

## Bridging the Gap between Research in Linguistics and English Teaching Pedagogy: Focusing on English Pronunciation Education

Kwon, Bo-Young<sup>1)</sup>

### ABSTRACT

Despite the growing interest among researchers in the field of second language (L2) phonological acquisition and its apparent contribution to linguistic and acquisition theories, there have been concerns about the lack of pedagogical application of the research findings in L2 classrooms (Levis, 1999, Derwing & Munro, 2005). Based on the belief that meeting an existing pedagogic need is something that should receive primary attention in SLA, this study attempts to bridge the gap between L2 pronunciation research and pronunciation pedagogy. In so doing, this study provides a narrative literature review of papers on L2 pronunciation published from 1994 to 2008 in Korea. The articles for review were retrieved from five database search engines. In addition, six journals where relevant articles most frequently appeared were selected and electronic searches of these six journals were conducted. A total of 117 articles which met the selection criteria were collected, and were reviewed to answer the following three research questions: a) What are the current research trends in L2 pronunciation in Korea? b) Do the research trends reflect a shift of focus on L2 pronunciation teaching? and c) What is the range of research practices in L2 pronunciation? The review of the papers indicates that the number of studies on L2 pronunciation increased sharply from 1999 to 2003. Some changes in research topics were also noticed. Research on segmental features of English was dominant from 1994 to 1998, but became more balanced with research on suprasegmentals from 2004 to 2008. This review also discusses the range of research practices in L2 pronunciation and makes suggestions for future directions in L2 pronunciation research.

**Keywords:** second language phonological acquisition, pronunciation pedagogy, English

### 1. Introduction

The study of second language (L2 hereafter) phonology has been discussed from several different yet related perspectives. At one end of continuum, L2 pronunciation patterns are viewed from the perspective of developmental processes and linguistic universals (Major, 2001) which are often found in L1 acquisition and other languages. At the other end of the continuum, it is connected with L2 teaching and learning. A substantial amount of research

has been done to investigate the issues related to L2 learners' foreign accent, which often causes communication breakdown (Flege, 1984, 1988, 1995, among others) and pedagogical priorities in teaching L2 pronunciation (Jenkins 2000, 2001).

Recently, there have been growing concerns about the gap between L2 pronunciation research and pronunciation instruction. Citing Levis's (1999) statement that "present intonational research is completely divorced from modern language teaching and is rarely reflected in teaching materials (cited in Derwing & Munro, 2005)," Derwing & Munro (2005) deplore the lack of attention to pronunciation teaching in ESL teacher preparation textbooks and classroom instructions.

Exactly the same problem was identified by Oh et al. (2001) and Yoon (2005), both of which reviewed middle school English textbooks published in Korea. They found that the results of L2 pronunciation research were not reflected in English textbooks in Korea.<sup>2)</sup>

1) Daegu Haany University, bykwon@dhu.ac.kr

This research was supported by a grant from Daegu Haany University Ky · lin Foundation in 2007.

This work was in part presented at Fall 2009 Conference of Korean Society of Speech Sciences at Korea University, Seoul, Korea.

What brings about this gap between L2 pronunciation research and L2 pedagogy? There can be two possible reasons for this divide. One concerns technology/terminology used in L2 pronunciation research. For instance, it is not uncommon for L2 pronunciation research to employ acoustic analysis of speech sounds to make objective comparisons between the sound of the target language and L2 speech. The terminologies and procedures used in this type of research may be too technical for ESL/EFL teachers and pedagogical specialists to interpret the findings and apply them to the actual classroom instructions.

The other reason may come from the fact that the domain of L2 pronunciation research is too vast, ranging from studies investigating cognitive aspects of L2 phonological acquisition to studies aiming at finding pedagogical implications from research. If the domain of L2 pronunciation is biased toward the former type of research, then ESL/EFL teachers may not find relevant findings they can use in their classrooms and they may just rely on their own intuitions, not on scientific studies, on how to teach L2 pronunciation.

What can we do to resolve this problem? To make an objective diagnosis of current problems and to make well-informed decisions about future directions of this field, we should know in the first place where we stand. That is, we should ask ourselves questions such that "What has been investigated in L2 pronunciation research?" "Does the interest of L2 pronunciation researchers reflect that of L2 pedagogical specialists?" "What about research practices (i.e., research design)?" "Are they rigorous enough to generalize the findings in L2 instructions?"

The purpose of this paper is to answer these questions. I will look at the current state of L2 pronunciation research in Korea by reviewing pronunciation research published from 1994 to 2008. Even though a sufficient number of primary studies in this domain have accumulated, no review articles of L2 pronunciation research in Korea, to my best knowledge, have been published. It is time for a systematic synthesis of the findings.

However, as was mentioned before, the domain of L2 pronunciation research is so vast that it is impossible to cover all the areas of focus within the confines of this paper. Thus, this paper will focus on studies that examine the nature of the L2 speech sounds. The relationship between these studies and other areas of focus (e.g., L2 speech training, speech perception, foreign accent, etc) will not be discussed.

The research questions in the present study are as follows.

#### (1) Research Questions

- a. What are the current research trends in L2 pronunciation in Korea?

- b. Do the trends in L2 pronunciation research in Korea reflect a shift of focus on L2 pronunciation teaching?
- c. What is the range of research practices in the domain?

The structure of this article is as follows. Section 2 discusses the methods of data collection and coding criteria. Section 3 presents the results of the review. Section 4 concludes the study by discussing future directions of L2 pronunciation research.

## 2. Method

### 2.1. The literature search

In order to fully identify the population of research studies for review, an exhaustive search of the literature was performed. First, databases in RISS4U, KSSTUDY, DBPIA, EARTICLE, and DKKYOBBOOK were searched using the term, "pronunciation" (both in English and in Korean). From the initial search results, unpublished studies (e.g., conference presentations, dissertations) and non-peer reviewed research were excluded to limit the range of review articles. In addition, based on the number of results from the database search, six journals where relevant articles most frequently appeared were selected, and electronic searches of these six journals were conducted. Those six journals include *Malsori*, *Speech Sciences*, *Studies in Phonetics*, *Phonology*, and *Morphology*, *English Teaching*, *Foreign Languages Education*, and *English Language Teaching*. Once empirical studies were identified, the references of these sources were searched for additional studies.

The search results were then reviewed to determine whether they were relevant to the research questions. Studies included in the review met the following criteria.

#### (2) Selection Criteria

- a. The study was published between 1994 and 2008.
- b. The study was experimental in design.
- c. The study analyzed errors in Korean learners' production of English sound (Studies testing only L2 learners' perception were excluded.).
- d. The study measures the nature of Korean learners' production of English sounds (Those studies testing only the effect of formal instruction were excluded.).

A total of 117 articles on L2 pronunciation which met the above criteria were identified.

### 2.2. Coding procedure

After retrieving and selecting the studies that met the inclusion criteria, 117 studies were coded according to topic and methodology variables. Figure 1 provides outlines of the topic and methodological features coded for the review.

2.2.1. Year of publication

Primary studies are grouped together according to the year they were published. Studies are grouped in three five-year periods: a) 1994~1998, b) 1999~2003, and c) 2004~2008.

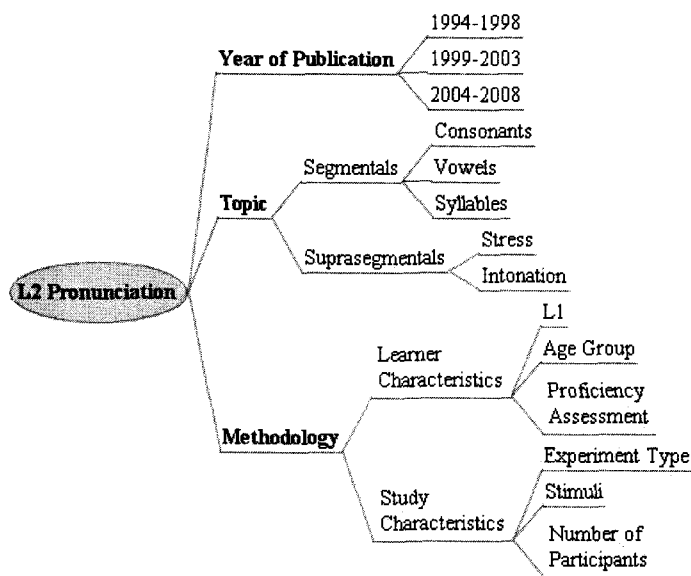


Figure 1. Framework for analysis

2.2.2 Topic features

The coding of topic features is focused on the specific L2 sounds investigated in the primary studies. Topic features are first divided into two categories: segmentals and suprasegmentals. Segmental features are further divided into consonants, vowels, and syllable structures, and suprasegmental features stress and intonation.

2.2.3. Methodological features

Methodological features were coded in order to describe the range of research practices in the domain. The methodological features included are learner characteristics and study characteristics. Learner characteristics found across studies were coded: a) learners' L1 background, b) age group of participants, and c) proficiency measurement. The variable, "learners' proficiency measurement" describes how the proficiency of the subjects in primary studies was assessed.

Five categories were used to classify the type of proficiency assessment used in each of the studies. Studies were coded as "institutional status" if reported proficiency was based on participants' membership to a certain institutional community (e.g., English majors in a college, English teachers in a secondary school, KATUSA soldiers). If the researcher used locally developed and administered tests, the study was coded as "in-house assessment". Studies making use of established proficiency assessments, such as TOEFL or TOEIC, were coded as a "standardized test." A "self-report" is the case where

participants are asked to report their own proficiency. Lastly, studies using the length of learners' residence in English speaking country as a criterion to divide participants into different groups were coded as a "length of residence."

Study characteristics are divided into a) experiment type, b) stimuli, and c) the number of participants. The experiment type was coded as either a) production experiment or b) production + perception experiment. This variable is intended to examine whether the research trend which connects L2 production with L2 perception holds in the literature reviewed. The variable, "stimuli," examines the types of speech samples used in the reviewed studies.

3. Results

3.1. Trend of L2 pronunciation research

This section discusses research trends in L2 pronunciation in the last 15 years.

Table 1. Frequency by Publication Years

	Frequency	Percent
1994~1998	14	12%
1999~2003	47	40.2%
2004~2008	56	47.9%
Total	117	100%

Table 1 represents the number of studies published between the year 1994 and 2008. During the 1994~1998 time period, only 14 studies were published, accounting for 12% of total publication. The number of publication more than tripled during 1999~2003 and 2004~2008 time period, demonstrating a fast-growing interest in L2 phonological acquisition in Korea. 47 studies were published in 1999~2003 and 56 studies in 2004~2008.

Along with the change in the sheer number of work in L2 pronunciation, there has been continuing discussion on which feature should be the focus of L2 pronunciation instruction. In particular, with the advent of the Communicative Approach in L2 instruction, the common view that the clarity of L2 speech relies on the correct pronunciation of individual sounds of a language was debunked. Instead, it is claimed that rhythm and intonation of English are more important than individual sounds of a language (Wong, 1987; Brown, 1991).

It cannot be emphasized enough in instructed L2 acquisition that teachers should make a well-educated decision about the issues such as the sequence of L2 feature presentation and the degree of importance placed in each L2 feature (i.e., which aspect of L2 speech should be given more priority). Thus, it will be interesting to see how research priority has been changed in L2 pronunciation research in Korea, in particular, whether the

research domain also reflects changes in shift (from segmentals to suprasegmentals) in L2 pronunciation instruction.

Table 2 classifies research topics in L2 pronunciation by segmental and suprasegmental features. Segmental features include research on L2 learners' production of English consonants, vowels, and syllable structures. Suprasegmentals include research on Korean learners' production of English stress and intonation.

Table 2. Publication by Topics: Overview

	Segmental	Supra segmental	Others*	Total
1994~1998	10(71.4%)	3(21.4%)	1(7.1%)	14
1999~2003	32(68.1%)	13(27.7%)	2(4.3%)	47
2004~2008	30(53.6%)	25(44.6%)	1(1.8%)	56
<b>Total</b>	<b>72(61.5%)</b>	<b>41(35%)</b>	<b>4(3.4%)</b>	<b>117</b>

\*Others: Studies discuss both segmentals and suprasegmentals.

First, we can see in the last line of the table that nearly twice as many studies on segmentals (61.5%) as suprasegmentals (35%) were implemented during the 15 year period, seemingly indicating the dominance of the research on segmental features in Korea. However, looking at the changes in the three different time periods (1994~1998, 1999~2003, 2004~2008), we can see that the gap between the number of studies on segmentals and suprasegmentals actually becomes increasingly narrowed. That is, during the time period 1994~1998, 71.4% of research was on segmental features, while only 21.4% was on suprasegmentals (50% gap). On the other hand, in the most recent period, 2004~2008, the gap between segmentals and suprasegmentals narrowed down to 9%, which seem to indicate the shift of focus on research priority in L2 pronunciation studies. It will be interesting to see whether research on suprasegmental features eventually takes a superior position in the following years.

Table 3. Publication by Topics: Segmentals

	1994~1998	1999~2003	2004~2008	Total
<b>Consonant</b>	3	11	13	27
<b>Vowel</b>	5	13	9	27
<b>Syllable</b>	2	8	8	18
<b>Total</b>	<b>10</b>	<b>32</b>	<b>30</b>	<b>72</b>

Table 3 represents more detailed research topics on segmental features. It is important to be reminded that this review article focuses only on studies that examine the nature of the L2 speech sounds produced by learners, and therefore the topic areas are classified according to the structural aspects of target segments and suprasegments. In other words, variables based on training effect, learner characteristics (e.g., proficiency, gender) and research design (e.g., task effects) are not used as a category dividing research topics.

Out of 72 studies on segmental features, 27 studies were on

consonants, 27 on vowels, and 18 on syllable structures. We can see that research on consonants and vowels were fairly well balanced, while the fewest number of studies were done on syllable structures.

The reason that more studies were done on consonants and vowels is because consonants and vowels provide a wealth of opportunities for researchers in L2 pronunciation.

First of all, the inventory of consonants and vowels in English contains various contrasts that do not exist in Korean sound system (e.g., /f, v/, /θ, ð/, /z, ʒ/, /ʃ, ʒʃ/, /i, ɪ/, /u, ʊ/, /ɛ, æ/, etc). In addition, even in the case where one L2 consonant and vowel category might roughly correspond to a particular L1 category, there are rarely exact phonetic similarities in L1 and L2. That is, between the consonants and vowels in two languages that are represented as the same phonetic symbol, the average formant values differ to varying degrees. For instance, Korean /l/ has higher F2 values than English /l/ (B. Kwon, 2005), and Voice Onset Time in voiceless aspirated stops /p<sup>h</sup>, t<sup>h</sup>, k<sup>h</sup>/ is longer in English than in Korean (J. Kim, 2005).

Research topics on stops include voicing dependent vowel duration (R. Kim, 1998; W. Chang, 2006; S. H. Kang 2007), the implementation of Voice Onset Time (U. Lim, 2000; U. Lim, 2002; J. Kim 2005), aspiration in voiceless stops (S. Kang & H. Lee, 2001; J. Kim, 2008), and the insertion of epenthetic vowel after voiced stops (Y. Hwang, 2000).

Studies on fricatives/affricates typically examined those sounds that do not occur in Korean, /f, v, θ, ð, ʃ, ʒ, ʒʃ/. The lack of fricatives/affricates causes L2 learners to have trouble discriminating and producing certain pairs (/f/ vs. /v/, /θ/ vs. /ð/, /ʃ/ vs. /ʒʃ/) and fricatives are easily replaced by stops in L2. Research topics on fricatives/affricates include markedness hierarchy in Korean learners' production of fricatives/affricates (M. Lee & M. Choi, 2002; H. Koo, 2006), the influence of positions of fricatives on error rates (H. Koo, 2008), and a sound shift in L2 fricative acquisition (S. Lee & J. Joh, 2001).

Lastly, it is well known that English /l-r/ contrast causes production and perception difficulties for Koreans since /l-r/ distinction only exists in Korean as an allophonic variation. /l-r/ distinction is thought to be among the most difficult sounds for Koreans. Research on liquids examined first language interference (S. Park, 1999), positional influence (H. Kang, 1999; S. Park, 1999; J. Han, 2003; B. Lee & S. Lee, 2004), the relationship between production and perception (H. Kang, 1999; B. Lee & S. Lee, 2004; E. Sung, 2006), and markedness hierarchy of liquids among different age groups (S. Ahn, 2005).

When it comes to research on vowels, many of studies examined spectral characteristics (especially F1 and F2) and/or durational characteristics of the vowels produced by Korean learners. Variables used in measuring Korean learners' production of English vowels include length of L2 experience (S. Park, 2002; J. Kim, 2003, 2007), the effect of gender (H. Koo, 2005)

and regional dialect (H. Koo, 2001; H. Park & J. Kim, 2003), the effect of position (H. Park, 1997, 2000; H. Park & J. Kim, 2003), and L1 interference (B. Lee, 2005).

Lastly, studies on syllable structures were done mostly on Korean learners' production of consonant clusters. Studies on Korean learners' production of English consonant clusters include variables such as positional effect, learners' proficiency (S. Lee, 2002), L1 interference, acquisition order (H. Yoo, 2004), and the effect of frequency and word familiarity (M. Park, 2003). There were two studies examining syllable structures other than consonant clusters: stop + nasal (M. Seo et al., 2005) and /ln/ (B. Lee, 2003).

Table 4. Publication by Topics: Suprasegmentals

	1994~1998	1999~2003	2004~2008	Total
<b>Stress</b>	3	1	14	18
<b>Intonation</b>	0	12	11	23
<b>Total</b>	3	13	25	41

Table 4 presents topic categories in suprasegmental features. The most noticeable pattern in the table is that almost nine times as many studies were done during the 2004~2008 time period as were done during the 1994~1998 time period (last line, 3 → 25), indicating a rapid growth in research studying L2 learners' production of suprasegmental features.

Another interesting pattern in publication on suprasegmentals is that interest in Korean learners' production of English stress is beginning to hold the lead in the most recent time period (2004~2008), demonstrating a dramatical increase in the number of publications (the first line, 3 → 1 → 14).

Some pronunciation experts have claimed that greater emphasis should be placed on suprasegmentals rather than segmentals in teaching L2 pronunciation, because intelligibility is particularly affected by suprasegmental features (e.g., Pennington, 1989; Firth 1992). In this sense, that a growing amount of research on suprasegmentals has been implemented in recent years seems to reflect the demand from pronunciation pedagogy in Korea.

Research topics on stress include the role of lexical category and/or suffix category on Korean learners' production of English stress (S. Lee, 2006, 2007; M. Park 2006, 2008), stress assignment in noun phrases and words with weak-strong stress pattern (H. Kim et al., 2005, 2006), acoustic realization of L2 English stress (B. Yang, 2002), and stress clash (J. Lee, 2004).

On the other hand, research topics on intonation include focus realization in L2 speech (H. Um, 2001; J. Jun, 2002; H. Y. Kim et al, 2002; S. Kim et al., 2002; S. Kim, 2003; Y. Jeon et al., 2004), intonation patterns by sentence types (Y. Yoon et al., 2003; J. Lee, 2005), and acoustic characteristics of speech timing (O. Lee & J. Kim, 2005).

### 3.2. Research Design

#### 3.2.1 Participant characteristics

This section presents participant characteristics in the research domain. Table 5 illustrates learners' L1, age groups, and proficiency assessment. When it comes to learners' L1, the majority of studies used only Korean L1 groups (94.9%) as their subjects, while only 6 studies included an L1 other than Korean. This is not surprising since this review article included articles published in Korean journals and accordingly, most studies investigated only Korean learners' production of English. However, it would be still interesting to see how different L1s affect L2 production of English sounds.

Table 5. Learner Characteristics (# of studies/percentage)

L1	Age Group	Proficiency Assessment
Korean (111/94.9%)	Over 20 (90/76.9%)	No information (38/32.5%)
Korean/Japanese (6/5.1%)	14~19 (7/6%)	Institutional Status (24/20.5%)
	6~13 (9/7.7%)	Standardized Test (25/21.4%)
	Mixed (11/9.4%)	In-house Assessment (22/18.8%)
		Length of Residence (7/6%)
		Self-Report (1/0.9%)
Total (117)	Total (117)	Total (117)

The second column of the table illustrates age groups of participants. We can see that the majority of participants was over 20 (76.9%) at the time of experiment, 6% was at the age of 14~19 (middle and high school), and 7.7% was under 13 (kindergarten or elementary schools). We can see that the age group is biased in favor of adult groups (over age 20). In particular, many of the studies used college students as their subjects. More attention on different age groups is certainly needed to do balanced research in the field.

The last column in Table 5 demonstrates the methods used to measure learners' English proficiency levels. It is quite astonishing to find that 32.5% of the studies did not provide any information about how learners' proficiency level was assessed in the experiment. In addition, 20.5% of the studies grouped participants by their institutional status (e.g., college major, KATUSA soldiers, English teachers), on the basis of which it is assumed the learners have the same level of English proficiency.

There were also studies making use of the length of residence in English speaking country in measuring learners' proficiency (S.

Park 1999, 2002; W. Chang, 2006). For instance, W. Chang (2006) indicated that the participants in his study had been residing in North America from 3 to 10 months at the time of testing. There are also studies that use the length of residence in English speaking country in dividing participants into different experimental groups. S. Park (1999) divided Korean speakers into an Experienced Group and an Inexperienced Group based on the number of years of residence in Australia. In particular, S. Park (1999) investigated how the contact time to L2 sounds affects Korean learners' production of English liquids.

Given the importance of a scientific research design in L2 acquisition, particularly those employing sophisticated phonetic analysis, it would be desirable to provide objective measurements for learners' L2 proficiency.

### 3.2.2. Study Characteristics

Table 6 presents study characteristics of 117 studies reviewed in this article. Three variables such as experiment type, stimuli, and the number of participants were examined.

Table 6. Study Characteristics (# of studies/percentage)

Experiment Type	Stimuli	# of Participants
Production (89/76.1%)	Word (54/46.2%)	1~20 (80/68.4%)
Production + Perception (28/23.9%)	Sentence (39/33.3%)	21~40 (16/13.7%)
	Dialogue (4/3.4%)	41~60 (11/9.4%)
	Natural Communication (2/1.7%)	61~80 (6/5.1%)
	Mixed (18/15.4%)	Over 81 (4/3.4%)
Total (117)	Total (117)	Total (117)

The first column indicates that the majority of studies implemented a production test (76.1%), while 23.9% of the studies combined production tests with perception tests.

The issues of L2 production difficulty always raise a question of whether errors in L2 learners' speech results from articulatory or perceptual difficulty (or both). In this sense, it is encouraging to see that 23.9% of the studies combined both production and perception to test the interaction between production and perception in L2 phonological acquisition, one of the overriding question in L2 production.

The second column illustrates data elicitation techniques in the field. Research on L2 speech production elicits target structures under investigation by having learners repeat/imitate words and read aloud short texts. Additionally, picture descriptions or interviews are conducted to elicit extemporaneous L2 speech.

Among 117 studies reviewed in the current article, word lists were most frequently used as stimuli (46.2%), followed by sentences (33.3%). Including two studies incorporated natural communication along with other types of stimuli (mixed stimuli), there were only four studies using natural conversations to elicit the target structures (J. Lee, 1997; G. No, 2003; M. Kim, 2005; H. Kim & S. Kim, 2006). It seems that researchers are overly dependent on the use of word lists and sentences in the experimental design, and more research using dialogue and natural communication as a method of data elicitation is needed in the field.

Lastly, the number of participants in the study varied greatly from 2 to 147. The majority of studies employed less than 20 students (68.4%). There were four studies employing more than 80 students in the study.

## 4. Conclusion

The current study grew out of the awareness that there exists a gap between the empirical research on L2 pronunciation and pronunciation pedagogy. As was stated in the introduction of this paper, there will be no simple and easy solution to bridge this gap. Instead of looking for a direct answer to the question, this study approached the issue by reflecting on the research on L2 pronunciation in Korea in the past 15 years, in the hope that knowing what has been accomplished in the field could provide some implications for future direction.

The review of the papers indicates that the number of studies on L2 pronunciation sharply increased during the 1999-2003 and 2004-2008 time period. Regarding the topics of L2 pronunciation, research on segmental features was dominant during the 1994-1998 time period, but the gap between segmentals and suprasegmentals narrowed down to 9% in the most recent years (2004-2008), which indicates the shift of focus on research priority in L2 pronunciation studies.

Several interesting patterns were also identified in the research characteristics in the field. Adults (76.9%) were dominantly used as a subject group, and many studies (32.5%) did not provide any measurements on learners' proficiency level. In addition, word lists were the most widely used stimuli in the experiments.

A few suggestions ensue from the diagnosis of the current state of research on L2 pronunciation in Korea. First, to make the research findings in L2 pronunciation more generalizable, studies should employ a wider range of research designs (e.g., L1, age group, stimuli). We have seen that the dominant number of studies investigated adult Korean learners' production of English sounds, and studies testing different age groups were quite limited. Future research should include different age groups in their study. This is particularly important considering that in Korea, formal English education starts from the first grade of elementary schools (age 8), and consequently pedagogical

guidelines on teaching English pronunciation to these younger groups are certainly needed.

In a similar vein, more research should be done to test L2 learners' command of suprasegmental features of English and to test the relationship between L2 production and perception. These two areas, I believe, will broaden our understanding of the nature of L2 production.

We have an overview of research trends on L2 pronunciation at hand, and the remaining question is how we can utilize the information to answer the main question of this study: filling the gap between L2 pronunciation research and practice.

On that note, the first thing applied linguists might do is to interpret the research findings on L2 pronunciation in more pedagogically appropriate terms so that the research findings can be referenced in EFL textbooks and EFL teacher training programs. This study, in its current form, did not achieve this goal. However, it provided a broad picture of the research trends and practice in the field by reviewing L2 pronunciation research in Korea in the past 15 years. In this sense, I believe that this study can serve as a stepping stone toward that direction.

There are two limitations that should be addressed regarding this study. First, the reviewed articles were searched exclusively through electronic databases, and therefore those articles that are not electronically databased, if existing, were not analyzed. To overcome this limitation, the author checked the references in the reviewed articles, but still it is possible that some relevant studies are left out in the analysis.

The second limitation concerns the scope of the review. Since the field of L2 speech production is vast, it was impossible to cover all the areas of L2 pronunciation within the confines of this paper. This paper therefore focused on studies that examine the nature of the L2 speech sounds. The relationship between these studies and other areas of focus (e.g., L2 speech training, speech perception, foreign accents, etc) was not discussed. Future research is needed to investigate the research trend in other areas of L2 pronunciation.

## References

- Brown, A. (1991). "Functional load and the teaching of pronunciation", In A. Brown (Ed.), *Teaching English pronunciation: A book of readings*. London: Routledge.
- Derwing, T. M. & Munro, M. J. (2005). "Second language accent and pronunciation teaching: A research-based approach", *TESOL Quarterly*, Vol. 39, pp. 379-397.
- Firth, S. (1992). "Pronunciation syllabus design: A question of focus", In P. Avery & S. Ehrlich (Eds.), *Teaching American English pronunciation* (pp. 173-183). Oxford: Oxford University Press.
- Flege, J. E. (1984). "The detection of French accent by American listeners", *Journal of the Acoustical Society of America*, Vol. 76, pp. 692-707.
- Flege, J. E. (1988). "The production and perception of foreign language speech sounds", In H. Winitz (Ed.), *Human communication and its disorders, a review* (pp. 224-401). Norwood, NJ: Ablex.
- Flege, J. E., Munro, M. J. & MacKay, I. R. A. (1995). "Factors affecting strength of perceived foreign accent in a second language", *Journal of the Acoustical Society of America*, Vol. 97, pp. 3125-3134.
- Jenkins, J. (2000). *The phonology of English as an international language*, Oxford, England Oxford University Press.
- Jenkins, J. (2002). "A sociolinguistically-based, empirically-researched pronunciation syllabus for English as an international language", *Applied Linguistics*, Vol. 23, pp. 83-103.
- Levis, J. (1999). "Intonation in theory and in practice, revisited", *TESOL Quarterly*, Vol. 33, pp. 37-54.
- Major, R. C. (2001). *Foreign Accent: The Ontogeny and Phylogeny of Second Language Phonology*, Mahwah, N.J.: L. Erlbaum.
- Oh, S. P., Jang, Y. S. & Lee, Y. J. (2001). "On the problems of English intonation representation in English textbooks", [In Korean] *Speech Sciences*, Vol. 8 No. 4, pp. 243-257. (오세풍, 장영수, 이용재, (2001). 영어교과서에 나타난 영어역양교육의 문제점. 음성과학, 8권 4호, pp. 243-257.)
- Pennington, M. C. (1989). "Teaching pronunciation from the top down", *RELC Journal*, Vol. 20, pp. 20-38.
- Wong, R. (1987). *Teaching Pronunciation: Focus on English Rhythm and Intonation*. Englewood Cliffs, NJ: Prentice Hall Regents.
- Yun, H. S. (2005). "An analysis of English vowels in the middle school textbooks: In comparison with the Korean vowels", [In Korean], *The Jungang Journal of English Language and Literature*, Vol. 47, No. 2, pp. 307-328. (윤홍섭, (2005). 중학교 영어 교과서에 나타난 모음 분석: 한국어 모음과 비교하여. 영어영문학연구, 47권, 2호, pp. 307-328.)

## <Appendix: Work Reviewed>

- Ahn, S. W. (1997). "The schwa phenomenon in English vowels", *English Teaching*, Vol. 52, No. 3, pp. 257-279.
- Ahn, S. W. (2005). "An acoustic study on pronunciation errors of English l and r by Korean elementary school children", [In Korean], *English Language Teaching*, Vol. 17, No. 3, pp. 191-213. (안수웅, (2005). "한국 초등학생들의 영어 l, r의 발음 오류에 관한 음향음성학적 연구", 영어교육연구, 17권, 3호, pp. 191-213.)
- Chang, W. (2006). "Speech perception and production of English postvocalic voicing by Korean and English speakers", *Speech Sciences*, Vol. 13, No. 2, pp. 107-120.
- Chang, W. (2008). "The role of L1 phonological feature in the L2 perception and production of vowel length contrast in English", *Speech Sciences*, Vol. 15, No. 1, pp. 37-51.
- Cho, H. (2003). "A comparative study on the pronunciations of English vowels", [In Korean], *Korean Journal of Linguistics*, No.

- 35, pp. 205-230.  
(조현관, (2003). "영어의 모음발음에 대한 비교연구", 언어학, 35권, pp. 205-230.)
- Cho., M. H. (2004). "Variation in English [kw] pronunciations by Korean learners of English", *Korean Journal of English Language and Linguistics*, Vol. 4, No. 4, pp. 549-564.
- Cho, M. H. (2006). "Cluster reduction by Korean EFL students: Insertion vs. Deletion strategies", *International Journal of Contents*, Vol.6, No.1, pp. 81-85.
- Cho, M. H. (2008). "Asymmetries in the perception and production of the English incomplete off-gliding diphthongs by Korean speakers", *Studies in Phonetics, Phonology and Morphology*, Vol. 14, No. 3, pp. 483-499.
- Cho, M. H., Park, M. R. & Lee, S. (2001). "The acquisition of English onglides by EFL students in Korea", *English Teaching*, Vol. 56, No. 2, pp. 79-96.
- Cho, M. H. & Lee, S. (2005). "Repair strategies of English biconsonantal coda clusters: An optimality-theoretic account in conjunction with P-map", *Studies in Phonetics, Phonology and Morphology*, Vol. 11, No. 2, pp. 367-390.
- Han, J. I. (2003). "Effects of formal instruction on liquid accuracy: A longitudinal study", *Korean Journal of Linguistics*, Vol.28, No.2, pp. 185-206.
- Han, Y. K. & Lee, S. H. (2002). "An experimental phonetic study on English vowel production by native speakers of Korean", [In Korean], *Malsori*, Vol. 44, pp. 15-32.  
(한양구, & 이숙향 (2002). "한국어 모국어 화자의 영어 모음 발성에 관한 실험음성학적 연구", 말소리, 44권, pp. 15-32.)
- Hwang, H. J. & Moon, S. J. (2005). "An acoustic comparative study of Korean /에, ऐ/ and English /ε, æ/ pronounced by Korean young male speakers", [In Korean], *Malsori*, Vol. 56, pp. 29-47.  
(황혜정, 문승재, (2005). "한국인이 발음한 한국어 /에, ऐ/와 영어 /ε, æ/ 모음", 말소리, 56권, pp. 29-47.)
- Hwang, Y. S. (2000). Extra vowel addition produced in Korean students' English pronunciation of word-final stop consonants. [In Korean], *Speech Sciences*, Vol. 7, No. 4, pp. 169-186.  
(황영순, (2000). 영어 폐쇄자음 발음 뒤에 나타나는 모음추가 현상. 음성과학, 7권, 4호, pp. 169-186.)
- Hwang, Y. S. (2001). "A comparative analysis on English vowels by Korean students by formant frequencies", *Speech Sciences*, Vol. 8, No. 4, pp. 221-228.  
(황영순, (2001). "포먼트에 의한 영어모음 비교 분석", 음성과학, 8권, 4호, pp. 221-228.)
- Jeon, Y. S., Oh, S. P. & Kim, K. H. (2004). "The production and perception of focus in English yes-no questions", [In Korean], *Speech Sciences*, Vol. 11, No. 3, pp. 111-128.  
(전윤실, 오세풍, 김기호, (2004). "영어 가부 의문문 초점 발화와 지각", 음성과학, 11권, 3호, pp. 111-128.)
- Joh, J. & Lee, S. (2001). "Re-examination of the role of formal instruction in L2 pronunciation," *Foreign Languages Education*, Vol. 8, No. 2, pp. 23-44.
- Jun, J. H., Song, J. Y., Lee, D. H. & Kim, K. (2002). "Focus realization of English noun phrases in the classroom situation", [In Korean], *Speech Sciences*, Vol. 9, No. 2, pp. 109-132.  
(전지현, 송재영, 이동화, 김기호, (2002). "교실 상황에서 영어 명사구의 초점 실현 양상", 음성과학, 9권, 2호, pp. 109-132.)
- Jun, J. H., Song, J. Y., Lee, H. J. & Kim, K. H. (2002). "The realization and perception of English contrastive focus: A comparative study between native speakers of English and Korean learners of English", [In Korean], *Speech Sciences*, Vol. 9, No. 4, pp. 215-234.  
(전지현, 송재영, 이현정, 김기호, (2002). "영어 대조 초점의 발화와 인지에 관한 연구: 원어민 화자와 한국인 화자의 실현 양상 비교", 음성과학, 9권, 4호, pp. 215-234.)
- Jung, I. G., Kim, H. S. & Kim, E. I. (1996). "Stress on the English loan words spoken by speakers of Kyungsang dialect", [In Korean], *Studies in Modern Grammatical Theories*, Vol. 8, No. 1, pp. 1-24.  
(정인교, 김희섭, 김은일, (1996). "경상방언 화자의 영어단어 발음시 강세(stress)의 문제점", 현대문법연구, 8권, 1호, pp. 1-24.)
- Kang, H. S. (1999). "Production and perception of English /r/ and /l/ by Korean learners of English: An experimental study", *Speech Sciences*, Vol. 6, No. 1, pp. 21-38.
- Kang, S. H. (2007). "A study on Korean students' production and perception of English word-final stop voicing", *Speech Sciences*, Vol. 14, No. 1, pp. 105-119.
- Kang, S. K. & Lee, H. C. (2001). "A study on the influence of Korean phonological phenomena on English pronunciation acquisition", [In Korean], *Korean Journal of Linguistics*, Vol. 26, No. 3, pp. 417-444.  
(강석근, 이희천, (2001). "한국어의 음운현상이 영어 발음 습득에 미치는 영향에 관한 연구", 언어, 26권, 3호, pp. 417-444.)
- Kang, S. K. & Lee, H. C. (2002). "An experimental study on English word-initial consonant pronunciation learning by Korean students", [In Korean], *Language Research*, Vol. 38, No. 1, pp. 385-406.  
(강석근, 이희천, (2002). "한국 학생들의 영어 어두자음 발화 습득에 관한 실험 연구", 어학연구, 38권, 1호, pp. 385-406.)
- Kim, C. G., Kim, H. G. & Jeon, B. M. (2000). "Speech problems of English laterals by Korean learners based on acoustic characteristics", [In Korean], *Speech Sciences*, Vol. 7, No. 3, pp. 127-138.  
(김종구, 김현기, 전병만, (2000). "한국인 영어 학습자의 설측음 발화의 문제점", 음성과학, 7권, 3호, pp. 127-138.)
- Kim, H. (2004). "Acoustic characteristics and pitch accent realization in English elliptical sentences: VP-ellipsis, sluicing, gapping", [In Korean], *Speech Sciences*, Vol. 11, No. 2, pp. 119-136.  
(김희성, (2004). "영어 생략구문의 음성적 특성과 피치악센트 실현 양상: 동사구 생략, 슬루싱, 공소화를 중심으로", 음성과학, 11권, 2호, pp. 119-136.)
- Kim, H. & Kim, S. J. (2006). "Phonetic realizations of English word stress in utterances", [In Korean], *Speech Sciences*, Vol. 13, No. 4, pp. 89-105.  
(김희경, 김수정, (2006). "실제 상황에서 발화된 영어 단어 강세의 음성 실현", 음성과학, 13권, 4호, pp. 89-105.)
- Kim, H., Seo, M., Shin, J. & Kim, K. H. (2005). "A production-based study of English syllables with weak-strong pattern in the case of Korean learners with low English proficiency", [In Korean], *Speech Sciences*, Vol. 12, No. 3, pp. 175-183.



- (김희성, 서미선, 신지영, 김기호, (2005). "초급 영어 학습자의 약강구조 영어 단어에서의 강약음절 산출", *음성과학*, 12권, 3호, pp, 175-183.)
- Kim, H., Seo, M., Shin, J. & Kim, K. H. (2006). "Production of a strong(s) and weak(w) syllable in English words containing WS pattern by Korean learners", *Studies in Phonetics, Phonology and Morphology*, Vol. 12, No. 1, pp. 61-73.
- Kim, H. Y., Lee, H. J. & Kim, K. (2002). "A study on the focus realization in intransitive verb sentences", [In Korean], *Speech Sciences*, Vol. 9, No.3, pp, 251-266.  
(김화영, 이현정, 김기호, (2002). "영어 자동사 문장에서의 초점 실현 양상에 관한 연구: 영어 원어민 화자와 한국인 화자 비교", *음성과학*, 9권, 3호, pp, 251-266.)
- Kim, J. (2005). "A preliminary study on Korean speakers' pronunciation of English word initial oral stops: Focused on VOT", [In Korean], *Korean Journal of English Language and Linguistics*, Vol. 5, No. 4, pp. 689-709.  
(김정아, (2005). "VOT를 중심으로 본 한국인의 영어 어두폐쇄음 발음: 예비연구", *영어학*, 5권, 4호, pp, 689-709.)
- Kim, J. (2008). "Korean learners' pronunciation of English unaspirated stops: Focused on 's+stop' sequences", [In Korean], *Korean Journal of English Language and Linguistics*, Vol. 8, No.3, pp, 391-422.  
(김정아 (2008). "한국인 학습자의 영어 비기식음 발음", *영어학*, 8권, 3호, pp, 391-422. )
- Kim, J. E. (2007). "A phonetic study of Koreans' production of English vowels and their pronunciation pedagogy", [In Korean], *The Linguistic Association of Korean Journal*, Vol. 15, No. 4, pp. 41-54.  
(김지은, (2007). "한국인의 영어 전설 모음 발음과 발음 교육에 대한 음성학적 연구", *언어학*, 15권, 4호, pp, 41-54.)
- Kim, J. E. & Silva David, J. (2003). "An acoustic study of the American English pronunciation of recently arrived Korean adult immigrants", *Language Research*, Vol. 39, No.3, pp, 613-637.
- Kim, J. E. & Cho, M. H. (2002). "An acoustic study on the pronunciation of English [kw] sequences by Korean EFL students", *Speech Sciences*, Vol. 9, No. 1, pp. 193-206.
- Kim, J. M. (2005). "Stress assignment rules in Korean English", *Studies in Phonetics, Phonology and Morphology*, Vol. 11, No.2, pp, 247-258.
- Kim, J. M., Flynn, S. & Oh, M. (2007). "Non-native speech rhythm :A large-scale study of English pronunciation by Korean learners", *Studies in Phonetics, Phonology and Morphology*, Vol. 13, No. 2, pp. 219-250.
- Kim, J. M. & Lee, O. H. (2005). "Reduced vowel quality accounts for Korean accent of English", *Studies on English Language & Literature*, Vol. 31, No. 4, pp.73~93
- Kim, M. H., Kang, S. M. & Kim, K. H. (2008). "Acoustic analysis of Koreans' pronunciation errors in English: With reference to nasalization and lateralization," [In Korean], *Speech Sciences*, Vol. 15, No. 3, pp. 53-63.  
(김미혜, 강선미, 김기호, (2008). "한국인 화자의 영어 발음 오류에 관한 음성적 분석", *음성과학*, 15권, 3호, pp, 53-63.)
- Kim, M. R. (2005). "Voicing and tone correlation in L2 English", *Speech Sciences*, Vol. 12, No. 4, pp. 113-128.
- Kim, O. Y. (2007). "An acoustic study of English sentence stress and rhythm produced by Korean speakers", *Speech Sciences*, Vol. 14, No. 1, pp, 121-135.
- Kim, O. Y. (2008). "Native influence on the production of English intonation", *Speech Sciences*, Vol. 15, No. 1, pp. 25-36.
- Kim, R. (1995). "The effect of age-of-L2 onset on ultimate L2 production the English /i-i/ distinction made by Korean speakers", *English Teaching*, Vol. 50, No. 2, pp. 257-279.
- Kim, R. (1998). "The English voicing-dependent vowel duration produced by Korean speakers", *English Teaching*, Vol. 53, No .3, pp. 31-52.
- Kim, S. A. (2003). "A study on the transfer of L1 intonation in the utterances of Korean English speakers", [In Korean], *Foreign Languages Education*, Vol. 10, No. 3, pp. 263-281.  
(김성아, (2003). "한국어 화자의 영어 억양에 나타나는 L1의 전이 현상에 관한 연구", *외국어교육*, 10권, 3호, pp, 263-281.)
- Kim, S. H., Kang, S. M., Ok, E. R. & Kim, K. H. (2002). "A comparative study on English intonation of focused sentences between Korean and English native speakers: In the case of deaccentuation", [In Korean], *Speech Sciences*, Vol. 9, No. 2, pp. 89-108.  
(김소희, 강선미, 옥유름, 김기호, (2002). "영어 초점 발화에서의 원어민과 한국인의 억양 비교: 악센트 해지 현상을 중심으로", *음성과학*, 9권, 2호, pp, 89-108.)
- Koo, H. S. (1997). "A study using acoustic measurement and perceptual judgment to identify prosodic characteristics of English as spoken by Koreans", [In Korean], *Speech Sciences*, Vol. 2, pp. 95-108.  
(구희산, (1997). "음향 측정과 지각 판단에 의한 한국인 영어의 운율 연구", *음성과학*, 2권, pp, 95-108.)
- Koo, H. S. (2000). "Characteristics of English vowels spoken by Koreans", *Speech Sciences*, Vol. 7, No.3, pp, 107-116.
- Koo, H. S. (2001). "An acoustic study of the pronunciation of English vowels uttered by Korean regional dialect speakers", [In Korean], *Speech Sciences*, Vol. 8, No. 4, pp. 193-206.  
(구희산, (2001). "지역 방언 화자에 따른 영어 모음의 발음 연구", *음성과학*, 8권, 4호, pp, 193-206.)
- Koo, H. S. (2003). "An acoustic study of the pronunciation of English pitch accents uttered by Korean speakers", [In Korean], *Speech Sciences*, Vol. 10, No. 2, pp. 223-236.  
(구희산, (2003). "한국인의 영어피치악센트 발음에 관한 연구", *음성과학*, 10권, 2호, pp, 223-236.)
- Koo, H. S. (2005). "A study of the pronunciation of English vowels between male and female speakers", [In Korean], *Speech Sciences*, Vol. 12, No.2, pp, 7-16.  
(구희산, (2005). "남·여 화자간의 영어모음 발음 연구", *음성과학*, 12권, 2호, pp, 7-16.)
- Koo, H. S. (2006). "A study of perception and production of English sibilants by Korean learners of English", [In Korean], *Speech Sciences*, Vol. 13, No. 4, pp. 43-50.  
(구희산, (2006). "영어학습자의 영어 치찰음 지각과 발성에 관한 연구", *음성과학*, 13권, 4호, pp, 43-50.)
- Koo, H. S. (2008). "A study of the effects of vowels on the pronunciation of English sibilants", [In Korean], *Speech Sciences*, Vol. 15, No. 3, pp. 31-38.

- (구희산, (2008). "영어 치찰음 발음에 미치는 모음의 영향 연구", *음성과학*, 15권, 3호, pp, 31-38.)
- Kwon, B. Y. (2005). "The patterns of vowel insertion in IL phonology: The p-map account", *Studies in Phonetics, Phonology and Morphology*, Vol. 11, No. 2, pp. 197-225.
- Kwon, B. Y. (2006). "Features of first language transfer in Korean speakers' production of English /l/", *English Teaching*, Vol. 61, No. 2, pp. 179-207.
- Lee, B. (2003). "Transfer and constraint interaction in interlanguage phonology", *Studies in Phonetics, Phonology and Morphology*, Vol. 9, No. 1, pp. 167-184.
- Lee, B. (2005). "A comparative study of English /æ/ and /ɛ/ produced by early and late Korean and Japanese bilinguals", *Studies in Phonetics, Phonology and Morphology*, Vol. 11, No. 3, pp. 459-476.
- Lee, B. & Guion, S. (2006). Effects of experience on the production of English unstressed vowels *Malsori*, Vol. 60, pp. 47-66.
- Lee, B. & Lee, S. H. (2004). "Korean learners' perception and production of English liquids", [In Korean], *Malsori*, Vol. 52, pp. 61-84.
- (이보림, 이숙향, (2004). "한국어 화자의 영어유음 지각 및 산출에 관한 연구", *말소리*, 52권, pp, 61-84.)
- Lee, B. & Guion, S. (2008). "Effects of hyperarticulated clear speech in English stress production by Korean and Japanese speakers of English", *Studies in Phonetics, Phonology and Morphology*, Vol. 14, No. 2, pp. 245-258.
- Lee, H. (1994). "Phonological transfer: The production of the /r/ and /l/ contrast in English by Korean native speakers", *English Teaching*, No.48, pp, 495-516.
- Lee, H. B. & Park, S. (1999). "What is the relationship between L1 phonological system and L2 sound acquisition?", *Korean Journal of Linguistics*, Vol. 1999, No. 25, pp. 229-246.
- Lee, H. C. (2002). "A study on the influence of Korean syllables on English pronunciation by Korean students", [In Korean], *Studies on English Language and Literature*, Vol. 28, No. 1, pp. 243-270.
- (이희천, (2002). "한국 학생들의 한국어 음절 발화 습관이 영어 발음에 미치는 영향에 관한 연구", *영어영문학연구*, 28권, 1호, pp, 243-270.)
- Lee, H. W. (1997). "The modification of english syllable structure by Korean EFL university students", [In Korean], *The Journal of English Language Teaching*, No. 7, pp. 99-116.
- (이효웅 (1997). "한국 대학생의 영어 음절 구조 변경에 관한 연구", *영어교육연구*, 7권, pp. 99-116.)
- Lee, J. K. (2004). "Tonal contours of English stress clash: Native speakers vs. Korean speakers of English", *English Language and Literature*, Vol. 50, No. 5, pp. 1209-1230.
- Lee, J. K. (2005). "Korean speaker's edge tone patterns of English conjunctive utterances", [In Korean], *Speech Sciences*, Vol. 12, No. 4, pp. 141-152.
- (이주경, (2005). "한국인 학습자의 영어 접속사 발화에 나타난 가장자리성조 패턴", *음성과학*, 12권, 4호, pp, 141-152.)
- Lee, J. K. (2005). "The problems with Korean speakers' L\* production in English and their implications for teaching English intonation", [In Korean], *Studies in Phonetics, Phonology and Morphology*, Vol. 11, No. 2, pp. 353-366.
- (이주경, (2005). "한국인 학습자의 영어 저성조 피치엑센트 발화의 문제점", *음성·음운·형태론 연구*, 11권, 2호, pp, 353-366.)
- Lee, J. K. (2008). "Accentual patterns of English noun phrases and compounds", *Studies in Phonetics, Phonology and Morphology*, Vol. 14, No. 3, pp. 465-481.
- Lee, J. S. (1997). "The effect of native language phonological rules in target language learning", *The Sociolinguistic Journal of Korea*, Vol. 5, No. 2, pp. 221-251.
- Lee, M. J. & Cho, M. H. (2002). "Markedness and error types of English fricatives by Korean elementary children", [In Korean], *Primary English Education*, Vol. 8, No. 2, pp. 209-228.
- (이미주, 초미희, (2002). "한국 초등 어린이들의 영어 마찰음 유표성과 오류 유형", *초등영어교육*, 8권, 2호, pp, 209-228.)
- Lee, O. H. & Kim, J. M. (2005). "Syllable-timing interferes with Korean learners' speech of stress-timed English", *Speech Sciences*, Vol. 12, No. 4, pp. 95-112.
- Lee, S. (2006). "The relationship between perception and production in L2 English stress acquisition", *Studies in Phonetics, Phonology and Morphology*, Vol. 12, No. 3, pp. 661-685.
- Lee, S. (2007). "Learnability effects on the placement of English stress in morphologically derived words", *Journal of Applied Linguistics*, Vol.23, No. 1, pp. 93-121.
- Lee, S. & Cho, M. H. (2002). "Sound replacement in the acquisition of English consonant clusters: A constraint-based approach", *Studies in Phonetics, Phonology and Morphology*, Vol. 8, No. 2, pp. 255-271.
- Lee, S., Joh, J. & Cho, M. H. (2002). "Acquisition of English consonant clusters among Korean EFL learners", *Korean Journal of Linguistics*, Vol. 3, pp, 439-472.
- Lee, S. & Joh, J. S. (2001). "Sound substitutions in Korean EFL learners' interlanguage", *The Journal of Studies in Language*, Vol. 17, No. 2, pp. 337-357.
- Lee, Y. S. (2005). "Correlations between age of onset and English phonetic and phonological accuracy in an EFL Context", *English Language Teaching*, Vol. 17, No. 4, pp. 139-162.
- Lim, U. (2000). "A contrastive analysis on voice onset time of Korean English teachers and native speakers", [In Korean], *The Journal of Modern British & American Language & Literature*, Vol. 5, pp. 251-267.
- (임운, (2000). "한국인 영어교사와 원어민의 성대 진동개방시간 비교 분석", *한국현대영어문학*, 5권, 251-267.)
- Lim, U. (2002). "Acoustic analysis for natural pronunciation programs", *Malsori*, Vol. 44, pp, 1-13.
- No, G. (1997). "Developmental and transfer factors in English pronunciation of Korean elementary school and college students", *English Teaching*, Vol. 52, No. 1, pp. 21-39.
- No, G. (1998). "Stress placement and phonological competence of L2 learners", *English Teaching*, Vol. 53, No.2, pp, 3-19.
- No, G. (2003). "Intelligibility and English pronunciation in elementary schools", *English Teaching*, Vol. 58, No. 1, pp. 201-218.
- Oh, K. Y. (2007). "A study on the improvement of English pronunciation through sound experimental analysis", *Studies in Phonetics, Phonology and Morphology*, Vol. 13, No. 3, pp.

- 497-520.
- Oh, S. P., Jang, Y. S. & Lee, Y. J. (2001). "A study on the intonation of Korean speakers in English sentence adverbials: Focused on message-oriented adverbials", [In Korean], *Speech Sciences*, Vol. 8, No. 2, pp. 119-131.
- (오세풍, 장영수, 이용재, (2001). "영어의 문장부사에 나타난 한국인의 억양특성 분석: Message-Oriented 부사를 중심으로", *음성과학*, 8권, 2호, pp. 119-131.)
- Park, H. S. (1997). "A comparative study of English vowel lengths between Koreans and Americans", [In Korean], *Speech Sciences*, Vol.2, pp. 135-147.
- (박희석 (1997). "한국인과 미국인의 영어 모음길이 비교연구", *음성과학*, 2권, pp. 135-147.)
- Park, H. S. (1998). "An experimental study on the pronunciation of English diphthong /o/", [In Korean], *Linguistics*, Vol. 6, No. 2, pp. 309-321.
- (박희석, (1998). "영어 이중모음 /o/ 발음분석", *언어학*, 6권, 2호, pp. 309-321.)
- Park, H. S. (1999). "A comparative study on the lengths of the English front vowels /e/ and /æ/", [In Korean], *Speech Sciences*, Vol. 5, No. 2, pp. 131-138.
- (박희석, (1999). "영어 전설모음 /e/와 /æ/의 길이 비교연구", *음성과학*, 5권, 2호, pp. 131-138.)
- Park, H. S. (2000). "A study on the foreign accent of Koreans", *Speech Sciences*, Vol. 7, No. 1, pp. 187-201.
- Park, H. S. (2001). "An experimental study on the lengths of English diphthongs", *Speech Sciences*, Vol. 8, No. 3, pp. 7-14.
- Park, H. S. (2001). "A study on the English vowel lengths /æ/, /ɔ/, /a/", [In Korean], *Speech Sciences*, Vol. 8, No. 4, pp. 215-220.
- (박희석, (2001). "영어모음 /æ/, /ɔ/, /a/ 발음길이 연구", *음성과학*, 8권, 4호, pp. 215-220.)
- Park, H. S. & Kim, J. S. (2003). "An experimental study on English vowel lengths as produced by Korean college students in Chungnam and Gyeongnam provinces", [In Korean], *Speech Sciences*, Vol. 10, No. 3, pp. 157-174.
- (박희석, 김정숙, (2003). "충남-경남지역 대학생들의 영어모음 발음길이에 대한 실험적 연구", *음성과학*, 10권, 3호, pp. 157-174.)
- Park, M. (2003). "Markedness and pronunciation difficulties", *English Language Teaching*, Vol. 15, No.4, pp. 113-139.
- Park, M. (2006). "On the acquisition of English word stress by adult Korean speakers", *Foreign Languages Education*, Vol. 13, *Foreign Languages Education* Vol. 13 No. 2, pp. 141-169.
- Park, M. (2008). "On the acquisition of English stress in disyllabic nouns and verbs: focusing on Korean children", *English Teaching*, Vol. 63, No.1, pp. 131-152.
- Park, M. R., Cho, M. H. & Lee, S. (2001). "Teaching the pronunciation of English onglides to college students in Korea", *Foreign Languages Education*, Vol. 8, No. 1, pp. 71-95.
- Park, S. B. (2004). "Errors of English stress by Korean speakers", [In Korean], *English Language & Literature Teaching*, Vol. 10, No.3, pp. 177-190.
- (박순복, (2004). "한국인의 영어 강세 오류의 특징", *영어어문교육*, 10권, 3호, pp. 177-190.)
- Park, S. B., Skrypiczajko, G. & Kim, K.-H. (2000). "A study on the realization of intonational tunes depending on the difference of meaning in English: In comparison of English native speakers with Korean speakers", [In Korean], *Speech Sciences*, Vol. 7, No. 2, pp. 97-112.
- (박순복, Skrypiczajko, G., 김기호, (2000). "영어문장의 의미변화에 따른 억양음조 실현양상에 대한 고찰", *음성과학*, 7권, 2호, pp. 97-112.)
- Park, S. G. (1999). "/l/ and /r/ production by Korean and Japanese speakers of English", *Malsori*, Vol. 37, No. 1, pp. 87-118.
- Park, S. G. (2002). "Production and perception of Australian front vowels by Koreans and Japanese", (translated title). [In Korean], *Malsori*, Special Issue, pp. 33-41.
- (박시균, (2002). "한국인과 일본인의 호주영어 전설모음 인지와 발음", *말소리*, 특집호, pp. 33-41.)
- Park, Y. S. (1999). "English sounds and the degree of their acquiring difficulty", [In Korean], *Studies in Modern Grammar*, Vol. 13, pp. 79-106.
- (박영수, (1999). "영어음과 습득의 난이도", *현대문법연구*, 13권, pp. 79-106.)
- Rhee, S. C. & Chang, K. Y. (2003). "A comparative study on the English intonation and sentential rhythm patterns in the various sentence types uttered by Korean and American elementary school students", [In Korean], *Foreign Languages Education*, Vol. 10, No. 4, pp. 65-85.
- (이석재, 장길영, (2003). "한국 초등학교 영어 발화의 문형에 따른 억양 및 문장 리듬 연구", *외국어교육*, 10권, 4호, pp. 65-85.)
- Rhee, S. C., Cho, C. H. & Moon, S. (2003). "Korean & native speakers' high-low range differences in F0 and its role in pronunciation assessment", [In Korean], *Speech Sciences*, Vol. 10, No. 4, pp. 93-103.
- (이석재, 조철현, 문선영, (2003). "한국인과 원어민 영어 발화의 F0 고저 범위 차이와 발음 평가에 있어서 그 역할", *음성과학*, 10권, 4호, pp. 93-103.)
- Rhee, S. J. (1994). "A study on English front vowels pronounced by Korean students", [In Korean], *Malsori*, Vol. 27, No.1, pp. 65-81.
- (이상직 (1994). "한국 학생의 영어 전설모음 발음 실태 조사 연구", *말소리*, 27권, 1호, pp. 65-81.)
- Seo, M., Kim, H., Shin, J. & Kim, K. H. (2005). "A study on the production of a stop plus nasal sequence in English words by Korean learners", *Speech Sciences*, Vol. 12, No. 3, pp. 165-173.
- Seo, M., Kim, H., Shin, J. & Kim, K. H. (2006). "Temporal structures of word-initial /s/ plus stop sequences in English words produced by Korean learners", *Speech Sciences*, Vol. 13, No. 1, pp. 43-54.
- Sung, E. K. (2006). "L2 sound perception and production by Korean adults and children", *Studies in Phonetics, Phonology and Morphology*, Vol. 12, No. 3, pp. 577-596.
- Um, H. Y. (2004). "The English intonation of native speakers and Korean learners: A comparative study", *Speech Sciences*, Vol. 11, No. 1, pp. 117-130.
- Um, H. Y., Lee, H. S. & Kim, K. H. (2001). "Korean speakers' realization of focus and information structure on English intonation in comparison with English native speakers", [In

- Korean], *Speech Sciences*, Vol. 8, No. 2, pp. 133-148.  
 (엄혜영, 이혜숙, 김기호, (2001). "초점과 정보 구조에 따른 한국어 화자의 영어 억양 실현 양상", *음성과학*, 8권, 2호, pp, 133-148.)
- Yang, B. (2002). "An acoustical study of English word stress produced by Americans and Koreans", *Speech Sciences*, Vol. 9, No. 1, pp. 77-88.
- Yang, B. (2004). "An analysis of individual prosodic patterns of English sentences repeated by students", [In Korean], *English Language Teaching*, Vol. 16, No. 2, pp. 247-260.  
 (양병곤, (2004). "대학생들이 따라한 영어 문장의 화자별 운율 특성 분석", *영어교육연구*, 16권, 2호, pp, 247-260.)
- Yang, B. (2008). "An acoustical comparison of English tense and lax vowels produced by Korean and American males", [In Korean], *Speech Sciences*, Vol. 15, No. 4, pp. 19-27.  
 (양병곤, (2008). "한국인 남성과 미국인 남성이 발음한 영어 긴장·이완모음의 음향적 비교", *음성과학*, 15권, 4호, pp, 19-27.)
- Yang, B. (2008). "An analysis of the English /l/ sound produced by Korean students", *Speech Sciences*, Vol. 15, No. 1, pp. 53-62.
- Yang, B. & Seo, J. (2007). "A study on the intonation contours of students' groups by oral proficiency level", [In Korean], *Speech Sciences*, Vol. 14, No. 3, pp. 77-89.  
 (양병곤, 서준영, (2007). "말하기 숙달도에 따른 대학생 집단별 억양곡선 고찰", *음성과학*, 14권, 3호, pp, 77-89.)
- Yi, D. (2006). "Phonetic aspects of English stress produced by south Kyungsang Korean speakers", *Speech Sciences*, Vol. 13, No. 1, pp. 55-66.
- Yoo, H. B. (2004). "Effects of markedness on the acquisition of English consonant clusters by Korean elementary school students", [In Korean], *Primary English Education*, Vol. 10, No. 1, pp. 101-126.  
 (유혜배, (2004). "초등학생의 영어 자음군 습득과정에 나타난 음절 유표성의 영향에 관한 연구", *초등영어교육*, 10권, 1호, pp, 101-126.)
- Yoo, H. B. (2004). "A longitudinal study of consonant cluster acquisition", *Studies in Phonetics, Phonology and Morphology*, Vol. 10, No. 3, pp. 481-503.
- Yoon, Y. B. & Choi, S. S. (2003). "Experiments on sources of unintelligibility in Korean elementary school students' pronunciation of English", *The Journal of Korean Elementary Education*, Vol. 14, No. 2, pp. 477-490.

• 권보영 (Kwon, Bo-Young)

대구한의대학교 외국어학부  
 경북 경산시 유곡동 290번지  
 Tel: 053-819-1481

Email: bykwon@dhu.ac.kr

관심분야: 제2언어습득, 음성학, 음운론  
 현재 대구한의대학교 조교수