A Study of Korean Students' Perception on English Palatal Endings

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Ahn, Gil-Soon. 2006. A Study of Korean Students' Perception of English Palatal Endings. *The Linguistic Association of Korea Journal,* *14*(4), 1-19. Understanding the dominant pronunciation of a language may enable us to gain a better understanding of the people who speak the language and their ability of perception. The main goal of this study was to empirically investigate the perception of English palatals by Korean students of English. The instrument consisted of 16 sets, containing 6 non-existent word sets and 10 existent word sets in the dictionary. The participants (22 low-, 22 intermediate-, and 22 advanced-level ESL students from Korea and 10 natives) were asked to fill out a background questionnaire, which was composed of questions regarding personal information. This study has yielded three key findings as follows: First, the Korean speakers of English perceived English palatal endings significantly worse than American speakers, which suggests that Korean speakers of English have perception problems in English palatal finals; Second, Koreans showed a significant difference between words ending with palatals and palatal + [i] endings, which suggests that Koreans have perception problems in palatal codas; Third, the three groups' means in palatal + [i] type were not significantly different from one another unlike those for palatal endings, which suggests Korean students are likely to overuse the palatal + [i] type.

Key Words: English palatals, palatal+[i], ESL students, statistical analysis
            the perception of palatal endings

1. Introduction

It is a common belief that second language acquisition (SLA) is strongly influenced by the learner's first language (L1). Every adult

learner of the same second language (L2) has L1 transfer, that is, a foreign accent even after years of exposure to L2. Learners with different L1s would also learn a second language (L2) differently, as a result of L1 transfer. L1 transfer occurs on different linguistic levels, but this study only deals with transfer on the phonological level (Gass, 1988; Bell, 1996). It would appear that the clearest evidence for L1 transfer is foreign accent, that is, phonological transfer in the L2 speech production. In other words, foreign accents are likely to retain phonological properties of their first language (L1) in their second language perception and production.

Korean learners of English tend to insert vowels at the end of every English word, which ends with consonants as a result of L1 syllable structure transfer (Bell, 1996). In addition, they tend to insert [i] after final palatal sounds of [ʃ], [ʧ], and [ʤ] when they pronounce words like 'fish, church, and judge' as Korean phonology does not allow those sounds in the syllable final position. Bell (1996) argues that perception and production problems are related, and perception problems might be the source of production problems. It has been also said that insertion of [i] after English palatal codas, [ʃ], [ʧ], and [ʤ] is one of the common features of foreign accent produced by Korean speakers (Schmidt & Meyer, 1995). Even though previous researches suggest that Korean palatal sounds are different from those of English (Kim, 2001) and Korean speakers will insert [i] after English palatal codas, none has provided empirical data on the perception of English palatals by Korean speakers of English.

This paper, therefore, aims to empirically investigate the perception of English palatals by Korean speakers of English. For this purpose, after briefly reviewing current trends on the general possible sources influencing the various foreign accents along with Korean specific sources of production problems of words with palatal endings, and then to determine the source of production problem of palatal segments by Korean speakers of English, through a survey, the perception of palatal endings by Korean speakers of English will be compared to that of English native speakers, and among Koreans, difference in the

perception of palatal endings and palatal + vowel [i] endings will be investigated. Based on the findings of the study, pedagogical implications and suggestions for effective teaching of palatals will be provided. The following three hypotheses were developed for the purpose of this study.

First, Korean speakers of English will be significantly different than native speakers of English in the perception of English palatal endings.

Second, Korean speakers of English will not be significantly different than native speakers of English in the perception of words ending with a palatal + [i].

Third, the total perception of palatal sounds will correspond to the participants' English proficiency level increases.

The first hypothesis is based on the assumption that English palatal sounds will facilitate the native speakers to perceive. The second hypothesis presupposes that second language acquisition (SLA) is strongly influenced by the learner's first language (L1), and negative transfer is a significant factor in accounting for foreign accents, particularly with regard to the acquisition of more general segmental features such as aspiration and of suprasegmental features such as intonation and rhythm (Broselow, 1987; Sato, 1984; Wardhaugh, 1970). In other words, Korean speakers have difficulty in perceiving English palatal codas due to the L1 effect. The third hypothesis presupposes that English will facilitate the advanced level students to perceive English palatal sounds.

2. Review of literature

First language transfer can largely cause the foreign accents. As indicated above, second language learners have problems of pronunciation when they meet sounds, rules for combining sounds into

words, and patterns of stress and intonation different from their first language.

Recently, one of the trends of English uses is to shift from knowledge-based to use-oriented. The constant interaction between native and nonnative speakers often and obligatorily exerts pressure upon us to speak English or other languages to attain our objectives. The teaching of pronunciation has been receiving increasing attention as an area of renewed interest in oral communication as use-oriented uses. (Avery & Ehrlich, 1992; Morley, 1991; Pennington & Richards, 1986; Murphy, 1991). As a result, a number of changing views on pronunciation teaching emerged. The Communicative Approach, which is currently dominant in language teaching, holds that since the primary purpose of language is communication, learning language to communicate should be central in all classroom language instruction. This focus on language as communication brings renewed urgency to the teaching of pronunciation, since both empirical and anecdotal evidence indicates that there is a threshold level of pronunciation for nonnative speakers of English; if they fall below this threshold level, they will have oral communication problems no matter how excellent and extensive their control of English grammar and vocabulary might be (Celce-Murcia & Goodwin, 1991).

In addition to the various opinions about the existence of a "critical period" for second language pronunciation acquisition (Val Barros, 2003), the second factor of foreign accent to consider is first language transfer on second language sounds produced by L2 learners, which seems to be the most powerful reason for foreign accent (Avery & Ehrlich, 1992; Val Barros, 2003). L2 learners will acquire the phonological system of a second language in a manner different from that of their first language given that the acquisition of the new sounds in the second language must be integrated into already existing sound systems. It is also true that some adults do achieve native-like pronunciation, and that the degree of pronunciation accuracy varies considerably from individual to individual (Avery & Ehrlich, 1992).

The third factor to be considered as a source of foreign accent can be seen from the relation of production and perception. According to Avery & Ehrlich (1992), L2 learners may have a problem in hearing a sound that is not present in their native language inventory of phonemes. They believe that the native language affects the ability to produce English sounds as well as the ability to hear English sounds. In other words, the sounds that are familiar in the native language are heard instead of the actual sounds of English produced by the teacher, which means the first language affects on the production and perception of second language acquisition. Therefore, difficulties in the production of the sounds of L2 may arise from the influence of the L1 phonological structure on the perception of L2 sounds. As for the relationship between perception and production in L2, though they do not seem to be in a strong correlation showing that good perception is indispensable for good pronunciation, it is apparent there exists some relation between them (Flege, 1981; Llisterri, 1995).

In order to understand the source of problems of Korean speakers of English, the sound systems of both languages should be discussed, which is very different. The difference of syllable structures between L1 and L2 can cause difficulties in pronunciation of L2. First, in terms of syllable structure, Korean allows syllables of the type (C)V(C), and in the ending position, only seven single consonants [p, t, k, m, n, ŋ , l] are allowed (Kim, 2001). On the other hand, English permits all obstruents except /h/, in the final position and either released or not released (Fromkin et. al., 2003). In loan word phonology of Korean, Koreans tend to insert [eu] after English stop endings (e.g. cut[cʌteu], tape[teipeu], cake[keikeu] in order to keep the segmental value of aspiration of English though Korean does not allow aspirated obstruents in the ending position (Rhee, 2002). Palatal affricate and fricative endings, which are not allowed in the ending position in Korean, tend to be pronounced adding [i] to form a new syllable. Many Korean learners of English tend to insert /i/ after palato-alveolar consonants:

belch[belʧi], lunch[lʌnʧi], bulge[bʌlʤi], change[ʧeinʤi], and Welsh[welʃi] (Lee, 2000).

Second, in terms of place of articulation, Korean palatals are not exactly palatals. Kim (2001) argues that Korean affricates, [ʧ], [ʤ] and [ts], are neither alveo-palatal, nor palato-alveolar. Providing evidence from a phonological and acoustical perspective, she claims that Korean affricates are alveolar. Korean learners, therefore, will have a hard time producing English palatals correctly. English palatals are all alveo -palatals and should be distinguished from palato-alveolar sounds (Ladegefoged, 1982). Since Korean palatals are actually alveolar and Korean speakers of English are likely to use them when producing English palatals, they might have a tendency to misarticulate English palatal sounds (Schmidt & Meyer, 1995).

In conclusion, foreign accent is an obvious problem that most adult L2 speakers have, and there are some factors like critical age and L1 transfer, which might affect the varying degrees of foreign accent. In addition, previous studies have suggested that production and perception are related, although the relation is unclear yet. Finally, due to definite differences between Korean and English sound systems, Korean learners of English are expected to have production problems. The question raised here is that whether this problem in production originates from problems in perception.

3. A perception experiment

3.1. Participants

The participants are 22 low-, 22 intermediate-, 22 advanced-level ESL students from Korea and 10 native speakers who are graduate or undergraduate students of University of Illinois. There are 38 females and 38 males. The 22 low-level students are from intensive English programs at several universities in the Urbana-Champaign, Illinois, USA

metropolitan area. Most of them are college bound, but none of them have a TOEFL score above 500, as required by most colleges in the United States. Their length of residence in the US is less than two years; all of them came to the U.S. after puberty. All of the participants finished 6-10 years of English education in Korea before coming to the U.S. and started to study English in middle school when they were 13 or 14 years old.

The intermediate and advanced students are undergraduate and graduate students attending a university in Illinois. They all had a TOEFL score of 500 or above and were given a cloze test to demonstrate their current English proficiency. The cloze test consisted of 50 blanks with each blank worth one point. Those who scored above 42 were placed in the advanced group and 73% of them were graduate students whose TOEFL score was above 550. The rest were placed in the intermediate group who have a TOEFL score between 500 and 550. The average length of English study was 3.98 years for the intermediate students and 5.12 years for the advanced students.

3.2. Methods

16 sets of the instrument (see Appendix B) were used. For recording, an American graduate student who spoke standard American English pronounced all words in the perception tests. The first 6 sets consist of non-existent words, which are considered to involve no meaning association by native English speakers and the other 10 sets, existent words in the dictionary. Each set was composed of words ending with a palatal and with a palatal + [i]. The stimuli were minimally different words, for example, *church* and *churchy*. The participants were asked to decide one between the minimal pairs. To attain reliability, the stimuli contained in this task were based on Kim (2001).

Each subject was asked to fill out a background questionnaire, which was composed of questions regarding personal information. In addition, ten native speakers of English were participated in the study.

All participants reported no hearing problems. The test was conducted individually. In order to set up a natural environment and relieve the tension, the subjects were in their room and all stimuli were presented in the text. The participants were told that they would hear words which may or may not exist in English and were asked to choose one of the minimally paired words only based on their hearing.

For data analysis, One – Way ANOVA was conducted to examine the total number of correctly identified words based on coda type across the three levels. An independent samples t-test was also used to compare the total number of correctly identified stimuli, and then the total number of correctly identified palatal endings and palatal + [i] was compared based on L1.

4. Data Analysis and Discussion

After calculating the participant's total accuracy scores (the number of items they marked correctly), we computed the subtotal for each of the four groups including one native group.

4.1. Comparison of means between KS and ES

After we tabulated the results of the participants' performances, we calculated the mean in each of the two groups Korean speakers(KS) and English speakers(ES). The results reported in Table 1 show a significant difference on an independent samples t-test. The results supported our first hypothesis that Korean speakers of English will be significantly different than native speakers of English in the perception of English palatal endings.

The results also supported our second hypothesis that Korean speakers of English will not be significantly different than native speakers of English in the perception of words ending with a palatal + [i]. The results are shown in Table 1.

Table 1. Results of T-test with two groups KS and ES [1]

Independent Samples Test				
Use type	df	t	MD	F
palatal ending	74	2.67	0.42	414.4 *
palatal + [i]	74	1.91	0.27	37.3

* $p < .05$

The result shows that there is a significant difference between the American and Korean speakers in the perception of palatal endings ($p<0.05$), while no significant difference is found in words ending with palatal + [i] ($p>0.05$). This implies that Koreans perceive palatal codas worse than Americans, but not palatal + [i]. A closer look at the Table 1 indicates, moreover, that second language acquisition is strongly influenced by the first language. It is obvious that the clearest evidence for L1 transfer is foreign accent in the L2 speech production.

We then again applied a T-test to see where the differences lie between the two groups in each of the categories. The results are supported in Table 2 in subscript letters together with the groups' means and standard deviations. Figure 1 is also provided to help illustrate the differences between groups.

As can be seen clearly in Figure 1 Korean students(L1)' mean in the palatal endings is significantly lower than palatal + [i], which suggests many Korean learners of English tend to insert /i/ after palato-alveolar consonants.
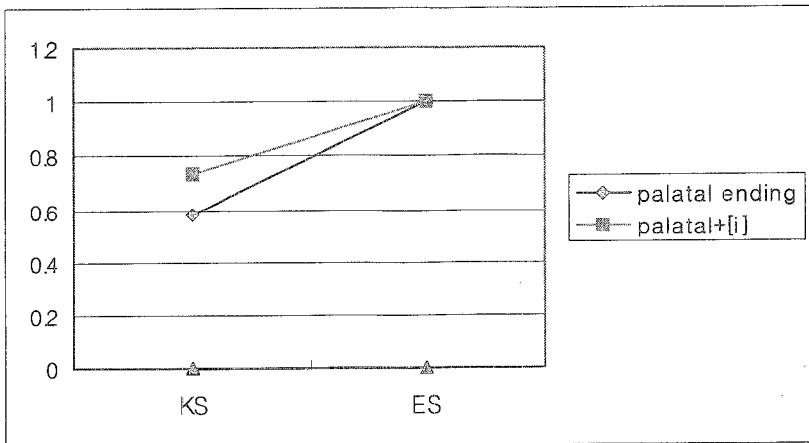
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1) The means of KS in palatal endings and palatal + [i] are 0.58 and 0.72 respectively. The means of ES in palatal endings and palatal + [i] are 1.00 and 1.00 respectively.

Table 2.   T-test results with comparison of means between groups [2]

| Group | N | Use Type | |
		palatal ending	palatal+[i]
L1	66		
M		0.58_a	0.73_a
SD		0.48	0.45
L2	10		
M		1.00_b	1.00_a
SD		0.00	0.00

Figure 1. Comparison of means between groups

4.2. Comparison of Means between Groups

After we tabulated the results of the participants' performance, we calculated the mean of each proficiency level group with two types of palatal endings. We then conducted an ANOVA as proficiency level in each of the two types use. The result reported in Table 3 shows that palatal endings are significantly different.

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2) Means with a common subscript are not significantly different by the T-test with p< .05

Table 3. Results of ANOVA on the groups tested

| Types	df	SS	MS	F
Palatal endings	2	1.84	0.92	4.10 *
Palatal + [i]	2	0.82	0.40	2.10

* $p < .05$

We then applied a post hoc Tukey test to see where the differences were among the three groups in each of the categories. The results are reported in Table 4 in subscript letters together with the groups' means and standard deviations. The groups' means with the same subscript letter indicate no significant difference, but the means with different subscript letters and asterisk are significantly different. Figure 2 is also provided to help illustrate the differences between the groups.

Table 4. Turkey test results with Means and Standard Deviation [3]

		Use type	
Group	N	Palatal ending	Palatal + [i]
Low	22		
M		0.36_a*	0.59_a
SD		0.49	0.50
Intermediate	22		
M		0.59_a	0.73_a
SD		0.50	0.46
Advanced	22		
M		0.77_b*	0.86_a
SD		0.42	0.35

[3] The means with different subscript letters and asterisk are significantly different at the .05 level.

Figure 2. Comparison of means between groups
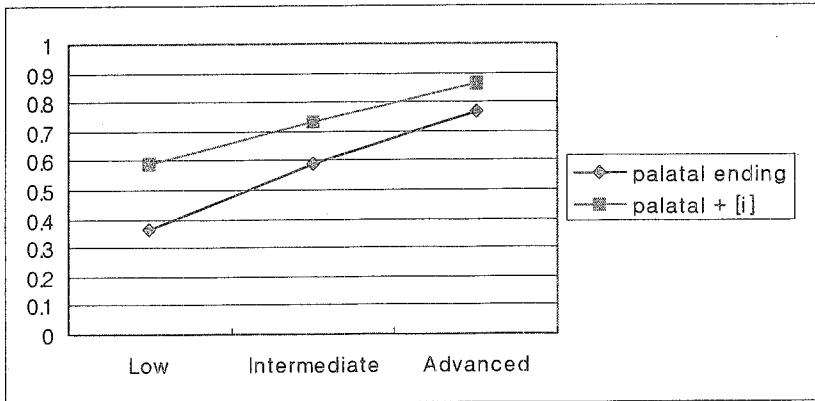
As can be seen clearly in Table 4 and Figure 2, the total accuracy of palatal ending and palatal + [i] increases as the participants' English proficiency level increases. More importantly, the Tukey test shows that the three groups' means in palatal + [i] type were not significantly different unlike palatal ending, which suggests Korean students are likely to overuse the palatal + [i] type. It reapproves that many errors which were assigned to developmental or L2 overgeneralization are actually errors from L1 transfer.

In palatal ending, the comparison between the low and intermediate group is somewhat important. Although the means increase as the participants' English proficiency level increases, there was no remarkable difference in the significance. But, there was the most remarkable increase of all types and groups. First, whereas the mean of palatal ending use increased by only 0.18 from intermediate level's 0.59 to the advanced level's 0.77, the mean of palatal ending use increased by 0.23 from low level's 0.36 to the intermediate level's 0.59. Second, the mean of palatal + [i] use increased by 0.13 from intermediate level's 0.73 to the advanced level's 0.86 and by 0.14 from low level's 0.59 to the intermediate level's 0.73.

More interestingly, although the mean increases in the most

remarkable difference between low and intermediate level, palatal ending use seems to have ceased improving significantly in low and intermediate levels, but increased remarkably in advanced level. These results suggest Korean students' palatal ending use continues to make an across-the-board remarkable improvement from the level to the advanced level and increase significantly after proficiency passes the advanced level.

There is no significant difference in palatal + [i]. The total use of palatal + [i], however, increased as the participants' English proficiency level increased, and the total means are higher than those of palatal ending use, which suggests that L2 learners borrow L1 data when they do not have adequate data to produce a hypothesis within L2 itself and this L1 hypothesis is incorporated into learners' interlanguage (Tomasello & Herron, 1988).

Given that the ANOVA showed an increase as the participants' English proficiency level increased, we conducted a Paired Samples T-test of the three groups' total means of the use of the palatal codas in each of the two categories to determine if there was a significant difference between each possible pair. The result in Table 5 shows significant difference between the pair.

Table 5. Results of Paired Samples T-test

Pair	MS	SD	T	df	Sig
Palatal ending	0.63	0.49			
Palatal + [i]	0.76	0.43			
Palatal ending vs. Palatal + [i]	-0.13	0.34	-3.37	75	0.001

As shown in Table 5, the pair shows significant difference. It in turn suggests that the first language affects on the production and perception of second language acquisition. Therefore, difficulties in the production of the sounds of L2 may result in the influence of the L1 phonological structure on the perception of L2 sounds.

5. Summary and Suggestions

The main goal of this study was to empirically investigate the perception of English palatals by Korean speakers of English. This study has yielded three key findings. First, the Korean speakers of English perceived English palatal endings significantly worse than Americans when the total means were compared. Therefore, Korean speakers of English have perception problems in English palatal finals. This result means that Koreans have a hard time perceiving the difference in words ending with palatal endings and palatal + [i] endings. Korean participants perceived extra [i] after palatal endings, which is similar to the production pattern of palatal finals among Korean speakers. Second, Koreans showed a significant difference between words ending with palatals and palatal + [i] endings. This means that Koreans have perception problems in palatal codas and accordingly the perception problems are the source of production problems of inserting vowels after the palatal endings. Third, the total accuracy of palatal ending and palatal + [i] increase as the participants' English proficiency level increases. But the three groups' means in the palatal + [i] type were not significantly different unlike those of palatal ending, which suggests Korean students are likely to overuse the palatal + [i] type.

To conclude, Korean participants' perception of palatal endings was not the same as that of native speakers of English. In addition, Koreans perceive an extra vowel in words ending with palatal sounds. The source of misperception of palatal sounds in the final position, particularly, originates from the syllable structure difference between Korean and English. Therefore, it is obvious that the nature of foreign accents seen in adult second language pronunciation is determined largely by the learners' native language. Then ESL teachers can predict the difficulties of pronunciation when students learn a second language. For example, to teach the above palatal ending sounds correctly to Koreans, place of articulation should be taught for palatals first as they pronounce those like alveolars; the front part of the tongue is raised to

a point on the hard palate just behind the alveolar ridge as Fromkin et. al. (2003) said. As indicated by Celce-Murcia & Coodwin (1991) teachers should also try to make students aware of the additional vowel sound in words such as 'church'. Learners may also be able to eliminate the extra [i] sound if they can become aware that they are making it, which should be followed up with linking exercises (Avery & Ehrlich, 1992).

Further study is needed due to several limitations of this research. Therefore, first future research calls for studies that have a larger sample size with a more balanced representation of various language groups and use a consistent measure of proficiency in grouping subjects. Second, more systematic stimuli are also needed. Finally, it is of interest to see why vowel [i] is inserted after palatal endings instead of [h] seen in many other obstruent endings of Korean loanwords.

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APPENDIX A
Questionnaire

This appendix contains only the questionnaire items relevant to the results discussed in the report here.

1. What is your native language?..
2. How long have you been in the United States?.............. month(s) or ....
    year(s)
3. What is your most recent TOEFL score?................ score
4. What is your gender? ....

APPENDIX B

Directions: You will hear sounds, which may or may not exist in English dictionary. Listen to them carefully, and choose what you heard from the choices. Each one will be given only once. Mark each word you heard.

Example: If you will hear *blush* from the audio, you will mark as follows:

▷   blush (O)   blushy

	< Text to be given >		< Audio voice to be given >
1.	luch	luchy	luch
2.	luch	luchy	luchy
3.	mich	michy	michy
4.	mich	michy	mich
5.	ladge	ladgy	ladge

6.	ladge	ladgy	ladgy
7.	lidge	lidgy	lidgy
8.	lidge	lidgy	lidge
9.	nish	nishy	nish
10.	nish	nishy	nishy
11.	pesh	peshy	peshy
12.	pesh	peshy	pesh
13.	catch	catchy	catch
14.	catch	catchy	catchy
15.	itch	itchy	itchy
16.	itch	itchy	itch
17.	peach	peachy	peach
18.	peach	peachy	peachy
19.	wedge	wedgy	wedgy
20.	wedge	wedgy	wedge
21.	edge	edgy	edge
22.	edge	edgy	edgy
23.	judge	judgy	judgy
24.	judge	judgy	judge
25.	ash	ashy	ash
26.	ash	ashy	ashy
27.	dish	dishy	dishy
28.	dish	dishy	dish
29.	fish	fishy	fishy
30.	fish	fishy	fish
31.	church	churchy	church
32.	church	churchy	churchy

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