<td>No stay in Korea LTS student</td>
</tr>
<tr>
<td>14</td>
<td>M</td>
<td>NJS (low intermediate)</td>
<td>2.5 yrs. studied at Waseda University in Japan</td>
<td>No stay in Korea UO exchange Student</td>
</tr>
<tr>
<td>15</td>
<td>M</td>
<td>NJS (high beginner)</td>
<td>2 yrs studied at Waseda University in Japan</td>
<td>No stay in Korea UO exchange student</td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>NJS (low intermediate)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td>17</td>
<td>M</td>
<td>NJS (low intermediate)</td>
<td>UO 1 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Korean Heritage Ss (Intermediate)</td>
<td>UO 1 year Korean class Studied 5 years</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Korean Heritage Ss (Low intermediate)</td>
<td>UO 2 year Korean class</td>
<td>6 months studying in Korea</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Korean Heritage Ss (Low intermediate)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Korean Heritage Ss (Intermediate)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Korean Heritage Ss (High Beginner)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
</tbody>
</table>

**Experiment Two: Greeting Intonation Production**

**Procedures.**

Five simple greeting sentences (Appendix D) written on a paper were shown to Subjects. These five greeting expressions were selected as they are most commonly used in daily life, so that low proficiency participants could produce sentences without Romanization. The subjects were instructed to look over the sentences and say them as naturally as possible.

In the same way as in the first experiment, the utterances were recorded by a voice recorder in an EALL GTF office, the sound files were transferred to a computer, and each utterance was pitch-tracked in the Praat sound analysis program.
Participants.

The subjects were selected on a voluntary basis from 22 participants of the first experiment. Three NKSs (Subjects 1, 3, 5) formed the control group and two NESs (Subjects 8, 9), two NJSs (Subjects 12, 17), and five Korean heritage Ss (Subjects 18–22) participated in the greeting production experiment.

Table 2

Participant Information of Experiment Two

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Proficiency level</th>
<th>Length of study</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>NKS (Seoul/Canada)</td>
<td></td>
<td>Born in Seoul Raised in Canada (since 10yr)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LTS student</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>NES (beginner)</td>
<td>Less than a month self study</td>
<td>No stay in Korea Fluent Chinese/Japanese</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Korean tutor</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>NES (high beginner)</td>
<td>One year of formal instruction in Korea</td>
<td>Stayed in Korea for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AEI instructor</td>
</tr>
<tr>
<td>12</td>
<td>F</td>
<td>NJS (beginner)</td>
<td>No formal instruction in Korea</td>
<td>No stay in Korea EALL Ph.D/GTF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Korean tutor</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>M</td>
<td>NJS (low intermediate)</td>
<td>UO 1 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>F</td>
<td>Korean Heritage Ss</td>
<td>UO 1 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Intermediate)</td>
<td>Studied 5 years</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>F</td>
<td>Korean Heritage Ss</td>
<td>UO 2 year Korean class</td>
<td>6 months studying in Korea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Low intermediate)</td>
<td></td>
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</tr>
<tr>
<td>20</td>
<td>F</td>
<td>Korean Heritage Ss</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Intermediate)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>F</td>
<td>Korean Heritage Ss</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Low intermediate)</td>
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<tr>
<td>22</td>
<td>F</td>
<td>Korean Heritage Ss</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(High Beginner)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Experiment Three: Photo Description Task

Procedures.
A family photo was provided to the participants who were asked to describe who the people in the photo were and what they were doing. There was no time limit for the description task. The subjects were given some time to think about the description of the photo and allowed to ask about any words or expressions they did not know before recording. The utterances were recorded by a voice recorder in an EALL GTF office, the sound files were transferred to a computer, and the utterances were statistically analyzed.

Participants.
Four NKSs (Subjects 1, 2, 3, 5) participated as the control group. One NJS (Subject 17) and five Korean heritage students (Subjects 18~22) participated in the photo description task.

Table 3
Participants Information of Experiment Three

<table>
<thead>
<tr>
<th>Subject</th>
<th>Gender</th>
<th>Proficiency level</th>
<th>Length of study</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>NKS (Seoul)</td>
<td></td>
<td>Born/raised in Seoul LTS student</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>NKS (Seoul/Canada)</td>
<td>0~10 years</td>
<td>Born in Seoul Raised in Canada (since 10yr) LTS student</td>
</tr>
<tr>
<td>17</td>
<td>M</td>
<td>NJS (low intermediate)</td>
<td>UO 1 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Korean Heritage Ss (Intermediate)</td>
<td>UO 1 year Korean class Studied 5 years</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Korean Heritage Ss (Low intermediate)</td>
<td>UO 2 year Korean class</td>
<td>6 months studying in Korea</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Korean Heritage Ss (Low intermediate)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>Korean Heritage Ss (Intermediate)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
<tr>
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<td>F</td>
<td>Korean Heritage Ss (High Beginner)</td>
<td>UO 2 year Korean class</td>
<td>No stay in Korea UO student</td>
</tr>
</tbody>
</table>
CHAPTER 4: RESULTS

Results of Experiment One: Korean Sentence Production

Each utterance of the three Korean sentences by 22 subjects was pitch-tracked in the Praat sound analysis system as follows. Non-native subjects were divided into three groups of native English speakers (NES), native Japanese speakers (NJS), and heritage students. Their utterances were compared with those of the control group in order to analyze the differences and similarities of the realized tonal pattern of the sentences and syllable duration.

Although there are subtle differences among individuals, the pitch tracks of NKS Subjects 1-6 (See Fig.1) for the first sample sentence showed similar tonal patterns of LH, HHH, LHLL. The pitch tracks followed the underlying pattern of LHLH for four syllable AP without starting with aspirate or tense sound, as Jun (1998) claimed. Except for Subject 3, the final syllable of the final AP (also played as a final IP) of all subjects was marked by a boundary tone of the IP, which confirms the hierarchical tonal pattern of Korean. That is, the last syllable of the final AP was supposed to be a H tone, and instead, was realized as a L% boundary tone as the boundary tone of the IP preempts the tonal specification of an AP-final syllable. (Jun 1998). Subject 6, who has a southern dialect, did not show a big difference in the tonal pattern from other NKS subjects though the acoustic sound of her tone was noticeably different from Seoul speakers.

![Figure 1](image)

*Figure 1. Pitch tracks of Sentence 1, 나는 사과를 좋아해요 (I like apples.), produced by six native Korean speakers.*
In terms of syllable duration of the second AP, 사과를 sagwaril (apples), NKS subjects showed equal duration across the syllable as expected from the evenly-timed syllables of Korean. It is the syllable duration of the second AP that differentiates NKS and non-NKS. Also, NKS subjects usually kept the pitch high for the second AP (HHH) while non NKS showed various patterns.

Subject 7 (See Fig. 2) showed a similar pattern to NKS subjects. However, the tonal pattern of the second AP, realized as HLH, was different from the control group (HHH). Also, his syllable duration for the second AP final syllable was almost twice as long as the duration for the first two syllables while the NKS group displayed fairly equal syllable duration. Subjects 7 and 9 (See Fig.2) demonstrated very similar intonation contours, implying that their production proficiency level of the target language in terms of pronunciation is much the same. Although these two subjects did not place stress on any of syllables in the second AP, it is easily observed that the last syllable of the AP was lengthened with a final high tone. From their intonation contours, which were similar to those of the control group, Subjects 7 and 9 had a higher proficiency level than Subjects 8 and 10.

Subject 8 (See Fig. 2) produced 2 IPs with a pause after each, indicating he is a beginner. The tonal pattern of the second AP produced by Subjects 8 and 10 looked similar in that both subjects apparently placed English-like stress on a specific syllable, Subject 8 on the second syllable and Subject 10 on the first syllable. This most likely reflects their stress language L1 background. In fact, Subject 10 had a strong English accent reflected in pitch track. She showed a very different tonal pattern (HL HLL LHLL), falling stress on the first or second syllable of the APs.
Generally, NJSs (See Fig. 3) produced sharper rises and falls in pitch, implying that the pronunciation was influenced by their L1 lexical pitch accent. In particular, with the first AP, 나는 naneun, meaning ‘I’, all NJSs showed sharp rise on the second syllable compared to the control group although the tonal pattern was specified (LH) as the same as that of the NKSs.

Although only the pitch contour of Subject 11 (See Fig. 3) displayed a H tone at the final-IP, NJSs had a tendency to place a H tone at a IP-final syllable. Among NJSs, Subjects 16 and 17 (See Fig. 3) had the most similar contours to NKSs. In particular, the last AP of Subjects 16 and 17 was the closest to the natives. However, Subject 16 showed his H tone and lengthening at the second AP-final, implying a slight foreign accent and pronunciation difficulties with the last syllable 들 ril. Meanwhile, H tones of the two syllables and second-syllable lengthening in the second AP, implies that Subject 17’s effort to make a perfect pronunciation for difficult sounds⁴. Subject 12 (See Fig. 3) also demonstrated the same pattern, LLH, for the second AP.

---

¹ r and l are considered difficult sounds for Japanese speakers. In particular, 들 ril is the most difficult syllable because it requires both r and l to be pronounced together within one syllable.
Interestingly, Subjects 14 and 15 (See Fig. 3), exchange students from Waseda University, showed similar pitch contours though Subject 14 had less foreign accent in pronunciation. Subject 15 showed the tendency of lengthening the last syllables of the first two APs, which indicated pronunciation difficulties, and IP-final H tone from his lexical pitch accent of L1, not realizing the boundary tone for the IP-final. Subject 13, at a very beginning stage of learning Korean, demonstrated the strong influence her native language has. Her pitch pattern shows that she put pitch accents on the last syllables of APs except the final AP.

*Figure 3. Pitch tracks of Sentence 1, 나는 사과를 좋아해요 (I like apples.), produced by seven native Japanese speakers.*

Korean heritage students are basically categorized as NESs, but treated separately from other NESs because they may be more exposed to Korean than general English speakers from their family backgrounds and it may have some influence on their production. Unfortunately, however, I used the same questionnaire to determine their language backgrounds as the one I used for other subjects. Thus, I could not get detailed information
such as whether they use Korean at home, and how often or how many hours they use Korean outside of classes. Although I was not sure whether they used Korean at home, they showed strong motivation to learn the language.

As expected, the heritage students generally showed similar contours to the control group. Subject 18 (See Fig. 4), who took first year Korean classes at the U of O and studied Korean for five years, had a very similar contour to the control group except the first syllable lengthening of the first AP. Subject 19 with some English accent, put stress on the final syllables of the first two APs, but demonstrated a boundary tone for the IP-final. Subject 20 showed wider pitch ranges than others. Her high pitch tones on the second AP may indicate that her parents are from the southern area of Korea, where the southern dialect speakers keep higher tones than Seoulites. Although the tonal pattern for the second AP was realized as HLH, she produced a similar pattern to the control group. In the case of Subject 22 (See Fig. 4), who has a fairly strong English accent, it is a little difficult to identify LH tones with a very slight change from L to H.

![Subject 18](image1)
![Subject 19](image2)
![Subject 20](image3)
![Subject 21](image4)
![Subject 22](image5)

*Figure 4. Pitch tracks of Sentence 1, 나는 사과를 좋아해요 (I like apples.), produced by five Heritage students.*

Sentence 2 is also composed of one IP and three APs. However, unlike Sentence 1, the first AP of Sentence 2 has five syllables, and the assumption is that the tonal pattern would be realized as LHLLH. In the case that an AP has more than four syllables, the first two
syllables and the last two syllables are specified as LH or HH tonal patterns when the first segment of the syllable is tensed or aspirated (Jun, 1998). And the initial H tone is higher than the final H tone.

Subjects 1-5 (See Fig. 5) demonstrated the expected tonal pattern, LHLLH. However, the initial H tones in Subjects 3 and 4 were not realized higher than the final H tones. Interestingly, Subject 6 showed a different tonal pattern from her southern dialect, marking the highest tone on the third syllable.

![Pitch tracks of Sentence 2, 우리 언니도 사과를 좋아해요(My sister also likes apples.), produced by six native Korean speakers.](image)

Subject 7 (See Fig. 6) produced LHLLH but the final H tone is much higher than the initial H tone, and the syllable duration was also about three times longer than other syllables in the first AP, which means he displayed the AP-final lengthening from his native language. Subject 8 made two APs for the first AP with a pause, placing stress on the second and fourth syllables, and producing different syllable duration for the unstressed and stressed syllables. Subject 9 showed a similar pattern to Subject 7, demonstrating a higher final H tone and longer duration. Subject 10 showed evidence of English stress on the third syllable of the first AP and final AP-lengthening.
Figure 6. Pitch tracks of Sentence 2, 우리 언니도 사과를 좋아해요 (My sister also likes apples.), produced by four native English speakers.

The tonal pattern of Subject 11 (See Fig. 7) was realized as LHLLH. However, the final H tone was high as the initial H. Subject 12 and 17’s tonal patterns are the most similar to the control group. Still, the duration of the first AP-final syllable was longer than the control group. Subject 14 showed an interesting pattern of LHLHL, with the higher final H tone. The other exchange student from Waseda University, Subject 15, showed a LHLLH pattern. In his case, it seemed that he put Japanese pitch accent on the last syllable of each AP. Subject 16 looked similar to Subject 12 in the tonal pattern of LHLLH with high final H even though Subject 16 displayed higher final H.

Subject 18 (See Fig. 8) showed a LHLHH pattern. It was different from the control group, but she kept the same duration for each syllable. Subject 19 produced a low plateau for the first four syllables with a lengthened final H tone, implying an influence from her English accent. Subject 20 and 21 showed a pattern of LHLLH with a higher final tone. In the case of Subject 21, she took more time to pronounce the second and fifth tones, making longer higher tones. Subject 22 showed a LHLHL tone like Subject 15, a male Japanese speaker. She also produced different syllable duration for the second and fifth syllables, which is L1 influence.
Figure 7. Pitch tracks of Sentence 2, 우리 언니도 사과를 좋아해요 (My sister also likes apples.), produced by seven native Japanese speakers.

Figure 8. Pitch tracks of Sentence 2, 우리 언니도 사과를 좋아해요 (My sister also likes apples.), produced by five heritage students.
The third sentence was very challenging to non-native speakers as the most difficult consonants, tense and aspirated sounds, ᵃʰʰ p̚p̚ & ᵃʰʰ p̚ which recognized as a voiceless /p/ to Japanese and English speakers, were included consecutively in the second AP. It was predicted that non-native speakers would make more pauses between APs, even within an AP. The final AP was also challenging for non-native speakers unless they were at a certain proficiency level. ᴵⁿᵉʸᵒ ᴵⁿᵉʸᵒ meaning ‘is’, may be considered a general statement with falling intonation. However, it is interpreted as confirmation of the existence of a thing (here ‘a red pencil case’), and IP-final syllable has a H tone with a slight rising intonation in order to confirm the thing with a listener. The rising intonation of a confirmation statement was not intended at the first stage of the experiment, and ended up emerging as a challenging factor in achieving the right pitch contour for non-native subjects.

The tonal patterns of Sentence 3 among the control group (See Fig. 9) were generally realized as HLH HHHHH HLH. Though the second AP including the tense and aspirated consonants was specified as all H tones, the degrees of tonal height were different among native Korean speakers. The tense consonant ᵃʰʰ p̚p̚ was realized as lower H tone than the aspirated consonant ᵃʰʰ p̚ in all native speakers. However, Subject 6 (See Fig. 9) showed a sharper rise from the aspirated /p/ than others, which must be from the influence of her southern dialect. Subject 6 also tended to pronounce vowels longer than other NKSs.

Figure 9. Pitch tracks of Sentence 3, 저기에 빨간 펜통이 있습니다. (There is a red pencil case.), produced by six native Korean speakers.
As predicted, Sentence 3 was difficult for non-native speakers. All NES participants (See Fig. 10) produced four APs instead of three APs, making a pause within the second AP. Subjects 8 and 10, beginning learners, placed stress on the first or second syllable of APs. Subjects 7 and 9 rather clearly pronounced the difficult consonants, which was much better than other NES subjects, but could not show arch-shaped contour for the second AP as in the native group. In particular, they used a falling intonation, not recognizing the confirmation ending of ‘있네요’.

![Subject 7](image1)
![Subject 8](image2)
![Subject 9](image3)
![Subject 10](image4)

*Figure 10. Pitch tracks of Sentence 3, 저기에 빨간 펜통이 있네요.* (There is a red pencil case.), produced by four native English speakers.

In this group, Subjects 14 and 17 (See Fig 11) showed the most similar arch-shaped pattern for the second AP to the control group. Neither recognized the rising intonation for the confirmation statement but focused on correct pronunciation of difficult consonants. Interestingly, Subjects 11 and 12 showed rising H tones at IP-final syllables. It didn’t seem that they recognized the rising intonation for confirmation. Rather it seemed to be the influence of their L1 pitch accents and the tendency toward use of final H tones. It appeared that Subjects 13 and 15 put pitch accent on the first (Subject 15) and the last (S13) syllables of APs. Although Subject 15 was at a higher proficiency level than Subject 13, he was also
struggling with proper production of consecutive tense and aspirated sounds and made more pauses.

Subject 11

Subject 12

Subject 13

Subject 14

Subject 15

Subject 16

Subject 17

Figure 11. Pitch tracks of Sentence 3, 저기에 빨간 펜이 있어요. (There is a red pencil case.), produced by seven native Japanese speakers.

Subject 18 (See Fig. 12) showed a native-like tonal pattern with rising intonation. Subject 19 put stress on high tones of the second AP. Subject 20 produced high pitch rise on the first and last syllable of the second AP. She also had a rising intonation, which sounded native-like. Subject 21 had a fairly strange pitch contour that was hard to interpret. It seemed that there was a technical problem tracking the pitch here for some reason. Subject 22 showed a flattened contour with a falling intonation. Influenced by her strong English accent and rhythm, she lengthened the first AP-final syllable.
Figure 12. Pitch tracks of Sentence 3, 적기에 빨간 필통이 있는데. (There is a red pencil case.), produced by five heritage students.

Figures 13-16 presented different syllable durations of the second AP (사과를 meaning ‘apples’) of Sentences 1 and 2 between NKS and non NKS Subjects. The utterances of Subjects 1, 2, 6 (See Fig. 13) from the control group were selected to show evenly-timed syllables in Korean. Meanwhile, Subjects 7 and 9 (See Fig. 14) from the NES group elongated the AP-final syllable, which reflected the stressed vowel elongation in English, where vowels are shortened or lengthened depending on the fall of stress.

Subjects 12 and 17 (See Fig. 15) showed Japanese speakers spent more time to pronounce the last two syllables. I propose that Japanese subjects, speaking a more timemarked language, needed more time to pronounce double vowels (과 gwa) and a final consonant, which is a coda as well as the second mora, (를 ril). The first syllable was a light syllable with one mora while the other two following syllables were heavy syllables with two moras.

The selected heritage students (See Fig. 16) also demonstrated evenly-timed syllables like the control group as Subjects 18 and 21 were at an intermediate level and had smoother pronunciation than other subjects.
Figure 13. Syllable durations of the second AP, 사과를 sagwaril (apples), of Sentences 1 & 2, produced by three native Korean speakers.

Figure 14. Syllable durations of the second AP, 사과를 sagwaril (apples), of Sentences 1 & 2, produced by two native English speakers.

Figure 15. Syllable durations of the second AP, 사과를 sagwaril (apples), of Sentences 1 & 2, produced by two native Japanese speakers.
Subject 18

*Figure 16.* Syllable durations of the second AP, 사과를 *sagwaril* (apples), of Sentences 1 & 2, produced by two heritage students.

*Results of Experiment Two: Greeting Intonation Production*

Korean speakers (See Fig. 17) showed flat tones with a slight high tone in the middle. Meanwhile, English speakers demonstrated a few more tone changes among syllables. Subjects 8, 12, and 20 (See Fig. 18, 19, 20) produced a native-like natural intonation among non-native speakers. However, the pitch contour does not always reflect fluency in terms of pronunciation. The pitch contour of Subject 22 (See Fig. 20) with strong English accents looked similar to the control group regardless of the foreign accent.

Subject 1

*Figure 17.* Pitch tracks of Greeting 1, 안녕하세요 *annyeonghaseyo* (Hi, how are you?), produced by three native Korean speakers.

Subject 8

*Figure 18.* Pitch tracks of Greeting 1, 안녕하세요 *annyeonghaseyo* (Hi, how are you?), produced by two native English speakers.
Figure 19. Pitch tracks of Greeting 1, 안녕하세요 annyeonghaseyo (Hi, how are you?), produced by two native Japanese speakers.

Figure 20. Pitch tracks of Greeting 1, 안녕하세요 annyeonghaseyo (Hi, how are you?), produced by five heritage students.

Compared to the flattened control group (See Fig 21), English speakers (See Fig 22) also showed severe rises and falls. Korean speakers produced strong and lengthened IP-finals. Although Japanese speakers (See Fig 23) lengthened the IP-final, they lowered intonation while the control groups kept the same tone for the IP-final. Subject 21 (See Fig 24) produced a similar intonation to the control group. Other heritage students showed low plateau (Subjects 18 and 20), or a rising tone for IP-final.
Figure 21. Pitch tracks of Greeting 2, 고맙습니다 *komapsemnida* Thank you, produced by three native Korean speakers.

Figure 22. Pitch tracks of Greeting 2, 고맙습니다 *komapsemnida* Thank you, produced by two native English speakers.

Figure 23. Pitch tracks of Greeting 2, 고맙습니다 *komapsemnida* Thank you, produced by two native Japanese speakers.
Subjects 1 and 3 (See Fig. 25) had the exactly same pattern for the sentence, 천만에 요 cheonmaneoyo. Subject 5 had a rising tone for the final syllable. A rising tone for the greeting message might sound angry depending on the situation. Given her long stay in Canada, she might not have been as exposed to the expression as Subjects 1 and 3.

Subjects 8 and 12 (See Fig. 26 and 27) showed similar rising tone to Subject 5. Although both English speakers and Japanese speakers generally showed similar contours to Korean speakers, the non native group showed sharper angles on the curves.

Unexpectedly, the Korean heritage group (See Fig. 28) produced different intonation for the expression. In particular, Subjects 18 and 20 created much sharper angles on the curve than other non-native subjects. These look like technical pitch tracking issues. Subjects 19 and 22 kept one high tone, reflecting strong foreign accent.

Subject 1
Subject 3
Subject 5
Figure 25. Pitch tracks of Greeting 3, 천만에 요 cheonmaneoyo (You're welcome), produced by three native Korean speakers.
Figure 26. Pitch tracks of Greeting 3, 천만에 요 cheonmaneyo (You’re welcome), produced by two native English speakers.

Figure 27. Pitch tracks of Greeting 3, 천만에 요 cheonmaneyo (You’re welcome), produced by two native Japanese speakers.

Figure 28. Pitch tracks of Greeting 3, 천만에 요 cheonmaneyo (You’re welcome), produced by five heritage students.

In the case of Greeting 4, Subjects 1, 3, and 5 (See Fig. 29) showed subtly different patterns. Subject 1 had a more flattened monotonous tone, implying more business-like
formality while Subject 3 expressed softer register with slight high tones on the second and third syllables. Subject 5 had a rising tone at the end, which looked like her habitual tendency.

Subject 8 (See Fig. 30) might not have had many chances to use the expression in a context, which gave him no sense of its intonation. He put stress on the third syllable, shortening the following two syllables with falling intonation. Subject 9, who had formal instruction learning Korean, was expected to show a similar intonation to the native speakers. It did not come out as expected. Subject 12 (See Fig. 31) showed one connected line for the expression. In fact, she made six syllables by adding a syllable from her L1 interference.

Subject 1  
Subject 3  
Subject 5

*Figure 29.* Pitch tracks of Greeting 4, 미안합니다 *mianhamnida* (I am sorry.), produced by three native Korean speakers.

Subject 8  
Subject 9

*Figure 30.* Pitch tracks of Greeting 4, 미안합니다 *mianhamnida* (I am sorry.), produced by two native English speakers.

Subject 12  
Subject 17

*Figure 31.* Pitch tracks of Greeting 4, 미안합니다 *mianhamnida* (I am sorry.), produced by two native Japanese speakers.
Subjects 18 and 20 (See Fig. 32) presented sudden low tones for the final syllable while the other three students had a rising intonation, which for Subject 18, at least, appeared again to be a pitch tracking problem. Subject 19 showed an interesting pattern for the final syllable. She produced both L and H tones with sharp change for the lengthened syllable.

![Subject 18](image1)
![Subject 19](image2)
![Subject 20](image3)

![Subject 21](image4)
![Subject 22](image5)

*Figure 32. Pitch tracks of Greeting 4, 미안합니다 mianhamnida (I am sorry.), produced by five heritage students.*

Subjects 1 and 3 (See Fig. 33) also showed the same pattern for the expression, 편찮아요 Kwaenchanayo, starting a low tone and changing into H tones for the second and third syllables, and ending with a slightly rising H tone. Meanwhile, Subject 5 kept a falling intonation. Subject 8 (See Fig. 34) showed similar falling intonation to Subject 5 except putting stress on the first syllable. Subject 9 presented a very natural intonation for the expression. Subjects 12 and 17 (See Fig. 35) produced similar intonation to the control group, and were slightly different in that Subject 12 had HL tones for the final syllable and Subject 17 made a disconnected H tone for the second syllable.
Figure 33. Pitch tracks of Greeting 5, 편찮아요 kwaenchanyo (It’s okay.), produced by three native Korean speakers.

Figure 34. Pitch tracks of Greeting 5, 편찮아요 kwaenchanyo (It’s okay.), produced by two native English speakers.

Figure 35. Pitch tracks of Greeting 5, 편찮아요 kwaenchanyo (It’s okay.), produced by two native Japanese speakers.

Interestingly, most heritage students had disconnected intonation lines for the expression. Subjects 18 and 22 (See Fig. 36) had a similar L tone for the final syllable while Subjects 19 and 21 kept H tones. Subject 20 produced a unique pattern of rising intonation. The sudden L tone of Subject 18 seemed to be creaky voicing which make pitch tracking unreliable due to...
the irregular glottal pulses. This creaky voicing is typical of phrase final productions in English.

Figure 36. Pitch tracks of Greeting 5, 편찮아요 kwaenchanayo (It’s okay.), produced by five heritage students.

Results of Experiment Three: Photo Description Task

Table 4 below shows the results of data analysis for Experiment Three: photo description task. Four NKSs (Subjects 1~3, 5) formed the control group, and one NJS (Subject 17) and five heritage students (Subjects 18~22) participated in the task. The description contents by participants were transcribed in Korean based on the recordings.

A family photo that was provided to the subjects was selected from the Internet. The illustrated picture, titled as a “fractured family,” showed four members of a family: parents, a son, and a daughter. They did not look at the camera nor smile at each other. They seemed to be thinking about something else.

There was no time limit for the task, and uncertain words or expressions were allowed to be confirmed before recording. A description task was a good way of checking fluency level of participants as it could be adjusted to an individual’s proficiency level. It was predicted that native speakers would have more APs, fewer pauses, and shorter syllable durations than the non-native speakers.
Table 4

**Data Analysis of Photo Description Task**

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<th># of Syllables</th>
<th>Time(s)</th>
<th>Pause Time (s)</th>
<th>Time w/pause (s)</th>
<th>Ave Syll in an AP</th>
<th>Syllable Duration</th>
<th># of Pause</th>
<th># of IP</th>
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<td><strong>9.6</strong></td>
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As predicted, native speakers had more APs and syllables, about three times more than non-native speakers. The average number of syllables in an AP was larger in native groups than those of non-natives. Meanwhile, native speakers had shorter syllable durations with an average of 0.22 seconds per syllable. NJs spent 0.07 second and NESs 0.12 seconds more to produce a syllable than the control group. The number of pauses turned out to be slightly higher in the native group, as it utilized more IPs to describe the photo. The number of pauses would have been lower if only Subjects 1~3’s data had been averaged because Subject 5 produced far more pauses than the other Korean subjects.

Figure 37 shows the difference of syllable duration among native Koreans, a Japanese student, and heritage students. Figure 2 shows the number of pauses in an IP among different groups.
Figure 37. Syllable durations among NKS, NJS, and Heritage Ss

Figure 38. Number of pauses in an IP among NKS, NJS, and Heritage Ss
CHAPTER 5: DISCUSSION

The major predictions based on the subjects' native languages, generally came out as expected. English speakers showed evidence of L1 influence in pronouncing Korean syllables in their intonational contours and showed unequal syllable duration, that is, vowel shortening and lengthening depending on the placement of stress. Meanwhile, Japanese participants showed more severe pitch ups and downs, most likely due to their pitch accent in Japanese. English speakers produced more unevenly-timed syllables than Japanese. However, NJS also elongated heavy syllables more than the native group, reflecting the feature of a mora-timed language.

The LHLH tonal pattern for four syllables turned out to be native contours in Korean accentual phrases if the first segment does not begin with a tense or aspirate sound. Unlike the unchangeable placement of stress on English words and lexical pitch accent on Japanese words, Korean phrasal tone changes depending on the number of syllables in an AP and on whether the first segment is a plain, tense, or aspirated sound. These undecided tonal patterns seem to make learners confused in learning Korean at a beginning stage. However, the fact that tonal patterns are decided by the number of syllables and the type of the first segment of the first syllable can be an advantage for predicting the tonal patterns from segmental elements.

The proper realization of the tonal patterns with fewer pauses and shorter syllable duration is interpreted as the possession of better fluency and comprehensibility as we saw in the results in sentence production and greeting intonation experiments. Those subjects who produced tonal patterns and intonation contours in the experiments similar to the native group had shorter and fewer pauses and shorter syllable duration.

A limitation of the study was not having enough subjects who could speak Korean at a higher proficiency level. Most subjects participating in the experiments were at beginning and low intermediate levels in their proficiency. In addition, the sentences used in the study had some difficult segmental consonants and vowels, and the segmental difficulties may affect production of the suprasegmental elements.
CHAPTER 6: PEDAGOGICAL APPLICATION

Language Instructor Interviews

In order to identify their perception for the importance of prosodic features in teaching a language and to get ideas about effective teaching techniques in classroom, six ESL instructors at the American English Institute at the University of Oregon and a Chinese language instructor were interviewed. All instructors interviewed agreed that prosodic features such as tones, rhythm, intonation, stress, and pitch accents play a significant role in learning a language and the improvement of these features directly relates to intelligibility and language fluency. Not knowing nor using prosodic features in learning a language hurts intelligibility of a speaker.

An instructor who has been teaching English to foreign students for about 20 years, pointed out that the lack of stress and intonation in speaking English distracts listeners easily from the topic. That is, English native speakers tend not to pay attention to the message or idea because they notice the unnatural delivery that lacks stress and intonation. In particular, as English is a stress language, delivery system utilizing stress and intonation is the most significant factor to understanding, paying attention to the message, and continuing the conversation. Not to distract listeners is a very compelling reason to learn stress and intonation patterns while learning English.

In traditional language teaching, consonants and vowels were taught while ignoring stress, accent, and intonation. This still appears in the foreign language teaching setting in Korea. However, the instructors interviewed emphasized the importance of teaching simultaneously suprasegmental features and segmental features from the beginning stage. They claimed that stress and intonation are a part of language, especially in English, and that these elements can not be separated from words or sentences in learning English. These non-segmental features, which native speakers are not explicitly taught when they learn their mother tongue, should be introduced to second language learners in a logical way. Instructors maintained that they should adjust degrees and frequency of teaching the combination of both features, depending on learners’ proficiency level.

It is generally accepted that non-verbal suprasegmental features should be introduced at an advanced level. It has been believed until recently in the EFL setting in Korea, where
English learners were rarely exposed to authentic English except in private English institutes, that only segmental features should be taught at the beginning stage by focusing on difficult segmental pairs. If the purpose of the language learners is to read and write in a target language, it is not so bad to focus only on the segmental features. However, if the purpose of learning is to communicate with a foreigner in a second language, suprasegmental elements become as important as vowels and consonants. In relation to the recent trend of emphasis on communicative competence, suprasegmental features have become inevitable as the language instructors interviewed claimed.

The teaching techniques the all instructors I interviewed for this project usually use in a classroom, are drawing, modeling, using hand gestures, clapping, using music notes, drawing lines of tones, underlining the stress, jazz chant drills, etc. Stretching rubber bands or blowing a kazoo are interesting techniques to teach vowel length and rhythm without learners being distracted by meanings of the words or sentences. Most of them agreed that visual realization of stress and rhythm help students focus more on learning prosodic features.

_Pilot Teaching: Procedure and Participants_

A simple pilot teaching was planned to experiment with whether explicit instruction of prosodic features would result in any improvement in fluency and comprehensibility of the target language. Derwing and Rossiter (2003) showed evidence of positive correlation between global instruction on suprasegmental features and the improvement of comprehensibility and fluency in their study on learners of English.

Based on the interview results and literature review, explicit instruction was expected to improve these aspects of pronunciation. Nonetheless, considerable improvement was not expected with the pronunciation instruction as only a short term instruction period was possible for the current purpose.

Subject 9, NES male (high beginner), and Subject 12, NJS female (beginner) participated in the pilot teaching for a total of six hours. The subjects met three days a week for two hours. Please refer to the syllabus (Appendix G) for the detailed information. Two subjects recorded three Korean sentences that were used previously in Experiment One before and after the instruction in order to identify any improvement.
Two subjects were not able to produce sentences in Korean as they were at a beginning stage of learning Korean. They needed to differentiate and produce plain/aspirated/tense consonant sets, which are different from the voiced/voiceless sets in English and Japanese. The other consonants and vowels were reviewed with three sets of consonants by modeling and drawing the location of vowels and consonants. The teaching materials, which were based on the research paper on Korean intonation education (Lee, 2004; Oh & Lee, 1993), can be found in Appendix H.

The results can be seen in Figures 39 and 40, and Table 5. The recorded files were pitch tracked and analyzed by Praat sound system. Although it looked like Subject 9 (See Fig. 39) did not change much in his pronunciation in terms of pitch contours, syllable durations and the pause time were surely shortened after the instruction (See Table 5).

Before

![Sentence 1](Before_Sentence1.png) ![Sentence 2](Before_Sentence2.png) ![Sentence 3](Before_Sentence3.png)

After

![Sentence 1](After_Sentence1.png) ![Sentence 2](After_Sentence2.png) ![Sentence 3](After_Sentence3.png)

*Figure 39. Pitch tracks of Sentences 1~3, produced before and after the pilot teaching by Subject 9 (NES)*

After the instruction, Subject 12 (See Fig. 40) lost a part of her sudden high pitch accent in the first AP of Sentence 2 production. The pitch contours were generally getting rounder after instruction than before, and the syllable duration and pause time were shortened like Subject 9. Table 5 shows the sentence production time.
Figure 40. Pitch tracks of Sentences 1~3, produced before and after the pilot teaching by Subject 12 (NJS)

Table 5

<table>
<thead>
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<th>Sentence</th>
<th>Sentence 2</th>
<th>Sentence 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject 9</strong></td>
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<td>3.591</td>
<td>4.231</td>
</tr>
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<td>After    2.975</td>
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<tr>
<td><strong>Subject 12</strong></td>
<td>Before 2.014</td>
<td>3.438</td>
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<td></td>
<td>After    2.042</td>
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CHAPTER 7: CONCLUSION

Pedagogical Application of Research

The more important communicative competence becomes in learning a language, the more demanding the education for prosodic features gets. The issue concerns how to identify or predict the pronunciation difficulties that Korean learners will encounter and how to effectively teach significant prosodic features that are closely related to fluency and comprehensibility of language production.

Lee (2004) claimed that Korean intonation plays various important functions of grammar, discourse, emotion, and attitude, and it should be taught in a proper way, step by step. He suggested that Korean language instructors should decide on listing up major intonation patterns and usages, and teach them systematically from easy to difficult, and short to long examples.

As the ESL instructor interviewed pointed out, unnatural delivery lacking English stress and intonation tends to cause listeners’ distraction from the message. Korean learners also can not continue conversations with native Koreans if they can not deliver the message with proper Korean intonation and equally timed syllables.

NESs, who tend to shorten or lengthen vowels and place stress on a specific syllable, should be taught with the focus on producing equal-timed syllables and LHLH tonal patterns of Korean. Meanwhile, NJISs, who tend to produce sudden LH or HL pitch accent, should be taught with the focus on the native-like tonal pattern of LHLH, and practice should be focused on shortening heavy syllables of double vowels and final-consonant coda.

In fact, the pilot teaching had limitations similar to the earlier experiments, such as a small number of participants, extremely short time to get results, lack of advanced subjects, and other unpredictable variables. There was also a validity issue as to whether the measurement to identify their improvement was valid. Another validity issue is that the pronunciation instruction was not focused only on the prosodic features because segmental instruction was necessary to start prosody-focused instruction to beginning learners.

Nonetheless, a slight improvement was shown in the pilot teaching, indicating that explicit pronunciation instruction can be effective. Based on the language teaching techniques commonly used in a classroom, the lessons were focused on shortening sentence
production time and decreasing time for pause. Moreover, APs connections by subjects got smoother with the instruction. The last AP of Sentences 1 and 3 were pronounced almost near-native like. A smooth connection between APs without a pause and proper realization of AP tonal patterns gave them more fluency and comprehensibility.

Direction for Future Research

In this research, English and Japanese speakers’ pronunciation difficulties were investigated to understand their weaknesses in learning Korean. In fact, the Korean learning population has been increasing in Southeast Asian countries as well as in Japan and China. This increase may have been influenced by the spread of Korean culture through entertainment media such as movies and TV drama, and also by the increase of those who want to work or study in Korea. It is expected that the Korean language learning population will continue to increase.

In consideration of multiplying Korean learners from many other countries, the study will be expanded to identify difficulties for those from Southeast Asian countries and China.
REFERENCES


APPENDICES

Appendix A: Survey questionnaire to Korean learners

Appendix B: Interview questions to language instructors

Appendix C: Experiment one sentences

Appendix D: Greeting expressions

Appendix E: Family photo

Appendix F: Task description scripts

Appendix G: Pilot teaching syllabus

Appendix H: Pilot teaching lesson plans

Appendix I: Teaching materials
Appendix A: Survey questionnaire to Korean learners

Thank you for your time taking this survey. It is for those who are learning Korean as a foreign or second language to find out their language background and motivation.

1. What is your nationality?
   1) American, 2) Korean 3) Japanese 4) Chinese
   5) other ( )

2. Are you a Korean heritage student?
   1) Yes 2) No

3. What languages can you speak including your native language?
   1) English 2) Japanese 3) Chinese 4) Spanish
   4) German 5) French 6) Other ( )

4. If you can speak more than two languages, what is your dominant language?
   ( )

5. How long have you been studying Korean in a formal institute? (e.g. schools, private institutes, tutor, etc. except self-study)
   ( )

6. Have you ever studied the Korean language in Korea? If so, how long?
   ( )

7. Why did you decide to learn Korean?
   1) Because my family is from Korea (family background)
   2) Because I want to work in Korea (business purposes)
   3) Because I want to study Korean history and literature (academic purposes)
   4) Because I want to watch movies in Korean (interests)
   5) Other (Please leave comments in the box below.)

8. What is the most difficult part of learning Korean pronunciation?
   1) consonants 2) vowels 3) various final consonants
   4) pitch/ tone 5) other ( )

9. What do you depend most on in order to differentiate each pronunciation of consonants and vowels?
   1) classroom drill 2) self practice
   3) listening to pronunciation recording
   4) website practice
   5) other ( )
Appendix B: Interview questions to language instructors

1. setting? (e.g. JFL, KSL, KFL, etc.)

2. Student population? (e.g. how many percent of Americans, Japanese etc.)

3. Student proficiency level? (beginners, intermediate, advanced?)

4. level of institution (e.g. secondary, c. college, university, graduate school, etc.)

5. length of teaching experience?

6. what skills to focus most on? (e.g. speaking, listening, reading, writing)

7. the most difficult part in teaching beginners?

8. Do you see any difficulties in teaching a tone (or accent) language to students from different language background?

9. Do you think it is effective to teach suprasegmental features (intonation, rhythm, etc) as well as segmental (consonants & vowels) features to students?

10. What is your teaching techniques to teach tones/intonation? (e.g. using gestures, drawing charts, modeling, etc.)
* Please read each sentence three times.

1. 나는 사과를 좋아해요.

2. 우리 언니도 사과를 좋아해요.

3. 저기에 빨간 펀칭이 있는데요.

*Please read each sentence three times.

1. 나는 사과를 좋아해요.
   Nanin sagwaril joahaeyo

2. 우리 언니도 사과를 좋아해요.
   Wuri unnido sagwaril joahaeyo

3. 저기에 빨간 펀칭이 있는데요.
   Jeogie ppalgan piltongi inneyo
Appendix D: Greeting expressions

* Please read each greeting expression with a pause for 5 seconds.

1. 안녕하세요. (Hi, How are you?)

2. 고맙습니다. (Thank you.)

3. 천만에요. (You’re welcome.)

4. 미안합니다. (I am sorry.)

5. 괜찮아요. (It is okay.)
Appendix E: Family photo

Source: http://www.magazine.ucla.edu/features/family.jpg
Appendix F: Task description scripts

Subject 1

사진속에는 네영의 가족이 보입니다. P (2.158)
아빠는 바쁜듯이 시계를 보면서 전화를 하고있고, 아마, 회사에 급한일이 있는거 같아요. P (4.816)
엄마는 해결에 걸생각을 하면서 딸 생각을 하고 있어요. P (3.774)
아들은 속편얼굴로 P (1.746)
비디오게임에 열중하고 있어요. P (1.746)
옆은 P 또 어.. 혼자서 음악을 듣고있네요. P (3.802)

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Subject 2

아빠는 전화를하면서 시계를 보고있어요. P (3.731)
엄마는 해결에 걸생각을 하고있어요. P (3.189)
오빠는 게임에서 찔눈치 시무룩한얼굴을 하고있어요. P (4.965)
동생은 P (1.234) 화가나서 써진얼굴을 하고있어요. P (4.152)

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Subject 3

어..가족사진에 엄마 아빠 봐 그리고 아들이 있어요. P (4.583)
엄마는 지금 여름을 맞이해서 어디 놀러갈 계획을 세우고 싶어서, 바닷가 생각을 하고있어요. P (9.006)
응..아빠는 근데.. 그대신에 P (2.405) 응..누군가랑 통화를 하고있는데, P (3.137)
아마 사업이나 작장관계로, 그..일관계로 통화를 하고 있는거 같아요. P (4.838)
아들은 응..부모님아랑 어디..재있는 일이 하고싶은데, 이제..엄마 아빠 둘다 관심을
안보여주니까 P 응...오락을 하고있구요. P (11.319)
딸은, 딸도 이제 각자 흔자 흔자에서 엠피쓰리플레이어로 음악만 듣고있네요. P (6.570)

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Subject 5

지금 이 그림안에는 가족이 보이는데요. P (4.044)
어..아버지하고 어머니하고 P (2.799) 어..오빠하고 여동생이 있는데, P (2.239) 어...
아버지의 P (0.949) 휴대폰 전화하고있는 모습이고, P (2.823) 또 시계를 보면서
굉장히 화가난 모습을 하고있네요. P (5.282)
그당에 그림에서 어머니는 P (2.640) 어..짠 sacrific을 하고있는데, P (1.675) 이케..희망
지같은 곳에서 P (1.832) 이케..굉장히 편하게 쉬고있으며, 그런생각을 지금 꿈꾸고
있는것같구요. P (6.010)
그담에 P 여기서 남자에, 꼬마에는 P 비디오게임기를 손안에 쥐고있고, P 근데..굉
장히 시무룩한얼굴을 하고있어요. P (12.331)
그리고 그옆에는, P 여동생이 서있는데, P 여동생은 굉장히, 무슨일 때문인지 모르겠지만 토라져있는 모습을 하고있어요. P (11.823)
Subject 17

아버지의 P 바쁘고 전화해요. P (3.554)
어머니는 P 여행을 P (2.447) 가는거 생각해요. P (1.519)
아들은 P 게임을 해요. P (2.524)
菏은 P (0.721) 음악을 들어. P (1.416)

Subject 18

아버지의 시간을 보고 전화해요. P (3.636)
어머니는 혼자서 생각해요. P (2.767)
아들은 P 슬프고 P 혼자서 P 게임을 해요. P (5.374)
菏은 빠졌어요. P (1.578)
Subject 19

아버지께서 전화해요. (웃음) P (3.339)
어머니께서 바다에 가고싶어요. P (3.757)
아들은 P 비디오게임을 해요. (웃음).. P (5.181)
엄..딸을 P 음악을 들어요. P (2.873)

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<td>Time (s)</td>
<td>15.15</td>
<td>Time with pause</td>
<td>19.792</td>
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</table>

Subject 20

어...사진에 가족이 있어요. P (1.685)
오..아빠는 좀.. P (1.685) 표정이 안좋아요. P (1.830)
엄마는 그 엄마는 좀...P (2.648) 글쎄요...P (1.589) 좀... (웃음)..
바닥가에 갈 생각이 있어요. P (3.274)
그리고 P 아들은 P (3.996) 좀.... 좀... P (웃음) 어..... 좀..
다잘 모르겠어요. P (1.253)
표정.. P 아들 표정도 잘 안 좋아요. P (3.356)
딸.... 지금...뭐... 딸도.. (웃음) 음...P (1.183)
딸가분이 안 좋아요.. (웃음).. P (2.819)
다좀.. P 다들 서로 상여하나봐요. P (2.315)

<table>
<thead>
<tr>
<th># of APs</th>
<th>25</th>
<th># of pauses</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Syllables</td>
<td>78</td>
<td># of IPs</td>
<td>7</td>
</tr>
<tr>
<td>Time (s)</td>
<td>27.633</td>
<td>Time with pause</td>
<td>68.801</td>
</tr>
</tbody>
</table>
**Subject 21**

아빠는 전화하고 있어요. P (2.431)
엄마는 바닷가에 대해서 생각하고 있어요. P (4.100)
엄..아들은 게임을 하고 있어요. P (2.578)
그리고.. P 빠른.. P 음악을 듣고 있어요. P (5.427)

<table>
<thead>
<tr>
<th># of APs</th>
<th>17</th>
<th># of pauses</th>
<th>6</th>
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<td># of IPs</td>
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<tr>
<td>Time (s)</td>
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<td>17.705</td>
</tr>
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</table>

**Subject 22**

아빠가 P 전화. P 아..전화해요..P (4.484)
그리고 P 어머니가 P 여행하고 싶어해요. P (4.452)
딸이 P 음악을 P 들어요. P (3.839)
마지막으로 P 아들..P (3.193) 엄..스퍼 P...술펴해요. P (2.451)

<table>
<thead>
<tr>
<th># of APs</th>
<th>13</th>
<th># of pauses</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Syllables</td>
<td>43</td>
<td># of IPs</td>
<td>4</td>
</tr>
<tr>
<td>Time (s)</td>
<td>18.419</td>
<td>Time with pause</td>
<td>25.324</td>
</tr>
</tbody>
</table>
## Syllabus for Korean pilot teaching (pronunciation)

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wed Jul 11</strong>&lt;br&gt;Lesson 1/2</td>
<td>Lesson 1  &lt;br&gt;-Recording  &lt;br&gt;-Sounds &amp; syllables  &lt;br&gt;-10 Simple vowels /ㅏ, ㅐ, ㅑ, ㅒ, ㅓ, ㅔ, ㅕ, ㅖ, ㅗ, ㅘ, ㅙ, ㅚ, (ㅜ, ㅝ)/  &lt;br&gt;-2 semivowels /y, w/  &lt;br&gt;-11 double vowels (ㅏ, ㅐ, ㅑ, ㅒ, ㅓ, ㅔ, ㅕ, ㅖ, ㅗ, ㅘ, ㅙ, ㅚ, ㅜ, ㅝ)</td>
</tr>
</tbody>
</table>
| **Thu Jul 12**<br>Lesson 3/4 | Lesson 2  <br>-19 consonants  <br>-Sound pattern: differentiation among plain/aspirate/tense  
(ㄱ/ㅋ/ㄲ, ㄷ/ㅌ/ㄸ, ㅂ/ㅍ/ㅃ, ㅅ/ㅆ/ㅆ, ㅅ/ㅆ/ㅆ)  |
| **Sat Jul 14**<br>Lesson 5/6 | Lesson 3  <br>-Tonal pattern in an accentual phrase (Low-High-Low-High)  <br>-Syllable-timing & vowel length  
Lesson 4  <br>-Accentual/intonational phrasing  <br>-Intonation in different types of sentences  |
|          | Lesson 5  <br>Phrasing & juncture  |
|          | Lesson 6  <br>Review & recording  |
Lesson Plans

Day 1 (Wednesday, July 11, 2007)

   Korean vowels & consonants review.

2. Goals
   • Students [Ss] will be able to pronounce 21 vowels and 19 consonants.
   • Ss will be able to differentiate and pronounce 3 sets of plain/aspirate/tense consonants.


4. Key expressions/vocabulary
   • Plosive consonants: (ㄱ/ㄲ/ㄳ, ㅋ/ㅌ/ㄸ, ㅂ/ㅍ, ㅍ/ㅃ, ㅈ/ㅉ/ㅊ)
     
     pul 불 ‘fire’   p’ul 풀 ‘grass’   ppul 불 ‘horn’
     tal 달 ‘moon’   t’al 달 ‘mask’   ttal 달 ‘daughter’
     cha 자 ‘sleep’  ch’a 차 ‘kick’    tcha 차 ‘salty’
     kae 개 ‘dog’    k’ae 개 ‘dig’     kkae 개 ‘sesame’
   
   • Fricative consonants: (ㅅ/ㅆ, ㅁ)
     si 시 ‘poem’  ssi 씩 ‘seed’
     hae 해 ‘sun’
   
   • Liquid: (ㄹ)
     r when it comes between vowels
     e.g.) sori 소리 ‘sound’, muri 물이 ‘water’
     l in other case
     e.g.) mal 말 ‘horse’, salgu 살구 ‘apricot’

5. Materials
   Day 1 handout (Korean vowel & consonant system chart).
   3 x 3 and 4 x 4 bingo sheets

6. Activities
   • Vowels & consonants drills
   • Bingo game

7. Class time: 2 hours
Procedure

1. (recording) T recorded three Korean sentences before a pilot teaching
2. (modeling & mechanical drilling of each sound) T modeled vowels and consonants on the charts by explaining the tongue positions and articulation manners and places. T used hand gestures and drewed mouse shape or the tongue positions.
3. (mechanical drilling of three sets) S practiced three sets of plain/aspirate/tense consonants with given examples.
4. (Bingo game) T distributed a 3 x 3 bingo sheet and let them fill the boxes with simple vowels. T & Ss took turns to pronounce a certain vowel, cross out what they heard, and made a bingo. The game continued with double vowels and consonants with 4x4 sheets.
5. (Dictation) T pronounced a sound and let Ss write what they heard on the paper.
6. (Wrap up) T reviewed vowel and consonant charts and example words.
Day 2 (Thursday, July 12, 2007)

1. Topic/Function: Tonal pattern of an accentual phrase

2. Goals
   - Ss will be able to understand the tonal pattern (LHLH) of an accentual phrase in Korean.
   - Ss will be able to understand the different features of AP and IP.
   - Ss will be able to understand equally-timed syllable production in Korean.

3. Skills focused: Listening, speaking, pronunciation

4. Key expressions/vocabulary

   - mal 말 ‘horse’
   - saram 사람 ‘person’,
   - munssaram 눈사람 ‘snowman’,
   - badakka 바다가 ‘coast’
   - yonghwabaeu 영화배우 ‘actor/actress’
   - ye 예 ‘yes’
   - il 일 ‘work’
   - haksaeng 학생 ‘student’
   - bompparam 봉바람 ‘spring breeze’
   - sadari 사다리 ‘ladder’
   - yorumbanghak 여름방학 ‘summer break’

5. Materials

   Day 2 handouts (vocabulary examples of different tonal pattern and intonation)

6. Class time: 2 hours

Procedure

1. (Warm-up) T reviewed vowels and consonants.

2. (Modeling) T modeled examples on the handout and let Ss pronounce with proper tonal patterns and intonations.

3. T used hand gestures and drew dots and lines over the example words or sentences in order to show tonal patterns and intonations.

4. Ss repeated after T.

5. (Wrap-up)
Day 3 (Saturday, July 14, 2007)

   Exercise different types of sentences.
   Recording.

2. Goals
   ▪ Ss will be able to understand Korean feature of phrasing and juncture.
   ▪ Ss will be able to understand meaning of falling and rising intonation of Ọ ‘-yo’ ending.

3. Skills focused: Listening, speaking, pronunciation, reading

4. Key expressions/vocabulary
   -ọ́|ẹ́|ọ́ ‘-eoyo/ayo’ ending (Statement/question/imperative/suggestion)

5. Materials
   Day 3 handouts

6. Class time: 2 hours

Procedure

1. (Warm-up) T reviewed vowels and consonants. T also reviewed tonal patterns and intonations with examples words or sentences.

2. T let Ss read dialogues on the handout.

3. T explained tonal patterns and intonations with hand gestures and line/dot-drawing.

4. T corrected Ss’ pronunciation and intonations.

5. Ss repeated the expressions after T.

6. (Recording)
# Korean vowel system

<table>
<thead>
<tr>
<th>Tongue position</th>
<th>Front</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unrounded</td>
<td>Rounded</td>
</tr>
<tr>
<td>High</td>
<td>i ⊥</td>
<td>ī (𝒜)</td>
</tr>
<tr>
<td>Mid</td>
<td>e ⊥</td>
<td>ē ( thaimassage)</td>
</tr>
<tr>
<td>Low</td>
<td>ae ⊥</td>
<td></td>
</tr>
</tbody>
</table>

Semivowels:  vbCrLf

# Korean consonant system

<table>
<thead>
<tr>
<th>Place Manner</th>
<th>Lips</th>
<th>Gum Ridge</th>
<th>Hard palate</th>
<th>Soft palate</th>
<th>Throat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plosive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>plain</td>
<td>p ⊥</td>
<td>t ⊥</td>
<td>ch k</td>
<td>k’ ⊥</td>
<td></td>
</tr>
<tr>
<td>aspirate</td>
<td>p’ ⊥</td>
<td>t’ ⊥</td>
<td>ch’ k’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tense</td>
<td>pp</td>
<td>tt</td>
<td>tch k</td>
<td>kk</td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>plain</td>
<td>s s</td>
<td></td>
<td></td>
<td></td>
<td>h ⊥</td>
</tr>
<tr>
<td>tense</td>
<td>ss</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid</td>
<td>l ⊥</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m ⊥</td>
<td>n ⊥</td>
<td></td>
<td>ng ⊥</td>
<td></td>
</tr>
</tbody>
</table>

Plosive consonants:

- *pul* 볼 ‘fire’
- *p’ul* 폼 ‘grass’
- *ppul* 폼 ‘horn’
- *tal* 달 ‘moon’
- *t’al* 달 ‘mask’
- *ttal* 달 ‘daughter’
- *cha* 자 ‘sleep’
- *ch’a* 자 ‘kick’
- *tcha* 자 ‘salty’
- *kae* 개 ‘dog’
- *k’ae* 개 ‘dig’
- *kkae* 개 ‘sesame’

Fricative consonants:

- *si* 시 ‘poem’
- *ssi* 시 ‘seed’
- *hae* 해 ‘sun’

Appendix I: Teaching materials
* notes:

1) No voiceless/voiced contrasts in initial position in Korean

2) Three way voiceless contrasts (plain/aspirated/tense)
   
   (ㅁ/ㅁ, ㄹ/ㄹ, ㅂ/ㅂ)

   or two way voiceless contrasts (plain/tense) – (ㅅ/ㅅ)

   or no contrast (only plain) – 음

3) ㄹ - r when it comes between vowels

   e.g.) sori 소리 ‘sound’, muri 물이 ‘water’

   - l in other case

   e.g.) mal 말 ‘horse’, salgu 살구 ‘apricot’

Source: Integrated Korean: Beginning level 1 textbook by Youngmee Cho,
University of Hawaii Press (2000)
Korean intonation

1) One-syllable words
   e.g.) *mal* 말 ‘horse’,  *il* 일 ‘work’

2) Two-syllable words
   e.g.) *saram* 사람 ‘person’,  *haksaeng* 학생 ‘student’

3) Three-syllable words
   e.g.) *nunssaram* 눈사람 ‘snowman’,  *bompparam* 봄바람 ‘spring breeze’
        *badakka* 바닷가 ‘coast’  *sadari* 사다리 ‘ladder’

4) Four-syllable words
   e.g.) *yonghwabaen* 영화배우 ‘actor/actress’
        *yorumbanghak* 여름방학 ‘summer break’

5) One phrase
   e.g.) *ye* 예 ‘yes’
        ☆ 선생님: 김철수.
            철수: 예?
        ☆ 선생님: 너 이번 시험에서 곧등했어.
            철수: 예?
        ☆ 선생님: 다음 시험은 잘 봐. 알았지?
            철수: 예.

6) One simple sentence (statement)
   e.g.) 학교에 갔어요. ‘went to school’
        나 학교에 간다. ‘I go to school.’
7) Yes-no Questions.
   ✦ 학교에 가 보셨어요?
   ✦ Confirmation Q: 학교에 다녀오셨습니까?
   ✦ (No expectation for an answer)
     지난 설 연휴에 고향에 잘 다녀오셨습니까?
   ✦ (Asking oneself): (저 친구가) 학교에 가나?

8) Wh-Questions
   ✦ Using interrogative pronoun: 어디에 가세요?
   ✦ Using indefinite pronoun: 어디에 가세요?
   ✦ Rhetorical Q: 어떻게 이런 일이 일어날 수 있을까요?
   ✦ Asking oneself: 어떻게 하나? / 어떻게 하지?

9) Imperative.
   ✦ Order: 떠들지 마. ‘Don’t make a noise/ Be quiet.’
   ✦ Suggestion: 학교에 가세요. ‘You should go to school.’

10) 청유문:
    ✦ 학교에 갑시다. ‘Let’s go to school.’

11) Sentence intonation
    ✦ 화가가 그림을 예쁘게 그린다.

Exercise:
1) 학교에 가 (statement, question, imperative)
2) 오늘은 아주 덥네!
4) 한국은 여름에 너무 더워요.
5) 열망공 공부해야 한국말을 잘 할 수 있지요?
6) 오늘 수업 언제 끝나지요?
7) 조용히 좀 해주세요.
8) 이번 주말에 함께 부산에 갈시다.
9) 너 빨리 학교에 오지 않고 왜해?
Statement / question/ imperative/ suggestion (-여/아요)

마도카: 어디 가요?
부르노: 볼 일이 있어서 시내에 가요.
마도카: 그래요? 그림 같이 가요. 10분만 기다려요. 금방 준비할게요.
부르노: 미안해요. 나중에 혼자 와요. 늦어서 먼저 가야겠어요.

철수: 너 우리 나라에서 어느 산이 제일 높은 줄 아나?
영화: 그야 물론 백두산이지. 난 내가 바본 줄 아나?
철수: 아니야. 내가 미국에서 오래 살아서 모를 줄 알았어. 미안해.
영화: 괜찮아. 사실 난 한국에 대해서 모르는 게 많거든. 많이 좀 가르쳐 줘.
철수: 그렇게. 배고픈데 점심 먹으러 가자.
영화: 좋아. 나도 약간부터 배고웠거든.
철수: 냉면 먹을까. 칼국수 먹을까?
영화: 오늘은 날이 더우니까 냉면으로 하자.

Statement / question (-녀, -재, -래)

마도카: 수미씨가 내일 서울에 도착한대.
마도카: 음. 일이 일찍 끝났대. 장, 민호씨가 만나겠.
부르노: 갑자기 왜 만나겠?
마도카: 글쎄. 하여간 12시까지 오래.
부르노: 12시까지 오래? 빨리 가야겠다. 별써 11시 반이야.
**Imperative**

**Simple imperative**

엄마: 속제부터 해 봐.
마도카: 엄마 텔레비부터 보고 할래요.
엄마, 그래 텔레비 봐라.
마도카: 네, 텔레비 보고 할께요.

**Warning**

엄마: 속제부터 해 봐.
부르노: 엄마 텔레비부터 보고 할래요.
엄마 그래. 텔레비 봐라.
부르노: 엄마, 제발 부탁이에요. 만화동산만 보게 해 주세요.

**Statement: -(으)ㄹ 걸**

**Regret**

마도카: 저녁 먹고 시작할 걸.
부르노: 그세요말이에요.

**guess**

마도카: 언제 시작할까요?
부르노: 저녁 먹고 시작할 걸.

**Exercise**

1) Choose the right answer from B after listening A.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
</table>
| 밤에 누가 있어서요? | ① 아니요. 아무도 있어서요.  
② 미라예요. |
| 수미는 뭐 해요?    | ① 네, 지금 청소해요.  
② 방을 청소해요. |
| 빈 마시겠어요?    | ① 아니요. 오늘 많이 마셔서 싫어요.  
② 커피 주세요. |
2) Choose the right question from A for the answer in B.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>° 밖에 누가 있어요? (indefinite)</td>
<td>아니오. 아무도 없어요</td>
</tr>
<tr>
<td>° 밖에 누가 있어요? (interrogative)</td>
<td></td>
</tr>
<tr>
<td>° 수미는 뭐 해요? (indefinite)</td>
<td>네, 지금 정소해요.</td>
</tr>
<tr>
<td>° 수미는 뭐 해요? (interrogative)</td>
<td></td>
</tr>
<tr>
<td>° 왜 시켰어요? (indefinite)</td>
<td>커피 주세요.</td>
</tr>
<tr>
<td>° 왜 시켰어요? (interrogative)</td>
<td></td>
</tr>
</tbody>
</table>

3) read the conversation below with right intonation.

마도카: 어디 가요?
부르노: 볼 일이 있어서 시내에 가요.
마도카: 그래요? 그럼 같이 가요. 10 분만 기다려요.
부르노: 미안해요. 늦어서 먼저 가야겠어요.

마도카: 일이 늦게 끝나는 거 같아요.
부르노: 이렇게 줄 알았으면 저녁 먹고 시작할 걸.
마도카: 끝에 할 일이에요. 오늘 안으로 다 끝낼 수 있을까요?
부르노: 아니야. 내일도 저녁 늦게까지 해야 할 걸.

4) Choose the right answer after listening short conversation.

부르노: 빨리 일을 끝내자.
마도카: 그런데 벌써 1 시 30 분이야. 밥 먹고 할까?
부르노: ° 그래. 밥 먹고 하자.
      ° 그럼. 밥 먹고 할 거야.

부르노: 그 사람이 아직도 일을 안 했어요? 지금 왜 해?
마도카: 지금 밥 먹어. (그 사람) 밥 먹고 할까?
부르노: ° 그래. 밥 먹고 하자.
      ° 그럼. 밥 먹고 할 거야.

Source: Education for Korean intonation by Hoyoung Lee. Used in a Korean teacher training.