THE PERCEPTIONS OF VOICE TEACHERS REGARDING ENGLISH

PRONUNCIATION DIFFICULTY AMONG NATIVE CHINESE, JAPANESE, AND

KOREAN STUDENTS

A DISSERTATION

SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

DOCTOR OF ARTS

BY HONGTEAK LIM

DISSERTATION ADVISORS: JOSEPH LEVITT

AND DUANE KARNA

BALL STATE UNIVERSITY

MUNCIE, INDIANA

DECEMBER 2013

DEDICATION

I dedicate all of my efforts to the two that are my everything, Hyorim and Josh.

ACKNOWLEDGEMENTS

As non-native English speaker, I cannot imagine that I could ever finish this work without my dissertation committee members. Especially, I am pleased to mention Professor Joseph Levitt and Dr. Duane Karna. I am fortunate to have been closely associated with both of these scholars since 2008. I would say that they motivated me to begin this research.

TABLE OF CONTENTS

Tables

Figures

CHAPTER 1: INTRODUCTION

WHY CHINESE, JAPANESE, AND KOREAN FOR THIS STUDY

There is a government institute for education called the Institute of International

Education (IIE). IIE provides advanced international education and access to education

worldwide. The IIE has conducted an annual census of international students in the U.S. since its

founding in 1919. Known as the 'Open Door Report' since 1954 and supported by the Bureau of

Educational and Cultural Affairs of the U.S Department of State since 1972, the report provided

detailed data on student flows into and out of the U.S.
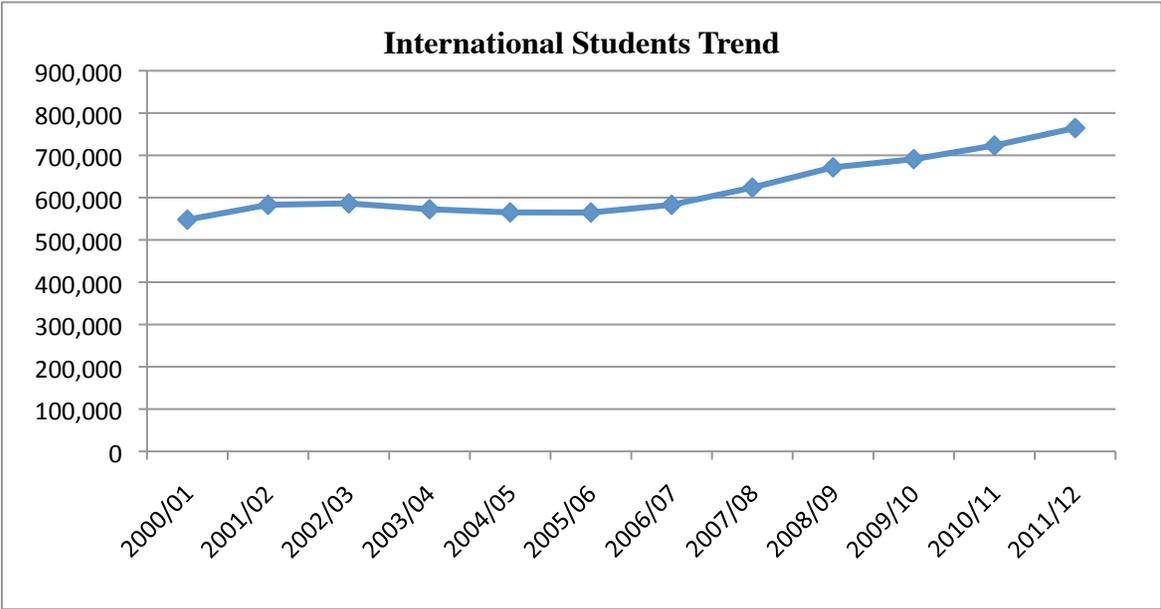
Figure 1. International Student Trends (Open Door Report, 2012)

According to the Open Door Fast Facts, 2012, a total of 764,495 international students came to the U.S to study in a college or university. The number of international students studying at colleges and universities in the U.S increased by 5.7% during the 2011 - 2012 academic year. As we can see in figure 1, the number of international students has increased most years since 2000. More specifically, the number of Chinese students studying in the U.S increased by 23.1%. Although the number of South Korean students decreased by 1.4% and Japanese students decreased by 6.2%, a large number of all three countries' students continue to travel to the U.S to study. As stated by IIE, Chinese, Japanese, and Korean students made up 37.5% of all international students in the U.S. (See Table. 1)

Although Japan is the seventh country on the list, the reason why I included Japanese in this study is due to the natural similarities that occur between these three languages. According to Kenworthy, CJK have similar substituted sounds, when native speakers of these languages pronounce certain consonants. For instance, the English fricative consonant [f] is substituted as the stop consonant [p] as well as [l] for [r] sounds in all three languages (Kenworthy, 1976).

Rank	Place of Origin	2010/11	2011/12	%of total 100.0	%change
	World Total	723,277	764,495		5.7
1	China	157,558	194,029	25.4	23.1
2	India	103,895	100,270	13.1	-3.5
3	South Korea	73,351	72,295	9.5	-1.4
4	Saudi Arabia	22,704	34,139	4.5	50.4
5	Canada	27,546	26,821	3.5	-2.6
6	Taiwan	24,818	23,250	3.0	-6.3
7	Japan	21,290	19,966	2.6	-6.2
8	Vietnam	14,888	15,572	2.6	4.6
9	Mexico	13,713	13,893	1.8	1.3
10	Turkey	12,184	11,973	1.6	-1.7

Table 1. Top 10 Places of Origin of International Students (Open Door Report, 2012)

A Canadian study surveyed English as Second Language (ESL) teachers. The teachers were asked which foreign language students had the most difficulty when learning English. The results indicate that the CJK languages are in the top ten of the 201 participants in Canada.

Language	Mentions
Chinese (Mandarin, Cantonese)	98
Vietnamese	61
Spanish	28
Korean	27
Asian	23
Japanese	12
Arabic	10
Thai	10

Table 2. The most troublesome languages, in terms of pronunciation from Canadian ESL teachers (Foote, Holtby, & Derwing, 2011)

Because of the increasing number of international students studying in the U.S, the number of Speech pathology and ESL classes is growing. College and University voice departments would be well served if they were to borrow teaching techniques from speech pathology and ESL, to better assist the process of teaching international students to more accurately pronounce the English lyrics that they are studying.

BACKGROUND OF THE STUDY

CJK students who are studying in U.S at the college level begin to learn English with an English as Second Language (ESL) institute. One requirement for international students applying to a university in the U.S is the submission of a Test of English as a Foreign Language Internet

Based Test (TOEFL IBT) Score. TOEFL IBT measures the students' ability to speak and understand English at the university level. It also evaluates how well they combine their listening, reading, speaking and writing skills to perform academic tasks. After they come to the U.S, students can receive additional help to improve their pronunciation skills from speech therapists. Speech therapists help people speak English more clearly. They analyze and diagnose the problems of their patients, and prescribe specific solutions to improve their pronunciation of English. During my research for this study, I realized that speech therapy is more precise and practical than TOEFL speaking classes in improving English pronunciation. In this study, I summarized voice teachers' teaching strategies from the survey and also referenced the articles from linguistic and speech language pathology books and articles.

<div align="center">SYLLABLE STRUCTURE DIFFERENCES</div>

Linguistically, CJK languages are different from the English language. In order for teachers to facilitate better learning in these students, they must first understand these linguistic differences. Understanding the syllable structure of CJK will be a good starting point to know the differences between the English and CJK languages.

Spoken language consists of a series of syllables and pauses. However, in each language syllables exist in various lengths and structures. This thought led me to research the different syllabic structures between CJK languages and English. The different languages allow for different syllabic structures: English uses all the structures listed in table 3; Korean uses the first five; Chinese uses the first four; and Japanese uses only the first two (the third and fourth may be used if the final consonant is [ŋ]).

	Structure	English Word
1.	V	A
2.	CV	Go
3.	VC	At
4.	CVC	Get
5.	CVCC	Lend
6.	CCVC	Glad
7.	CCVCC	Blend
8.	CCCVCCC	Strengths
9.	CCVCCCC	Twelfths

Table 3. CJK and English syllable Structures (V= vowel; CV=Consonant-Vowel; CVC=Consonant-vowel-consonant)

According to Taylor, the English language has seventeen-vowel phonemes plus a minimum of five complex vowels called diphthongs, as well as twenty-five consonants, unified vowels, consonants, or vowel-consonant combinations (Taylor, 1995). Syllables have been identified as the smallest phonetic units and functionally defined as "puffs of air forced upward through the vocal track" (Faircloth, 1973). English has more complex syllable structures than CJK. These four languages differ also in the number of possible syllable combination they use: about 110 in Japanese, 400 in Chinese, 2000 in Korean, while several thousand combination are possible in English. However, it is true the CJK students make mistakes with these different structures when they pronounce words in English (Taylor, 1995).

DIFFERENT VOWELS AND CONSONANTS.

There are two significant challenges in teaching CJK singers with regard to the different syllable structures. First, there are certain English vowels and consonants, which are not present

in the CJK language systems. Cheng found that Chinese students have great difficulty with "gap" consonants such as [v, ø, ð, S, ʧ, ʤ]. These are often replaced either by another English consonant or by a similar Chinese one (Cheng, 1998).

In Japanese, Ohata also points out the number of different vowels in the English vowel system. There are fifteen different vowels identified, which include several diphthongs such as [aw], [ay], and [oy] (Ohata, 2004). On the other hand, Japanese has only five vowels [a], [e], [i], [o], and [u], a system quite common among many natural languages in the world. When Japanese speakers pronounce other English vowels, these differences create tension in articulators such as the tongue, jaws, and lips.

Second, there are some unique vowel sounds in CJK that do not appear in English. For instance, Chinese has the blade-alveolar and blade-palatal vowels using the tip of the tongue. When [i] or [e] is followed by [z], [c], or [s], the sound is produced by raising the tip of the tongue (Faculty of Peking University, 1971).

Japanese has the unique progression and the regressive assimilation of the frontal vowels by the vowel devoicing and germination (Tsuchida, 2001). For instance, the Japanese frontal vowel [i] becomes devoiced when it occurs between voiceless segments. Ohata also mentions that there is no affricate found in Japanese: [f], [v], [θ], [ð], [ʃ], [ʒ], [ʧ], and [ʤ] do not exist in the Japanese consonantal system (Ohata, 2004). Therefore Japanese singers need to have a clear explanation how to produce these consonants when they learn English songs or arias. As one might expect, all CJK singers have many problems singing English songs with the correct diction in these instances. CJK singers do not have the same issues with vowels and consonants I mentioned above. It depends on how the singers comprehend the English pronunciation. However, the more that the voice teacher is aware of the differences between English and CJK,

the more effective the teacher can be.

CONSONANT CLUSTERS

AND THEIR RELATIONSHIP WITH LEGATO SINGING

Why is this linguistic approach important to the singers? If singers use unnecessary tension with their articulators, the result will be a tense sound. In order to produce a beautiful sound in a vocal performance, legato is one of the most important features. The Oxford dictionary of music defines "legato" as: "in a smooth flowing manner, without breaks between notes." In other words, in order to vocally deliver a legato phrase, singers must link vowels and consonants smoothly between each syllable. However, if the singer has a stiff tongue and jaws, it will be more difficult to achieve a legato.

According to Uris, "English is a non-stop flow of sound sense language" (Uris, 1971). However, CJK languages are not non-stop flow of sound sense languages. CJK languages often have gaps between two syllables. For example, CJK speakers might release all final consonants and say: What•time•is•it? [watə taimə ɪzə ɪtə] compared to the native English speaker linking them smoothly together: "Wha-tie-mi-zit?" [wʌ taɪ mɪzɪt] (Jensen, 2003). Since the Japanese language ends all words with vowels, the Japanese speaker tends to separate each syllable with a vowel. Korean and Chinese speakers also have difficulties producing consonant clusters at the end of an English syllable (see the table 3).

When CJK singers sing songs in English, the consonant clusters make it difficult to sing legato phrases. Uris defines the acoustical principle of the legato singing in vocal music as: "the blending of vowels and consonants" (Uris, 1971). However, if CJK speakers are not trained to smoothly change syllables due to unfamiliar vowels and consonants, this could be one of the significant causes of their inability to sing a legato phrase.

Furthermore, some examples of these principles are illustrated in Ewan, Hombert and Ohala's article (1979). According to their hypothesis, pronunciation of voiced/unvoiced consonants is dependent on the different language background of the speaker, because different articulator placements such as: raised or depressed larynx and/or tongue. Cho and Ladefoged also found that VOT is known to vary with different placements of the articulators (Cho & Ladefoged, 1999). According to the article, when seven speakers, including Korean and Chinese, pronounced aspirated/unaspirated stop sounds, such as [p], [p^h], [t], [t^h] and [k], [k^h], the VOT varied according to each different language (see tables 4, 5).

	Dutch	Puerto Rican Spanish	Hungarian	Cantonese (Chinese)	Eastern Armenian	Korean	Tamil
[p]	10	4	2	9	3	18	12
[t]	15	9	16	14	15	25	8
[k]	25	29	29	34	30	47	24

Table 4. Summary of VOT (millisecond) in unaspirated stops reported by Lisker & Abramson

	Cantonese	English	Eastern Armenian	Korean
[p^h]	77	58	78	91
[t^h]	75	70	59	94
[k^h].	87	80	98	126

Table 5. Summary of VOT (millisecond) in aspirated stops reported by Lisker & Abramson

The different VOT means when Chinese and Korean speakers pronounce stop sounds, the sounds' acoustic area, may be different. In order to have the same VOT, CJK speakers need to relearn the placement and shape of the articulators. If the CJK singer (or the teacher) does not have this information, the relearning process will be more difficult. Sometimes it can cause tension of the articulators while relearning the new sounds.

PURPOSE OF THE STUDY

During my research, I began to think about this question: Do voice instructors in the U.S share similar perceptions that CJK students have difficulty pronouncing the English language? Ideally, singers should pronounce lyrics with perfect notification of the articulators' relaxations and tensions. These articulators include the tongue, lips, jaw, soft, and hard palates. Taking into consideration these tendencies of CJK speakers, teaching voice and including the diagnosis of the articulators' positions will help CJK students become more successful with their English pronunciation.

The phonological comparisons between English and CJK vowels and consonants will provide CJK students with an effective means to sing English songs with proper diction. The phonological approach — describing the specific position of the articulators — may be a useful pedagogical tool for CJK students. If voice teachers, whether they have taught CJK students or not, could share their strategies with each other, it might help future CJK students as well as their voice teachers.

The purpose of this study is to explore the perceptions of voice teachers regarding English pronunciation difficulties among native CJK students. In order to create solutions, not only should the teachers be able to perceive the difficulties, but they also should be able to suggest training methods based on *phonological analysis*. I will compare these two sources of strategies among speech pathologists and voice teachers.

RESEARCH QUESTIONS

After reviewing the research concerning the perception strategies of the speech-language pathology and the English linguistic departments, specific research questions were posited. Because of the exploratory nature of this study, these research questions were proposed to determine if there are indeed strategies to assist the CJK students, and if these perceptions are different according to the voice teacher's educational background of English diction backgrounds as well as the academic levels of the students. To accomplish this, the following research questions were formulated:

RQ1. What is the perception of voice teachers regarding the prevalence of English pronunciation difficulty among native Chinese, Japanese, and Korean students?

RQ2. What are the strategies that voice teachers utilize when teaching English pronunciation to native CJK students?

RQ3. Are the strategies that voice teachers utilize with teaching English pronunciation to native CJK students representative of sound pedagogical practice?

RQ4. How are the teacher's perceptions toward CJK students different, depending on the teacher's individual educational background such as English diction and vocal pedagogy?

CHAPTER 2: LITERATURE REVIEW

Introduction

If voice teachers in the U.S who work with CJK students realize that they are having difficulties pronouncing certain phonemes in English, they might correct them in various ways. Which ways are the most effective? A study surveyed Japanese students' opinions toward their English teachers' teaching style. Katayama's research (2007) presents what are the most effective methods of teaching English pronunciation to native Japanese students. He suggests that there are four teaching methods when correcting the Japanese students' pronunciation of English. In the survey, he made the following four statements: 1. Teacher gives a hint, which might enable student to notice and self-correct. 2. Teacher explains why the utterance is incorrect. 3. Teacher demonstrates the correct pronunciation while repeating all or part of the student's utterances. 4. Teacher points out the error(s), and offers the student the correct pronunciation. 242 participants responded that the first and second methods were the most favored. It can be concluded that when Japanese student make pronunciation errors in English, they want to know what specific articulators need to be modified, regarding their shape and/or placement, so they may correct the error(s) and eventually learn to self-correct.

ARTICULATOR'S DIFFERENT PLACEMENTS FOR THE SAME SYLLABLE SOUNDS
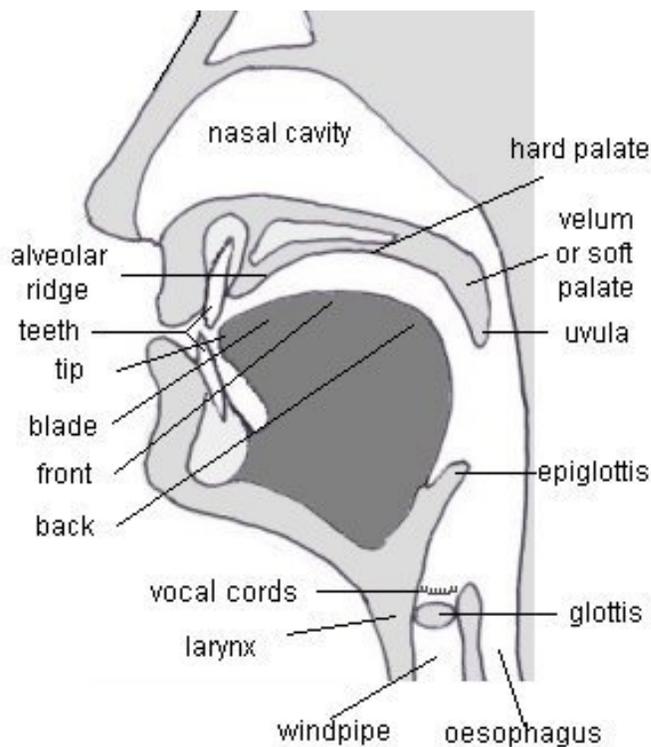
Figure 2. Articulators for the working speech (Singh, 2006)

As shown in figure 2, there are thirteen different articulators used in the production of language (windpipe, esophagus, and nasal cavity are not included). Vowels and consonants in all languages are formed by the coordination of these articulators. Human beings can use individual or multiple articulators. Consonants are formed using different combinations and placements of the articulators as well as the voiced or unvoiced vocal folds.

Laryngeal Position

There are few studies that examine the effects to of the placement of articulators on the production of similar sounds made by different CJK students. First, as previously mentioned, the data gathered by Ewan, Ohala and Hombert (1979) according to this subject. They observe that the other language's duration of the perturbations caused by prevocalic consonants on the post-

consonantal fundamental frequency of the variations of vowels is of different lengths than English. To determine this, they asked three different language speakers, such as French, English, and Thai, to pronounce the same words. Then they measured the larynx's elevation.

The degree of laryngeal elevation is directly related to the amount of exhalation on various syllables in a word or phrase. In other words, to connect vowels and notes in syllables within a phrase, a singer's larynx should not dramatically elevate for legato singing, because a dramatic elevation does not allow for the same amount of exhalation for each syllable. According to this article, the French and English speakers' laryngeal height when pronouncing "apa" and "aba" was approximately the same, but the Thai speakers' larynx was dramatically elevated. In my teaching experience, this is a very important point for CJK students to understand and correct.

Therefore, even if a singer makes correct sounds by repeating the teacher's examples, he or she will easily make the same mistake for a while, depending upon the singer's sensitivity for languages, because the muscle-memory in pronouncing a phoneme in their native language will not change immediately while pronouncing words in the new language.

Voice Onset Time (VOT)

Cho and Ladefoged (1999) analyzed different VOTs from 18 different languages. According to their findings, there are several explanations for the general voice onset differences found in the studies. It is dependent on a number of factors, including laws of aerodynamics, the articulator's movement velocity, and the differences in the mass of the articulators.

Articulators' movement, especially the tongue and lips, affect the VOT on English stop sounds [p] and [t]. As we have already seen in chapter 1, the VOT of Korean is longer than with that of English speakers, meaning the Korean uses more time to pronounce stop consonants

between syllables. In order to sing a legato phrase, singers must connect vowels between syllables. However, consonants are obstacles to legato singing. An important issue is how quickly consonants are pronounced in order to produce a legato line. In this matter, it is necessary to explain in more detail the placement of the articulators when teachers teach the linkage between the syllables of the stopped consonants, [p], [t], and [k] to CJK students.

SIMILARITY JUDGMENTS

Best discovered that when ESL (English as Second Language) speakers first listened to new sounds in a new language, they categorized them as similar sounds to their own language (1995). For instance, when an English speaker first learns the French rounded frontal vowel [y], they normally cannot differentiate it from the back lower vowel [u] consequently they repeat the English [u]. If voice teachers understand the thought processes of the CJK student, I believe their methods for teaching English songs to them may be more effective. The following charts are modified from Kenworthy's book.

KOREAN PHONEMES

KOREAN CONSONANTS

Problems	Tendencies	Examples
Stop sound [p] and fricative [f], Stop sound [b] and fricative [v]	Both stop sounds exist in Korean but both fricative sounds do not. So Korean will substitute consonants from their native language.	father [padər] & victory[bigtori]
Interdental fricative consonants [s] vs [θ], Fricative [ð] vs stop sound [d]	Korean will substitute consonants from their native language.	south[saus] & this[dis]
Voiced [z], Affricative [dʒ], and fricative [ʒ]	These sounds do not occur in Korean. So they need to pay attention	voiced ending 's' unvoiced ending 's'

Table 6. General Korean native speaker's consonants pronunciation confusions

In addition, Schmidt described the following cases in her article (2009): Case 1—The phonemes may not necessarily be the same in phonetic detail, but are sufficiently similar, that the English listener cannot distinguish the differences. Case 2—ESL Korean speakers sometimes distort the sounds, but fall into the English category consistently. For example, because the Korean [tʰ] sound is more aspirated than the English, English speakers mildly distorted the sound. Case 3—Some phonemes are actually completely different, but it is difficult for the native Korean speaker to distinguish a difference. An example is the native Korean speakers'

pronunciation of English [z], which sounds like an English [dʒ] to a native English speaker (Schmidt, 2009). Case 4—Epenthetic consonants or vowels may be used when the native language does not allow for English combination of sounds, or when the subject exaggerates the production of a sound. The Korean language does not have final voiced consonants so they must work hard to produce a strong final voiced consonant. Case 5—ESL speakers frequently make pronunciation errors, because of unfamiliar spellings. This is not only Korean native speaker's problem but Japanese as well.

KOREAN VOWELS

Problems	Tendencies	Examples
Frontal vowel [i] and [ɪ] final position.	Only [i] sound occurs in Korean. So most of time they will pronounce [i] rather than [ɪ]	Steal [stil] & Still [stɪl]
[ɑ], [ʌ], and [ɔ]	Koreans may have problems distinguishing these vowels	Under[andɚ] & Clock[klʌk] & All[ɔl]
Back vowel [u] vs [ʊ]	Korean has [u] but no [ʊ], so they will substitute [ʊ] for [u]	Shoot [ʃut] & Book [bʊk]

Table 7. General Korean native speaker's vowel pronunciation confusions

JAPANESE PHONEMES

JAPANESE CONSONANTS

Problems	Tendencies	Example
Palatal fricative [ʒ]	This sound occurs in Japanese only in combination with the [u] vowel	Vision [vɪʒun]
Substitute [h]-[f] [z] or [d]-[ð], [s] or [t]-[θ]	[h] will be substituted for [f] [z] or [d] will be substituted for [ð] [s] or [t] will be substituted for [θ]	Feel [hɪl]
[l] and [r] confusion	Japanese often confuse the English [r] for [l], They tend to use a sound which sounds most like an [l] to the English listener, although at times the substituted sound may be a [d]	Resign [dizain]
[z] and [s]	Final z may be pronounced more like [s]	Shoes [ʃus]
[f], [v], [ð], and [θ].	These consonants do not occur	

Table 8. General Japanese native speaker's consonants pronunciation confusions (Kenworthy, 1976)

JAPANESE VOWELS

Problems	Tendencies	Examples
Frontal vowel [i] and [ɪ] final position.	Only [i] sound occurs in Japanese. So often they will pronounce [i] rather than [ɪ]	Sit [sɪt]& Seat [sit]
[ɑ],[ʌ], and [ɔ]	Japanese may have problems distinguishing these vowels	Same as Korean
Back vowel [u] vs [ʊ]	Japanese has [u] but not [ʊ], so they will substitute [ʊ] rather than [u]	Same as Korean

Table 9. General Japanese native speaker's vowel pronunciation confusions (Kenworthy, 1976)

In addition, Hillenbrand and Clark (2000) observed that North American English speakers distinguish between [i] and [I] primarily on the basis of <u>vowel quality</u> rather than <u>length</u>. However, Bohn (1995) reveals that students of English from many different backgrounds tend to perceive [i] as a long vowel and [I] as a short vowel with little or no difference in quality. On the other hand, the distinction between [u:] and [ʊ] in alveolar contexts was difficult, as expected, because their spectral and temporal differences were very small, and they were perceived as equally good exemplars of Japanese [ɯ:] in alveolar contexts. Interestingly, American vowels [æ:], [ɑ], and [ʌ] were all assimilated to Japanese [a:] or [a].

CHINESE PHONEMES

CHINESE CONSONANTS

Problems	Tendencies	Examples
Unvoiced stop [p],[t], and [k], And voiced nasal [m], [n], and [ŋ] as in final position.	These six sounds exist in Chinese but when they occur at the end of a syllable they are never 'released'	[p] and [m] the lips remain closed [t] and [ŋ] the tongue tip clings to the roof of the mouth
Voiced stop [b], [d], and [g]	Chinese have these consonants, but they do not occur at the end of the words	
Inter-dental fricative consonants [θ],[ð]	Chinese will substitute in their native language-consonants	[t] or [f] as in thick [d] or [v] as in this
Labiodental fricative [v]	Chinese does not have [v] at the end of a word, so they substitute [f] for [v] At the beginning of a word they substitute [w] for [v]	Safe [seiv] & Vine [wine]
Voiced/unvoiced fricative [s] and [z]	Chinese has [s] but no [z] for both initial or final positions	
Palatial unvoiced fricative [ʃ]	When this sound is placed before the [u] vowel they will substitute an [s]	Shoe [su]
Palatal unvoiced affricative [ʧ]	This sound does occur in Chinese, but [ʤ] does not. So they are difficult to pronounce	Joy
Palatal fricative [ʒ]	This sound does not exist in Chinese	Same as Korean and Japanese
Confusion [l] vs [r], [n] vs [l], [t] vs [d]	Both sounds of each group will be confusing for Chinese.	Same as Korean and Japanese

Table 10. General Chinese native speaker's consonants pronunciation confusions (Kenworthy, 1976)

CHINESE VOWELS

Problems	Tendencies	Examples
Frontal vowel [i] and [ɪ] final position.	Both these vowel sounds occur in Chinese, but there are restrictions in which consonants may follow	There will be no difficulty for the following words: sick, ring, and king, or lip. However there will be difficulty for: fill, sit, did, and dim.
Diphthong [ei]	There will be no problem when it is the final sound in a word, but when it is followed by consonant, they may tend to substitute an [ɛ].	lay, say, etc. will be fine. But they might pronounce mate as [mɛt] rather than [meit]
Back vowel [ɑ], [ʌ], and [ɔ]	Chinese may have problems distinguishing these vowels	Same as Korean/Japanese
Back vowel [u] vs [ʊ]	Chinese has [u] but no [ʊ], so they will tend to substitute [u] instead of [ʊ]	Same as Korean/Japanese

Table 11. General Chinese native speaker's vowel pronunciation confusions (Kenworthy, 1976)

In addition, the Chinese language is a "tone language", meaning the definition and intent of a word are different depending on whether the word is said, with a rising or a falling intonation. For example: the word: 'buy', spoken with a falling tone now becomes: 'sell'. Moreover, Chinese have the blade-alveolar and blade-palatal consonants, formed with a hollowing of the tongue, meaning the tongue is concave with respect to the roof of the mouth (Ladefoged & Wu, 1984). For instance, when [i] and [e] are followed by [z], [c], and [s], the sound is produced by a rolling of the tip of the tongue, pointed towards the hard palate.

Conclusion

While researching the linguistic department references, I observed that most ESL teachers are very perceptive about the difficulties of CJK students. Most of the solutions they utilize are similar to Foote's article (2011). Foote recommends providing explicit feedback to students on both segmental (phoneme or individual sounds) and supra-segmental (broader

aspects of pronunciation such as stress and intonation) instruction with mirroring or explaining the articulators' placement. Kenworthy supports this by stating voice teachers are familiar with repetitive errors in pronunciation and "teachers could correct this by using segmental and supra-segmental problems". In other words, Foote recommends teachers should find the pronunciation difficulties of ESL students beginning with the smallest unit in a word (Kenworthy, 1976). When ESL students are having trouble pronouncing a word, it is because their own supra-segmental sounds are different from native speakers, which are caused by the different pitch or length of the consonants and/or vowels by the respiratory muscle activity and/or laryngeal muscles.

<div align="center">STRATEGIES OF SPEECH THERAPISTS</div>

When speech therapists begin to care for their clients who wish to improve their English pronunciation, they employ certain logical procedures, based upon their clients' perception levels. Schmidt (2009) suggested 4 levels of training to accomplish this.

Level 1: Same/Different Hearing Discrimination.

First she suggests, that when the client confuses the differences between two similar sounds (i.e. [i], vs [I] or [r] vs [l]), the therapist should speak aloud each simple word three times so that the client can begin to recognize the differences. For example, the therapist speaks 'pick' aloud three times, then 'peak' three times. It is important to distinguish the values of short phonemes. Visual hints should also be utilized (index cards are one possibility).

Level 2: Categorization (discrimination in identification labeling)

When the client can distinguish the difference in the two sounds, they are then taught to label each one correctly. One sample of 10 short phoneme sound pairs is presented to the client by the clinician. The client points to a word or symbol to indicate which category is being heard. (Utilizing an IPA example is one possibility). (See the vocabulary list in Appendix 2)

Level 3: Production of contrasts in short phoneme pairs.

Up to this point, the client has been able to hear the subtle differences in the English language, and can also understand which sounds belong in which category, now being able to accurately reproduce the differences. The combination of two or three words of ten pairs is now presented to the client. (See the vocabulary list in Appendix 2)

Level 4: Consonants: higher level of articulator complexity.

When the therapist believes that their clients have attained level 3, they can now attempt to pronounce phrases and full sentences. (See the training for [r] and [l] in a sentence, Appendix 3) This is just one of the many procedures speech therapists use to diagnose and treat their clients. Since pronunciation is stored in the human brain and muscles of the articulators at a very early age, relearning a sound mechanism — especially one similar to native consonants and vowels, steadfast training is needed.

Summary

In this chapter, two different types of references were introduced. First, I researched references from speech pathology departments, and secondly I introduced references from linguistic departments, especially in the ESL teaching area. By VOT of the speech laboratory, we learned that the length of the onset times differs from individual native speakers when they pronounce the stopped sounds [p], [b], and [k]. Based on this linguistic theory, when a person listens to a new sound of a new language, he/she has a tendency to try to relate that sound to similar sound of their own native language. Through reviewing linguistic department's references, I confirmed ESL teachers' observations were similar, according to the common mistakes of CJK speakers. Finally, the four level processes of the speech therapist were introduced.

CHAPTER 3: RESEARCH METHODS AND INSTRUMENTS

METHODOLOGY

Introduction

The purpose of this study is to explore the perceptions of voice teachers, regarding the English pronunciation difficulties among native Chinese, Japanese, and Korean singers. In order to achieve positive solutions, not only should the teachers be able to persive these disbilities, but also be able to suggest training methods based on phonological analysis. The Institutional Review Board (IRB) reviewed this questionnaire on February 11, 2013 and determined the procedures I proposed were appropriate for exemption under the federal regulations. The research was cleared to proceed with the procedures outlined in my protocol.

PARTICIPANT VALIDITY

Participants for this study were chosen from a convenience sample of 300 voice teachers from the Great Lakes Region of the National Association of Teachers of Singing (NATS). NATS is the largest association of teachers of singing in the world. The 2012 NATS Great Lakes Region consists of 600 members from Indiana, Michigan, Illinois, Ohio, and Ontario, Canada. Due to budgetary constraints, Ontario members were excluded from the survey. According to the Fast Facts Open Door 2012 (see the table 12), among the top 10 states hosting international students, international students are significantly increasing in Indiana, Michigan, Ohio and Illinois. This is a convenient sample, but there are no significant differences as compared to other regional voice teachers. I do not believe that I would have received different results from other regions, because international students are spread out in all fifty U.S states (table 12). Therefore,

all teachers should experience the same pronunciations issues with CJK students. Therefore the data from these four NATS states are logical and appropriate.

Rank	State	2010/11	2011/12	%Change
1	California	96,535	102,789	6.5
2	New York	78,888	82,436	4.5
3	Texas	61,636	61,511	-0.2
4	Massachusetts	38,698	41,258	6.6
5	Illinois	33,766	35,920	6.4
6	Pennsylvania	30,507	33,398	9.5
7	Florida	29,719	32,567	9.6
8	Ohio	24,709	26,427	7.0
9	Michigan	24,668	25,551	3.6
10	Indiana	20,112	22,194	10.4

Table 12. TOP 10 of U.S. States Hosting International Students (Open Door Report, 2012)

RECRUITMENT PROCEDURE

This research was descriptive in nature. Participants received a survey by mail including both a cover letter and a questionnaire, asking them to describe their perceptions of the prevalence of English pronunciation difficulties among native Chinese, Japanese, and Korean students. Information regarding specific teaching strategies that may resonate with Chinese, Japanese, and Korean students was also sought from the participants (The full copy of the questionnaire can be found in Appendix.1). The questionnaire—which has fourteen question grouped into three sections—was administered between April 15 and May 22, 2013.

The questionnaire, titled "The Perceptions of Voice Teachers Regarding the Prevalence of English Pronunciation Difficulty Among Native Chinese, Japanese, and Korean Students," was developed specifically for this study. According to the *Oxford English Dictionary* (OED), perception is defined as: "the ability to see, hear, or become aware of something through the senses." As such, NATS voice teachers, who have or had previously worked with Chinese, Japanese, and/or Korean students, were asked to indicate their level of agreement with six statements. They were asked to respond to this 6-point, Likert scale with answers ranging from "very strongly disagree" to "very strongly agree." Perception scores ranged from 0 to 36, with higher scores indicating a stronger belief, that Chinese, Japanese, and Korean students do, in fact, seem to struggle disproportionately with English pronunciation. Scores were classified according to the following rubric:

Attitudinal Score	Attitudinal Classification concerning pronunciation problems
less than 6	Perceive very few problems
6- 12	Perceive a few problems
12-18	Perceive some problems
19-24	Perceive problems
25-30	Perceive many problems
Greater then 30	Perceive very many problems

Table 13. Likert Scale Rubric for the Perception Test

In section 2 and 3, the teachers' background information was also requested from the participants. Participants were also asked to articulate their ideas regarding their general teaching and learning practices by completing open-ended questions in section 3. This section helped

identify common opinions shared among voice teachers, regarding the teaching of CJK students. Proposed data analyses included descriptive statistics, summarizing the overall results.

After the data was collected, I compared their strategies and literature reviews. Then, if the respondents had similar types of lesson tools (or not), with regard to the literature for the CJK singer, it became a very strong rationale for this research. If voice instructors did not have common perceptions and lesson strategies regarding the difficulties of CJK singers to pronounce English, it was still valuable to present linguistic approaches to teach CJK students.

CHAPTER 4. RESEARCH MEASURES AND ANALYSIS DATA

Introduction

Microsoft excel data analysis was used to perform the data analysis for this chapter. Data analysis consisted of descriptive statistics, independent t-test, and one-way analysis of variance (ANOVA). In total, 64 individuals responded to the survey. However, because some participants chose to ignore most of questions and did not have teaching experience with the CJK student, I chose to utilize only 40 of the respondents' answers. Responses totaled only 13%, a very low percentage for this survey. However, the responders lesson strategies seemed very effective, and because of the high interest of these participants in the subject, it seemed reasonable to continue to analyze the results.

RESULTS OF SECTION 1

To answer the initial research title "The Perceptions of Voice Teachers Regarding the Prevalence of English Pronunciation Difficulty Among Native Chinese, Japanese, and Korean Students," I utilized the Likert scale with these six questions in section 1. The results could be analyzed as table 14, reported the results of question 1-6, perception of the CJK student's difficulties showing the number, which are called the mean (M) and standard deviation (SD). The OED defines the standard deviation score as: "a quantity, calculated to indicate the extent of deviation for a group as a whole". I calculated the mean of the responses for six items on the survey.

Participants	Q 1	Q2	Q3	Q4	Q5	Q6	M	SD	Sum
P1	2	4	4	6	6	5	4.50	1.52	27
P2	6	5	4	6	6	4	5.17	0.98	31
P3	6	6	3	4	4	6	4.83	1.33	29
P4	6	4	4	5	5	5	4.83	0.75	29
P5	6	6	6	6	6	6	6.00	0.00	36
P6	4	4	3	4	4	3	3.67	0.52	22
P7	6	6	3	3	5	6	4.83	1.47	29
P8	4	5	0	4	5	4	3.67	1.86	22
P9	4	3	5	5	6	6	4.83	1.17	29
P10	4	5	5	4	6	5	4.83	0.75	29
P11	4	4	0	4	4	0	2.67	2.07	16
P12	6	6	6	4	6	6	5.67	0.82	34
P13	4	4	3	3	3	4	3.50	0.55	21
P14	4	5	4	5	4	5	4.50	0.55	27
P15	6	4	6	4	6	6	5.33	1.03	32
P16	5	6	5	6	6	6	5.67	0.52	34
P17	4	4	4	4	5	5	4.33	0.52	26
P18	6	6	6	5	6	5	5.67	0.52	34
P19	5	4	0	6	4	5	4.00	2.10	24
P20	4	5	4	4	6	3	4.33	1.03	26
P21	4	4	5	4	6	2	4.17	1.33	25
P22	6	4	6	6	6	6	5.67	0.82	34
P23	6	6	6	6	5	6	5.83	0.41	35

Participants	Q1	Q2	Q3	Q4	Q5	Q6	M	SD	Sum
P24	6	6	2	4	5	4	4.50	1.52	27
P25	4	4	5	5	4	4	4.33	0.52	26
P26	4	4	4	3	5	5	4.17	0.75	25
P27	6	6	1	6	6	6	5.17	2.04	31
P28	6	3	6	4	6	6	5.17	1.33	31
P29	5	5	0	4	4	5	3.83	1.94	23
P30	6	6	6	6	6	6	6.00	0.00	36
P31	5	4	4	4	4	0	3.50	1.76	21
P32	2	4	6	4	6	6	4.67	1.63	28
P33	4	4	3	3	4	3	3.50	0.55	21
P34	5	4	4	3	5	5	4.33	0.82	26
P35	5	4	4	4	5	4	4.33	0.52	26
P36	6	4	5	3	5	6	4.83	1.17	29
P37	6	6	6	6	6	6	6.00	0.00	36
P38	5	5	5	5	5	5	5.00	0.00	30
P39	6	6	6	5	6	6	5.83	0.41	35
P40	5	5	5	6	5	5	5.17	0.41	31
							M:4.72	SD:0.82	M=28.325 SD=1.085

Table 14. Likert scores for Section 1

The central research question of this study was "What is the Perception of Voice Teachers Regarding the Prevalence of English Pronunciation Difficulty Among Native Chinese, Japanese, and Korean Students?" In section 1, Average perception score is M=28.325 (SD=1.085) of sum of the section 1. Based on this average, I have concluded that the voice teachers of NATS Great Lakes Region have perceived the many difficulties of CJK speakers.

		Frequency	Percent	Valid Percent
Valid	1	1	.4	.4
	2	4	1.4	1.6
	3	18	6.4	7.3
	4	83	29.6	33.9
	5	50	17.9	20.4
	6	89	31.8	36.3
	Total	245	87.5	100.0
Missing	System	35	12.5	
Total		280	100.0	

Table 15. Frequencies and Percentages for Section 1 of the Questionnaire

Table 15 shows that the negative answer, scale 1 to 3, throughout question 1 to 6 was 9.4% and positive answer, scale 4 to 6, 90.6%. These significant percentages indicated Great Lakes Region of NATS of members agreed that CJK students have difficulty pronouncing English. And this also could be the positive answer for the research question 1: What is the perception of voice teachers regarding the prevalence of English pronunciation difficulty among native Chinese, Japanese, and Korean students?

RESULTS OF SECTION 2

I used an unequal T-test for questions 7, 10, and 11 to compare the mean score of two samples (experienced or inexperienced). The T-Test compares the actual difference between two means in relation to the variation in the data (two-tailed distribution and two-sampled unequal variance was used). I simply scored a '1' for 'yes' answers and a '0' for 'no' answers in questions 7, 10, and 11. One-Way Analysis Of Variance (ANOVA) tests were used for question

8 and 9 to compare whether the teaching and academic backgrounds of the respondents gave influence to the perception or not. Alpha value was 0.05 in both T-test and ANOVA.

T-Test Result of Question 7

In question 7, participants were asked the following question: "Have you ever taken an English diction class?" I divided the participants into 2 groups: those who had taken an English diction class (85% of the participants) and those who had not (15% of the participants). Using a T-test result, I compared the different perceptions of the two groups.

Independent samples T-test was used to find different mean score between an English diction class experienced group and a non-English diction class group. There was no significant difference on the section 1 perception between two groups.

	English diction class experienced group	Inexperienced group
Mean	29	28.20588
Variance	21.2	25.07754
Hypothesized Mean Difference	0	
df	7	
t Stat	0.38426	
P(T<=t) two-tail	0.712192	
t Critical two-tail	2.364624	

Table 16. T-Test Results for Question 7: Have you received specific training in English Diction?

As the P(T<=t) two-tail score is greater than alpha score, these two groups did not have a statistical difference (P=0.71). In addition, the mean score of the group with English diction experience was 29, while the mean score of the inexperienced group was 28.20. It can be concluded that the English diction class experience of the voice teacher did not influence their perception of the CJK speaker's pronunciation difficulties.

ANOVA test for Question 8 and 9

For survey questions 8 and 9, ANOVA test was selected for the grouping of experiences

by different teaching background. The purpose of the RQ 4 was to explore the effects toward

various perceptions, according to the different academic programs of the teacher's studio. In

order to compare more than two groups, I chose the ANOVA. The sample of question 8 asked,

"Which level of student best describes your voice studio?" and the distribution of the sample

were various as I presented in table 17. (There were no participants who taught graduate minor

students.)

Groups	Count	Sum	Average	Variance
Graduate Major	14	429	30.64286	12.4011
Undergraduate Major	13	361	27.76923	17.52564
Undergraduate Minor	3	81	27	103
Non Major and Minor	10	275	27.5	21.16667

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	87.07802	3	29.02601	1.360555	0.270344	2.866266
Within Groups	768.022	36	21.33394			
Total	855.1	39				

Table 17. ANOVA Results for Question 8: Which of the following is the most appropriate description of your voice students?

There was no significant difference in scores of participants in the four groups of

question 8 (F (3, 36)=1.360555, p=0.27). According to the test result F=1.36, with a critical

value of.05 the critical F= 2.866. Therefore, since the P statistic is smaller than the critical value,

there is no significant difference between the four groups. Although, significant difference was

not found by the statistic, as we could see in figure 3, the teachers who had taught graduate voice

performance students had a higher mean score than the others. The mean level of different

perception, reported by graduate major level teachers (30.64), is higher than that of the other

three levels of students. A larger sample size may have led to more significant results.
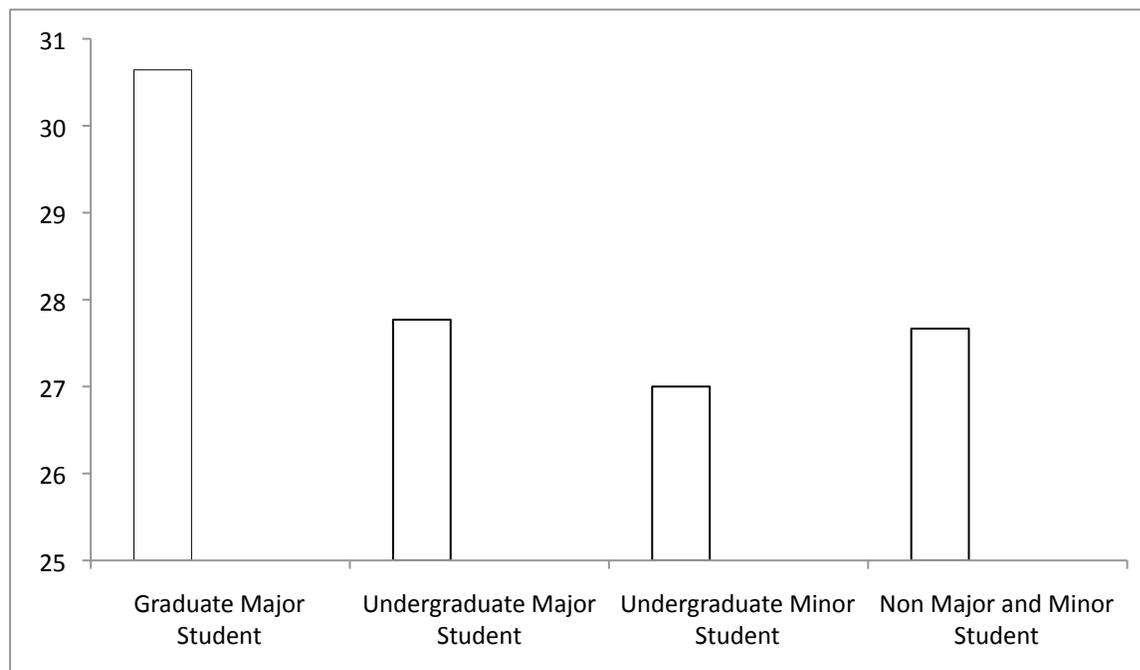
Figure 3. Mean score of four different studios experienced groups

It is possible to say that teachers, who have experience working with more advanced

academic-level students, have a stricter standard of English diction toward the graduate CJK

students than the other groups. This indicates the teachers who have taught graduate CJK

students have more experience and have developed stronger perceptions than other groups, such

as the teachers of undergraduate major/minors, non-major/minor students.

The ANOVA result of question 9

The sample of question 9 indicates whether the number of different student nationalities

they have taught affects the perception of voice teachers. Teachers who had worked with

students from more than one of the CJK countries scored higher than teachers who had only

worked with students from one CJK country.

Groups	Count	Sum	Average	Variance
Three language	18	534	29.66667	20.23529
Two language	9	258	28.66667	26.5
One language	13	347	26.69231	22.0641

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	67.20577	2	33.60288	1.514807	0.233172	3.251924
Within Groups	820.7692	37	22.18295			
Total	887.975	39				

Table 18. ANOVA Results for Question 9:Have you ever taught a native Chinese, Japanese, or Korean student?

There was a no significant difference in scores of participants in four groups on question 9 (F (2, 37)=1.514807, p=0.23). The mean level of different perception reported by one-nationality teaching experienced group (M=29.66) is higher than that of the two other groups. According to the test result F 3.25, with a critical value of 0.05, the critical F= 3.25. Therefore, since the P statistic is smaller than the critical value, there is no significant difference among the three groups. Again, a larger sample size may have led to a more significant result.
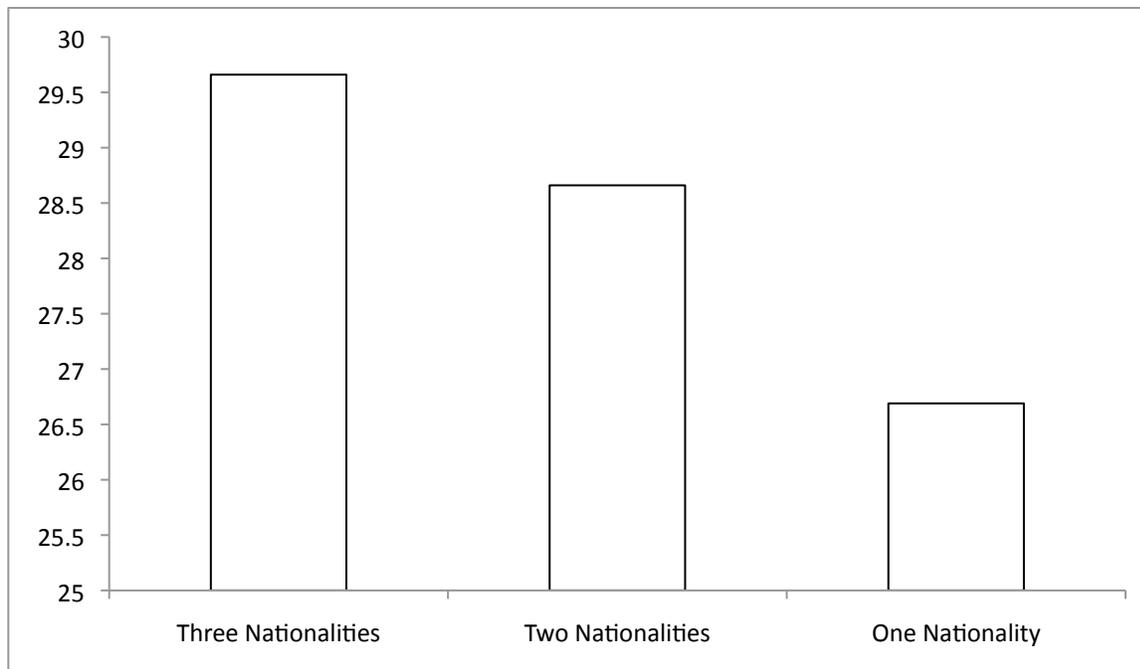
Figure 4. Mean score of three different ethics experienced groups

The teachers, who had experience teaching all three CJK nationalities, had a slightly higher mean score than the others. (Figure 4) It can be stated, that teachers, who have experience working with a larger number of different nationalities, have comparatively stronger perceptions than the other groups. Therefore, the more different nationalities that a teacher has experience teaching, the stronger the perceptions they will have towards their disabilities.

The T-Test Results of Question 10

	Native English Speaker	Native CJK Speaker
Mean	28.07895	33
Variance	23.85846	8
Observations	38	2
Hypothesized Mean Difference	0	
df	1	
t Stat	-2.28754	
P(T<=t) two-tail	0.262362	
t Critical two-tail	12.7062	

Table 19. T-Test Results of the Question 10: Are you a native Chinese, Japanese, or Korean speaker?

With question 10, I wanted to compare how the participants' nationality affects the perception of the difficulties of the CJK students. Table 19 shows that native CJK teachers have different mean scores. Since I only received two samples from one, and the other respondents from the other groups were far more, I decided that there is no statistical validity. The results are not presented.

T-Test Results of Question 11

This question asked whether the teachers' pedagogical experiences influenced their perceptions of the difficulties of the CJK student. M= 28. 125 P= -0.13 Mean scores of each group also show that there is no significant difference, as shown in table 20. It means that whether teachers had vocal pedagogy classes or not, their perceptions were similar.

	Vocal Pedagogy Experienced group	Vocal Pedagogy Inexperienced group
Mean	28.125	28.375
Variance	21.26786	25.40323
Observations	8	32
Hypothesized Mean Difference	0	
df	12	
t Stat	-0.13455	
P(T<=t) two-tail	0.895198	
t Critical two-tail	2.178813	

Table 20. T-Test Results for Question 11: Have you received specific training regarding pedagogical techniques that might help to resolve issues of tension/relaxation of articulators such as the larynx, tongue, jaw, and lips*?*

All the data analysis from questions 7 to 11 show that there are no statistical differences. It indicates that teachers' educational background does <u>not</u> affect the perception of the CJK student's difficulties, which was asked in research question 4: How is the teacher's perception toward CJK students different according to the teacher's different educational backgrounds?

RESULTS OF SECTION 3

To answer research questions 2 and 3: "What are the strategies that voice teachers utilize when teaching English pronunciation to native Chinese, Japanese, and Korean students?" and "Are the strategies that voice teachers utilize with teaching English pronunciation to native Chinese, Japanese, and Korean students representative of sound pedagogical practice?" Two questions were asked of the NATS teachers in the Great Lakes Region: 12) Which English vowels, if any, do you believe are the most difficult for native CJK students to pronounce? 13) Which English consonants, if any, do you believe are the most difficult for native CJK students to pronounce?

Vowel	Frequency
[æ]	10
[ɛ]	9
[I]	9
[a]	7
[e]	6
[ʊ]	5
[ɔ]	5
[o]	4
Diphthongs	4
[i]	3
[ʌ]	2
[ɑ]	2
[ə]	1

Table 21. Data collection for question 12: Which English vowels, if any, do you believe are the most difficult for native CJK students to pronounce?

Consonants	Frequency
[l]	28
[r]	25
[ð]	16
[θ]	16
[v]	8
[dʒ]	8
[ʒ]	8
[w]	7
[f]	5
[ʃ]	4
[j]	3
[tʃ]	3
[g]	3
[ʁ]	2
[m]	2
[n]	2
[b]	2
[d]	2
[st]	2
[k]	2
[p]	1
[h]	1
[ŋ]	1

Table 22. Data collection for question 13: Which English consonants, if any, do you believe are the most difficult for native CJK students to pronounce?

In question 12, participants also perceived confusion according to the CJK students' placement of the sounds: [o], [ʊ], [i], [I], [e], [æ], [ɛ], [ʌ] and diphthongs. CJK students especially seem to distinguish the differences between [o] vs [ʊ], [i] vs [I], [æ] vs [ɛ]. The data are almost the same as Kenworthy's chart in chapter 2.

In question 13, participants answered that CJK speakers have difficulties when they pronounce the following consonants which do not exist in CJK languages: [ð], [θ], [ʃ], [z], [ʁ], [l], [r], [m], [n], [b], [w], [f], [p], [v], [h], [dʒ], [j], The Great Lakes Regions members of NATS recognized that CJK students have difficulties for most liquid consonants: [l] and [r] as well as fricative consonants: [ð], [θ], [z], [w], [f], [v], [dʒ], and [ʒ].

The Results of the Open-up Question 14

To compare teaching strategies between English teachers/speech therapists and voice teachers, the last question was asked of the participants: "What specific pedagogical strategies have you found to be successful in helping native CJK students overcome difficulty with English pronunciation?" This question was concerned with their strategies teaching voice lessons with CJK students. I have classified all answers and divided the reasons into 3 categories plus 'other'.

Tongue Relax and Tension Category (Frequency 14, 35%)
• Singing one pitch and change vowel from [i]-[e]-[a] and smooth change
• Tongue stretching, isolating the tip, middle, and back of tongue
• Tongue and Jaw exercising; unhinge and forward jaw on [i]s and more vertical space in mouth + pharynx

Table 23-1. Data collection for question 14: What specific pedagogical strategies have you found to be successful in helping native CJK students overcome difficulty with English pronunciation?

Explain placement of articulators category (Frequency 12, 30%)
• Pronounce words very slowly
• Singing single tone in a segmental fashion
• Using a mirror

Table 23-2. Data collection for questions 14: What specific pedagogical strategies have you found to be successful in helping native CJK singers overcome difficulty with English pronunciation?

Ear Training category (Frequency 4, 10%)
• Call and Respond, or Echoing
• Recording/Listening

Table 23-3. Data collection for question 14: What specific pedagogical strategies have you found to be successful in helping native CJK singers overcome difficulty with English pronunciation?

As presented in table 23-1, 35% of the participants mentioned tongue tension as the main reason why CJK students have difficulties. One teacher suggested CJK students need to know how to stretch or isolate the tip, middle and back of the tongue with specific exercises. For example, if a student could gradually transition from [i]-[e]-[i] using only the front part of their tongue without a break in the sound, that indicates that the singers understands how to isolate the tip from the other parts of the tongue. 30% of the participants suggested that the correct placement of articulators should be explained, utilizing a mirror, or segmental pronouncing. In order to teach correct pronunciation, voice teachers have the students understand what the correct placement of the organ is for the pronunciation. 10% of the participants suggested ear-training practice using recording and listening methods.

Other (No Category); Frequency 5, 10.25%
• Rhythmic scales, combination of consonants and vowels/ Ear training /repeating
• Finding the closest vowel and consonant in their native language, and relate to it while you explain the difference in shapes and sounds of the V/C, which your are trying to have your singers achieve.
• Vocalizing with grouped difficult vowels and consonants (6 participants)
• Vocalizing using Voiced consonants + Difficulty vowel (9 participants)
• Pre-scale pattern various combination (Vocalize with Exercise sentences 1 and 2)

Scale Degree	G-E	F-D	E-C	D-B	C
Ex 1.	La-zy	Lin-da	li-kes	lo-lly	pops
Ex 2.	Kra-zy	Kar-la	carri-es	ki-tty	cats

Table 23-4. Data collection for question 14: What specific pedagogical strategies have you found to be successful in helping native CJK students overcome difficulty with English pronunciation?

10% of the participants shared their own training skills. Although that is a small percentage of the respondents, they had common lesson skills—compared with the skills I documented from speech therapists. As I mentioned in chapter 3, Best (1995) indicated when ESL (English as Second Language) speakers first listen to new sounds in a new language, they categorize it as a similar sound in their own language. One of the participants had specific insight about linguistic knowledge. That teacher suggested finding the closest vowel and consonant in the students' native language for the confused vowels and consonants in English, and then relating to it—while the teacher explains the difference in shapes and sounds of the vowels and consonants which teachers are trying to have their students pronounce.

CHAPTER 5. CONCLUSIONS AND SUGGESTIONS

CONCLUSIONS OF RESEARCH QUESTIONS

The four research questions for this research were based on a survey of linguistic and speech pathology literature. The first research question was "What is the perception of voice teachers regarding the prevalence of English pronunciation difficulty among native Chinese, Japanese, and Korean students?" In total, 90.6% of the teachers, who responded, reported strong perceptions regarding the difficulties of the CJK students.

The second research question was "What are the strategies that voice teachers utilize when teaching English pronunciation to native Chinese, Japanese, and Korean students?" 35% suggested tongue relaxation exercises and 30% suggested verbally explaining the correct placement of the articulators to correct the errors.

The third research question was "Are the strategies that voice teachers utilize when teaching English pronunciation to native Chinese, Japanese, and Korean students representative of sound pedagogical practice?" 65% of the teachers, who responded, said that they do have sound pedagogical practice when addressing the CJK students' difficulties. However, the collected strategies were individual and personal in nature, developed by the individual voice teacher's own personal experiences. If a voice department had a standardized manual—addressing the common pronunciation difficulties incurred by CJK students, it would serve to share the knowledge and the teaching results would be more effective and the teachers would have an easier time diagnosing and subsequently correcting the problems.

The last research question was "How are the teachers' perceptions toward CJK students different, according to the individual teacher's educational background?" A correlation between

sections 1 and 2 was not found. However, the teachers' various experiences and the academic level of their studios influenced their perception *more* than that of inexperienced teachers.

In conclusion, the survey results showed that the voice teachers in the Great Lakes Region of NATS have considerable perceptions regarding the difficulties of the CJK student. Their teaching strategies focus on demonstrating the correct placement and shape of the articulators in various ways. With these strategies, if they add more specific exercises, which are in the appendices of this dissertation, I believe that that it would save time and enable CJK students to have better enunciation.

STRATEGIES FOR THE CJK STUDENT

The difficulties encountered by the CJK student in English pronunciation are academically researched and collected in the linguistic, speech-language, and audiology fields. Unfortunately, few articles relating these difficulties to classical voice departments exist. Interestingly, it appears that there are not many differences between the collected voice pedagogical strategies and the accumulated knowledge of the speech-language and audiology departments described in this study. In order to teach English effectively, linguistic departments and speech therapists attempt to predict what sounds the CJK student will substitute for English sounds, when they first encounter them. To help correct their problematic tendencies, it has been written that only the practice of *repetition* is the most effective method of correcting these pronunciation errors (Schmidt, 2009).

As the data in chapter 4 indicates, the voice teachers of the Great Lakes Region of NATS actually had a higher mean score—which indicates a *stronger perception* of CJK student difficulties. However, the prevailing speculation is to focus on the *cognitive perception* rather than *psychomotor skill*. In other words, most voice pedagogues choose to verbally explain the

correct placements of the articulators to familiarize their students with the new sounds. These are very important methods—but not permanent. According to Bloom's taxonomy, there are three learning domains: *cognitive*, *psychomotor*, and *affective* (Bloom, 1956). The most effective learning occurs when all three domains are involved. The brain controls movement. The neurons store the information for a complex movement; adjacent neurons communicate with each other and fire in a complex sequence; this sequence is then stored in a specific area of the brain. The results of the last question in the survey indicated only 35% of teachers mentioned tongue relaxation—which is a *psychomotor* exercise. The remaining 65% addressed the cognitive domain. Based on these results, voice teachers need to add a couple more methods to be as effective as possible.

In my experience, the speech-language and audiology clinical therapists have more effective strategies. They work with the *process* of their individual clients' English pronunciation difficulties. They know that those, for whom English is a second language, perceive difficulties, according to the pairs of the fricative/affricative, alveolar/ palatal, and labiodentals/inter-dental consonants. Therefore, speech therapists generally explain the appropriate placement and shapes of the articulators. For example, as mentioned in chapter 2, Korean and Japanese have only one liquid sound in their language, which is a *lateral and rhotic allophone*. Therefore, they tend to confuse the [l] and [r] combination—especially in a consonant cluster at the end of a word. To address this, speech therapists have their clients understand the difference between those paired sounds. They then show the twenty-paired vocabulary words to their clients, including these [l] and [r] consonants. The therapist may ask the client to read ten vocabulary words having an [l] sound, then ten vocabulary words having an [r] sound, so that the client may now compare the articulators' placement between the two different words.

I will finish this study by sharing a personal experience. I twice participated in a speech therapy clinic study as a patient at the Ball State University College of Sciences and Humanities, Speech-Language and Audiology Department (9/7/12-12/7/12, and 2/1/13-4/26/13). In this study, therapists first assessed the specific problems of their clients using standard instruments. They applied two assessments, the Compton Phonological Assessment of Foreign Accent kits (Compton, 1983) (CPAFA), and the Goldman Fristoe Test of Articulation-2 (GFTA-2) instrument. They administered the Compton Phonological Assessment of Foreign Accent to assess my production of speech sounds, and to determine which phonological processes, if any, were used during my speech production.

In the first session, words were taken from a list that included one consonant in the beginning, middle, or end of the word. While speakers read the entire list, the therapist checked how frequently the client made pronunciation errors. The therapist assessed that I made errors with the following vowel and consonant substitutes: [i] vs [I], [ʊ] vs [u], [æ] vs [ɛ], [s] vs [z], [b] vs [v] (and very often, *epenthesis*, meaning, I added an unnecessary sound between phonemes). In my case, epenthesis was created by adding a schwa, [ə], between the consonants in the following blends: [br], [dr], [gr], and [str].

The therapist then explained the different placement of the articulators of the paired sounds. Like many voice teachers of the NATS Great Lakes Region, the therapist had me pronounce the words very slowly, so that I could *feel* the different sounds of the pair. The therapist then made suggestions of one-syllable paired vocabulary words, which included the problematic sounds. For example, the therapist showed me ten word-pairs on flash cards, including [i] and [I]. While I was pronouncing each pair three times, the therapist would check how many times I correctly pronounced the words. The process was continued with [I] sounds

and so on. Lastly, the therapist asked me to read one paragraph aloud, and then checked how many pronunciation substitutions I made.

CONCLUSION

Learning a new language can be explained as the same process, by which a newborn learns his or her language—from their parents. Between the twelfth and eighteenth month, a normal child speaks his or her first word. Amusingly, the parents are amazed by this event and are naturally proud of their child's accomplishment. They may even believe that their child is a genius. It seems that all of a sudden their child knows how to pronounce words. However, up until this moment, the parents' have spoken 'mama' or 'dada' a thousand times to their baby. Additionally, the parents have unknowingly demonstrated the placement of the mouth and the articulators to their baby for approximately a year. During that time they have heard their child uttering similar, albeit not yet true words. Eventually, the child formulates a comprehensible sound, known as language.

Learning a new language or performing a song in a second language with proper enunciation is easier than the process a baby goes through. Classical vocal performance students are required to effectively perform repertoire in at least three or more languages in the American college or university. Talented students may eventually perform Verdi at La Scala in Milan, Italy or Wagner in Germany. To be a successful singer in a foreign country, not only must the singer have a beautiful voice, but they must be have perfect enunciation in those foreign languages.

In this research, I confirmed that CJK students, who sing in English, should be trained using the described modules. These same principles can also be applied to the American student learning Italian, the German student learning Greek and so on. The principles of understanding the articulators, placement and shape of the tongue, mouth and palate, as they relate to

languages— both foreign and domestic, are universal. To help their students achieve the highest level of accomplishment, voice teachers *must* be able to clearly articulate these motor skills until the student, learns to self-correct. Only then, can the student focus on the aesthetics of vocal communication—song.

When a freshman student begins with voice lessons, the teacher should suggest the following learning modules described on page 46, for the first six weeks. Every time before the weekly voice lesson, the instructor should check their progress. At the end of the semester, the instructor should share with the student two recordings: one, which was recorded on day one and the other, which was recorded at the end of the semester. The student and instructor should examine how the pronunciation progressed during the course of the semester. While this research specifically studied the CJK student and voice instructor in US, this training module could easily be adapted to all foreign students learning a new language.

PEDAGOGICAL SUGGESTIONS

The significance of the voice teacher's perception of a foreign student's English pronunciation difficulties, and in particular, the abilities of voice teachers in the Great Lakes Region of NATS to correct these problems were studied and examined in this survey as well as the related literature that I have already mentioned. In can be concluded that the most effective method for voice faculty to address CJK students, substituting sounds, is to have them practice the sounds—until the students' articulators can *automatically recreate* the placement for the confused vowels or consonants. Once the articulators are correctly positioned, the student can finally focus on the vocal mechanism.

While working with CJK students, I applied the following processes, which my speech therapist applied to me. These processes helped the students adapt much faster, and with greater ease.

Step 1: First of all, the teacher sets one foreign language diction goal for the singer, the difficulty based upon the student's ability. The teacher chooses a song for the singer of a certain length, then slowly reads aloud the lyric to the student.

In the first lesson with CJK singers, I ask them to do a 'slow reading' of the lyrics of their English repertoire, which they will be learning for the semester. (Pick one of the Appendix. 4, 5, and 6 according to the students' native language). I then prepare two copies of the lyrics; one for me with IPA and special markings in the Appendix 4, 5 and 6 (c1, c2, j1, j2, k1 and k2…$^{)}$, the other for the CJK students, which is the plain text alone. While he or she reads the lyrics, I would notate their substituted sounds for the confused vowels and consonants. They may or may not have used all potential substitute sounds at the markings, because every student has a different level of English ability. I normally record the 'slow reading' at this point. Appendix 4, 5 and 6 are good standard instruments for the perception of his or her difficulties. It will effectively help the teacher diagnose the CJK students' level of English, similar to the CPAFA and GFTA-2 in the Speech-Language and Audiology clinics.

Step 2: Students should know segmental units, which are appropriate placement and shape of the consonants and vowel phonemes.

I then share the results with the students. *It is very important at this point for the teacher to explain the correct placement of articulators, according to the trouble vowels and consonants.* In LaBouff's book (2008), very specific positions of the articulators are depicted. Her book suggests the individual place and shape of all English vowels and consonants. For instance,

Japanese and Korean speakers substitute [i] in most of spelling 'i'. If teachers teach these two

sounds by comparing the position of articulators and their shapes, it would be an effective

method for Korean and Japanese students. In addition, the following tables depict the most

problematic sounds as collected by the survey. If the voice teachers find one of these problems

among their CJK singers, they can refer to the following tables for suggestions to correct.

Organs	[i]	[ɪ]
Tongue	• Tip behind lower front teeth • Front of tongue arched forward hard palate • Sides of tongue touching upper molars	• Tip behind lower front teeth • Front arched slightly less toward hard palate • Sides of touching upper molars
Jaw	• <u>Lower jaw released, loose</u> • <u>No clenching of teeth</u> • <u>More Closed</u>	• <u>Dropped slightly</u> • <u>More open</u>
Lip	• Lips horizontal, • Lips energized • Cheek muscles energized	• Lips horizontal, relaxed • Cheek muscles energized

Table 24. Comparison for the [i] and [ɪ] according to the placement and shape of the articulators (LaBouff, 2008)

Organs	[u]	[ʊ]
Tongue	• Tip touching lower front teeth • Back of tongue arched toward soft palate • Sides of tongue in contact with upper molars	• Tip behind lower front teeth • Back of tongue arched toward palate but lower than for [u]
Jaw	• Mouth opening and jaw very small vertically • Wide opening in center of mouth between tongue and hard palate	• Slightly dropped from [u]
Lips	• Round, smallest circular shape • Lip rounding essential for accurate production • The rounder the lip contour the higher the tongue arch	• Rounded but less firm than [u]

Table 25. Comparison for the [u] and [ʊ] according to the articulators' placement and shape (LaBouff, 2008)

Organs	[ɛ]	[æ]
Tongue	• Tip touching lower front teeth • Front of tongue less arched toward soft palate • Lowest of lip vowels to still have contact with upper molars	• Tip behind lower front teeth • Front arched less than for [ɛ]
Jaw	• Lower that for [I]	• More open than [ɛ]
Lips	• Relaxed, slightly spread • Cheeks still energized	• Relaxed, not spread • Cheeks still energized

Table 26. Comparison for the [ɛ] and [æ] according to the placement and shape of the articulators (LaBouff, 2008)

Organs	[ʤ]	[ʒ]
Tongue	• Sides of tongue against upper molars, flattened tip on gum ridge, and frond section of hard palate • [d] and [ʒ] blend simultaneously	• Tongue surface flat, middle arched • Sides of tongue against upper molars • Blade of tongue almost touched palate just behind gum ridge
Lips	• Inactive	• Rounded, pursed forward • When breath or voice is forced through tongue groove and narrow aperture between upper and lower teeth this frictional sound results

Table 27. Comparison for the [ʤ] and [ʒ] according to the placement and shape of the articulators (LaBouff, 2008)

Organs	[θ] and [ð]	[d] and [t]
Tongue	• Tongue tip makes light, firm contact with lower teeth, tingling sensation on tongue tip	• Sides of tongue in contact with upper molars • Tongue tip securely placed on gum ridge behind center of the upper teeth • Tip releases with spring-like action to below • Lower front teeth as chords vibrate for [d] or breath releases for [t] • Tongue tip very energized
Lips	• Relaxed, and apart • Very little breath used • Breath or voice escapes through the space between tongue and teeth, which causes frictional noise	• Inactive

Table 28. Comparison for the [θ],[ð] and [d], [t] according to the articulators' placement and shape (LaBouff, 2008)

Organs	[v], [f]	[b], [p]
Tongue	• Relaxed low in mouth	• Should be inactive
Teeth	• Slightly apart • Cutting edge of upper teeth rests lightly inside lower lip	
Lips	• Relaxed, apart • Very little air is required	• Come together without pressure and spring apart as vocal chords vibrate for [b] and air is released for [p] • Firm, yet flexible lips • No air compression behind lips

Table 29. Comparison for the [v], [f] and [b], [p] according to the placement and shape of the articulators (LaBouff, 2008)

Step 3: I then have them pronounce the paired vocabulary words (see Appendix 2). I ask them to read Appendix 2, prior to their weekly voice lesson. (It only takes three to five minutes to check how much they have improved the problematic sounds since the previous week).

Step 4: After the students accomplish the proper level of comprehension, the teacher has the students practice without consonants. When the student practices alone, acoustical cavities

such as the mouth, nasal, and pharyngeal areas, must not be dramatically changed. These changes may be the result of tension of the jaw and tongue. To help avoid this, the student should sing, while gently lowering their chin with their hand. At the end of the semester, I ask them to perform a 'slow reading' of the text they read on day one. As they read the lyrics, I record them. I then give him or her the recording to compare with the recording from the first day.

Step 5: Lastly, the student follows up by being able to recognize and correct the mistakes that were made during the semester. The teacher then allows the singer to add the consonants to the vowels. The student should now be able to better sing with supra-segmental diction, which includes intonation and good enunciation.

FOR FURTHER STUDY

While I was conducting research for this dissertation, I found a very interesting VOT exam. As I have already described VOT in chapter 2, a different first language makes for a different onset time. In the future, if another scholar records the difficulties a CJK student has pronouncing the consonants that have already been discussed, and then compares them with the spectrums of each VOT, it would explain the relationship between VOT, legato and reverberation. There are many VOT exams, which were conducted in linguistic departments: however, there were no previous VOT exams for CJK speakers. Therefore, for further study, if a CJK speakers' VOT exam is conducted, the results would be effective support for this subject. tables 4 and 5 contain the VOT of stop consonants for Korean and Chinese speakers. However, the Japanese VOT was not implemented in that data. Therefore if a researcher conducted the exam for Japanese VOT for the stop consonants, based on my research, reading, experience and available studies, I believe that Japanese would have a similar VOT score with that of the Chinese and Korean speakers.

More importantly, during this study, I came upon the interesting idea, which may prove to be a very effective follow up to this study. There are difficult vowels and consonants, which are also found in different first languages. Not only are CJK students are having difficulties with pronouncing fricative consonants, but European language speakers, for example, German, often pronounce[s], [z] or [f], [v] as [θ], [ð] and the [ε] sound is substituted [æ] (Gut, 2009). In addition, Goldstein, Fabiano, and Washington (2005) also mentioned that since Spanish does not make voicing contrasts between its fricatives, Spanish speakers may neutralize contrasts between [s] and [z] They also tend to merge [ð] and [d]. Therefore the fricative consonants are the most problematic to pronounce for ESL speakers. Due to the ever-increasing popularity of English music, this is a valid topic for further study.

APPENDIX 1. QUESTIONNAIRE

The Perceptions of Voice Teachers Regarding English Pronunciation Difficulties among Native Chinese, Japanese, and Korean Students

(If you haven't taught Chinese, Japanese, and Korean singers before, you may ignore this survey. Age of the subjects is between 30-80 years old.)

You are invited to participate in a research study entitled "*The Perceptions of Voice Teachers Regarding English Pronunciation Difficulties among Native Chinese, Japanese, and Korean singers.*" Your participation involves answering questions regarding your experience as a voice teacher working with native Chinese, Japanese, and Korean (CJK) students. The questionnaire should take less than 15 minutes to complete. Participation is voluntary and responses will remain anonymous. The purpose of this study is to explore the perceptions of voice teachers regarding English pronunciation difficulties among native Chinese, Japanese, and Korean singers. In order to achieve solutions, not only should teachers have a perception about their disabilities, but also be able to suggest training methods based on the phonological analysis.

The survey will help to identify common behaviors among Chinese, Japanese, and Korean singers' difficulties singing English songs and the approach of the voice teacher to correct the natural difficulties, stemming from their native language.

The data, during the study and after the study is completed will be stored in a locked office of the Bracken Library Scholar Carrel (438) in Ball State University for one year.

If you have any further questions please contact following information;

Hongteak Lim, Principle investigator

Ball State University School of Music

Hargreaves Music Building (MU) 203

Ball State University

Muncie, IN 47306

765-661-2496

hlim@bsu.edu

Or

Joseph Levitt, Associate Professor of Music

Ball State University

Hargreaves Music Building (MU) 203

Ball State University

Muncie, IN 47306

765-285-5563

jlevitt@bsu.edu

Or

Director, Office of Research Integrity,

Ball State University,

Muncie, IN 47306

765-285-5070

irb@bsu.edu

Section 1.

Knowledge question

1. I believe native CJK singers have difficulty with English pronunciation.

- o Very strongly disagree

- o Strongly disagree

- o Disagree

- o Agree

- o Strong agree

- o Very strongly agree

2. I believe native CJK singers' difficulty with English pronunciation can be overcome with specific pedagogical strategies.

- o Very strongly disagree

- o Strongly disagree

- o Disagree

- o Agree

- o Strong agree

- o Very strongly agree

3. I believe native CJK singers' difficulty with English pronunciation is related to tension/relaxation of articulators such as the larynx, tongue, jaw, and lips.

- o Very strongly disagree
- o Strongly disagree
- o Disagree
- o Agree
- o Strong agree
- o Very strongly agree

4. I believe some English vowels are difficult for native CJK singers to pronounce.

- o Very strongly disagree
- o Strongly disagree
- o Disagree
- o Agree
- o Strong agree
- o Very strongly agree

5. I believe some English consonants are difficult for native CJK speakers to pronounce.

- o Very strongly disagree
- o Strongly disagree
- o Disagree
- o Agree
- o Strong agree
- o Very strongly agree

6. I believe native CJK singers require specific instruction regarding the placement and position of articulators such as the larynx, tongue, jaw, and lips.

- o Very strongly disagree
- o Strongly disagree
- o Disagree
- o Agree
- o Strong agree
- o Very strongly agree

Section 2.

7. I have received specific training in English Diction.

- o YES
- o NO

8. Which of the following is the most appropriate description of your voice students?

- o Undergraduate voice performance majors
- o Graduate voice performance majors
- o Undergraduate voice performance minors
- o Graduate voice performance minors
- o Other _____

9. Have you ever taught a native Chinese, Japanese, or Korean student?

- o YES If so, which? _____
- o NO

10. Are you a native Chinese, Japanese, or Korean speaker?

        o YES If so, which? _____

        o NO

11. I have received specific training regarding pedagogical techniques that might help to resolve issues of tension/relaxation of articulators such as the larynx, tongue, jaw, and lips.

        o No

        o Yes

Section 3.

12. Which English vowels, if any, do you believe are the most difficult for native CJK singers to pronounce?

_____

_____

13. Which English consonants, if any, do you believe are the most difficult for native CJK singers to pronounce?

_____

_____

14. What specific pedagogical strategies have you found to be successful in helping native CJK singers overcome difficulty with English pronunciation?

_____

_____

APPENDIX 2. TRAINING VOCABULARY LIST SAMPLES

2.1 [i] vs [I] sample

One-syllable words

[i]	[I]
1. Meat [miːt]	1. Sid [sɪd]
2. Teal [ti:l]	2. mitt [mɪt]
3. Peat [pit]	3. till [tɪl]
4. Seal [si:l]	4. sill [sɪl]
5. Peel [pi:l]	5. pill [pɪl]
6. Steal [sti:l]	6. still [stɪl]
7. Sheep[ʃi:p]	7. ship [ʃɪp]
8. Keep [ki:p]	8. kip [kɪp]
9. Seem [si:m]	9. rip [rɪp]
10. Beach [biːʧ]	10. fish [fɪʃ]

Multi-syllable words include [i] and [ɪ]

[i]	[ɪ]
1. Candy [kændi]	1. Chilly [ʧɪli]
2. Honey [hʌni]	2. Mistake [mɪsteik]
3. Eagle [i:gl]	3. Blizzard [blɪzərd]
4. Weekly [wi:kli]	4. Whistle [hwɪsl]
5. Teacher [ti:ʧɚ]	5. Lizard [lɪzərd]
6. Between [bitwi:n]	6. Finish [fɪnɪʃ]
7. Meaning [mi:niŋ]	7. Tickle [tɪkl]
8. Equal [i:kəl]	8. Little [lɪtl]
9. Easier [i:ziɚ]	9. Dinner [dɪnər]
10. Eject [i:ʤekt]	10. Zipper [zɪpər]

Two words include [i] and [ɪ]

1. Clean teeth [kli:n ti:θ]
2. Cheap cheese [ʧi;p ʧi:z]
3. Keep peace [ki:p pi:s}
4. She sees [ʃi: si;z]
5. Knee deep [ni: di:p]
6. Three feet [θri: fi:t]
7. Weak knees [wi:k ni:z]
8. Peach tree [pi:ʧ tri:]
9. Clean sweep [kli:n swi:p]
10. Green been [gri:n bi:n]

1. Give in [gɪv ɪn]
2. Chip dip [ʧɪp dɪp]
3. Big ship [bɪg ʃɪp]
4. Fill in [fɪl ɪn]
5. Fish dish [fɪʃ dɪʃ]
6. Thin chin [θɪn ʧɪn]
7. His gym [hɪs ʤɪm]
8. Quick trip [kwɪk trɪp]
9. Spill milk [spɪl mɪlk]
10. Slim Jim [slɪm ʤɪm]

2.2 [ε] vs [æ]

1. Said [sɛd]	1. Sad [sæd]
2. Met [mɛd]	2. Mat [mæt]
3. Kept [kɛp]	3. Cap [kæp]
4. Pet [pɛt]	4. Pat [pæt]
5. Sell [sɛl]	5. Sal [sæl]
6. Pell [pɛl]	6. Pal [pæl]
7. Peck [pɛk]	7. Pack [pæk]
8. Dead [dɛd]	8. Dad [dæd]
9. Head [hɛd]	9. Had [hæd]
10. Bet [bɛt]	10. Bad [bæd]

2.3 [ʤ] vs [ʒ]

1. John [ʤɑn]

2. Jump [ʤʌmp]

3. Banjo [bæʤoʊ]

4. Jam [ʤæm]

5. Jelly [ʤɛli]

6. Eject [i:ʤekt]

7. Jail [ʤeil]

8. Jeep[ʤip]

9. Juice[ʤu:s]

10. Jazz [ʤæz]

1. Measure [meʒɚ]

2. Vision [vɪʒən]

3. Closure [klouʒɚ]

4. Exposure[ɪkspəʊʒɚ]

5. Treasure [trɛʒɚ]

6. Illusion [ilu:ʒən]

7. Version [vər:ʒən]

8. Fusion [fju::ʒən]

9. Cohesion [kəʊhi:ʒən]

10. Asia [eɪʒə]

APPENDIX 3. TRAINING SENTENCES FOR [r] AND [l].

1. Laura and Larry rarely lull their rural roosters to sleep.

2. Sri Lankans are really leery of Landry's rules.

3. Climbing crimes are lures for crowded clowns.

4. There are free fleas for all the loyal royalty.

5. It's the right light with the glimmer in the mirror.

6. Collecting the corrections is the role of the elderly.

7. Are Roland and Sally rallying here in their lorry?

8. Jerry's berry jelly really rankled his broiling belly.

9. Yellow arrows frilled with reefed leaves are rarely light.

10. A leaky rear latch on the listing bark lifted right up and the water rushed in.

APPENDIX 4. TRAINING LYRIC EXAMPLES FOR CHINESE STUDENTS I

Into the night words and music by Clara Edwards

Silently	**into**	**the**[c2]	**night** [c1]**I**	**go,**	**into**	**the** [c2]	**fragrant**[c1 c5]	**night**
[saɪltli	ɪntu	ðə	naɪt aɪ	goʊ	ɪntu	ðə	freɪgrənt	naɪt

I	**know**[c6] **not**	**where;**
aɪ	noʊ nɑt	hweə

The	**path**[c2] **is**	**strange**[c3 c4 c5]	**my**	**weary**	**steps**	**are**	**slow** [c6]
ðə	pæθ ɪz	streɪdʒ	maɪ	wɪ:ri	stɛps	ar	sloʊ

I	**do**	**not**	**find**	**you**	**there**[c2]
aɪ	du	nɑt	faɪnd	ju:	ðeə

I	**turn**[c1]	**my**	**gaze** [c5]	**toward**	**the**[c2]	**morning**[c1]	**sun**
aɪ	tɜ-n	maɪ	geɪz	twɑrd	ðə	mɔrnɪŋ	sʌn

As	**from**[c1] **the**	**east**	**he**	**comes**	**thro**	**the**	**dark**[c1] **and the dew;**
æz	frɔm ði	ist	hi	kʌmz	θru:	ðə	dɑrk ænd ðə dju:

The	**flowers** [c6]	**lift**	**their**	**heads**	**the**	**night**[c1] **is**	**gone**
ðə	flaʊəz	lɪft	ðɛə	hɛdz	ðə	naɪt ɪz	gɔn

But	**where**	**are**	**you?**
bʌt	hwɛə	ɑr	ju:

The	**countless** [c6]	**weary**	**steps**	**I**	**do**	**not**	**heed**
ðə	kaʊntləs	wɪ:ri	stɛps	aɪ	du	nɑt	hid

Tho'	**they**[c2]	**be**	**over** [c6] **land**	**or**	**boundless** [c6]	**sea;**
ðou	ðɛi	bi	oʊvə lænd	ɔr	baʊndləs	si

I	**care**	**not**	**where**	**the**[c2]	**road**[c6] **may**	**lead**[c4]
aɪ	kɛə	nɑt	hwɛə	ðə	roʊd mei	li:d

If	**I**	**but**	**come**	**again**[c1] **at**	**last**	**to**	**thee**[c2].
ɪf	aɪ	bʌt	kʌm	əgen æt	læst	tu	ði

Silently	**into**	**the**[c2]	**night**[c1] **I**	**go**[c6],
saɪltli	ɪntu	ðə	naɪt aɪ	goʊ

Into	**the**	**starry**	**night**[c1]	**of**	**heavenly**	**blue;**
ɪntu	ðə	stɑri	naɪt	ɑv	hɛvənli	blu

What	**matters**	**where**	**the**[c2]	**road**[c6]	**may** [c5]	**lead**
hwɑt	mætəz	hwɛə	ðə	roʊd	meɪ	li:d

If	**I**	**but**	**come**	**again**[c1]	**at**[c1]	**last**[c1]	**to**	**you**
ɪf	aɪ	bʌt	kʌm	əgɛn	æt	læst	tu	ju:

Silently,	**silently**	**I**	**come**[c1]	**to**	**you**
saɪltli	saɪltli	aɪ	kʌm	tu	ju:]

[ci]: Ending consonants [p], [t], [k], [n], [m], and [ŋ]: The six sounds exist in Chinese but when they occur at the end of a syllable they are never 'released' their articulators.

[c2]: Chinese does not have 'inter-dental fricative consonants [θ], and [ð]' they will substitute to use [t] or [f] as in thick and [d] or [v] as in 'this'.

[c3]: Chinese will substitute to use [ʧ] as strange.

[c4]: Both [ɪ] and [i] vowel sounds occur in Chinese, but there are restrictions on which consonants [l],[t],[d], and [m] can follow them.

[c5]: Diphthong [ei] when it is followed by consonant, they may tend to substitute [ɛ].

[c6] : Chinese has [u] but [ʊ], so they will substitute [ʊ] instead of [u].

APPENDIX 4. TRAINING LYRIC EXAMPLES FOR CHINESE STUDENTS II

Sure on This Shining Night words by James Ages and music by Samuel Barber.

Sure[c6]   **on**   **this**[c2] **shining**   **night**[c4]
[ʃʊə   ɑn   ðɪs   ʃaɪnɪŋ   naɪt

Of   **star**   **made**[c5] **shadows**[c6] **round**[c6],
ɑv   star   meɪd ʃædoʊz   raʊnd

Kindness   **must**[ci] **watch**[c3]   **for**   **me**
Kaɪndəs   mʌst wɑtʃ   for   mi

This[c2] **side** **the**[c2] **ground**[c6]
ðɪs   saɪd ðə   gaʊnd

The[c2] **late**[c5] **year** **lies** **down**[c6]   **the**   **north**[c2].
ðə   leɪt   jiə   laɪz daʊn   ðə   nɔrə

All   **is**   **healed**   **all** **is** **health**[c2].
ɔl   ɪz   hɛlə   ɔl   ɪz   hɛlə

High **summer**   **holds**[c6]   **the** **earth**[c2].
haɪ   sʌmə   hoʊldz   ði   ɜ:ɵ

Hearts   **all**   **whole**[c6].
harts   ɔ:l   hoʊl

Sure **on** **this**[c2] **shining**[ci]   **night**[ci].
ʃʊə   ɑn   ðɪs   ʃaɪnɪŋ   naɪt[c4]

I   **weep**[ci] **for**   **wonder**   **Wandering**[ci] **far**   **alone** [c6]
aɪ   wi:p   for   wɑndə   wɑndrɪŋ   far   əloʊn

Of   **shadows**[c6] **on**   **the** **stars**
ɑv   ʃædoʊz   ɑn   ðə   starz]

[ci]: Ending consonants [p], [t], [k], [n], [m], and [ŋ]: The six sounds exist in Chinese but when they occur at the end of a syllable they are never 'released' their articulators.

[c2]: Chinese does not have 'inter-dental fricative consonants [θ], and [ð]' they will substitute to use [t] or [f] as in thick and [d] or [v] as in 'this'.

[c3]: Chinese will substitute to use [ʧ] as strange.

[c4]: Both [ɪ] and [i] vowel sounds occur in Chinese, but there are restrictions on which consonants [l],[t],[d], and [m] can follow them.

[c5]: Diphthong [ei] when it is followed by consonant, they may tend to substitute [ɛ].

[c6] : Chinese has [u] but [ʊ], so they will substitute [ʊ] instead of [u].

APPENDIX 5. TRAINING LYRIC EXAMPLES FOR JAPANESE STUDENTS I

Into the night words and music by Clara Edwards

Silently[j3]   **into**[j5]   **the**[j2]   **night**[j5]**I**   **go,**   **into**[j5]   **the**[j2]   **fragrant**[j1]   **night**[j5]
[saɪltli   ɪntu   ðə   naɪt   aɪ   goʊ   ɪntu   ðə   freɪɡrənt   naɪt

I[j5]   **know**[j6] **not**   **where;**
aɪ   noʊ   nɑt   hwɛə

The[j2]   **path**[j2]   **is**[j4 j5]   **strange**   **my**   **weary**[j5]   **steps**   **are**   **slow**[j3j6]
ðə   pæθ   ɪz   streɪʤ   maɪ   wɪːri   stɛps   ar   sloʊ

I   **do**   **not**   **find**[j1] **you**   **there**[j2]
aɪ   du   nɑt   faɪnd   juː   ðɛə

I   **turn**   **my**[j5] **gaze**[j4]   **toward**   **the**[j2]   **morning**   **sun**
aɪ   tɝn   maɪ   ɡeɪz   twɑrd   ðə   mɔrnɪŋ   sʌn

As   **from**[j1] **the**[j2]   **east**   **he**   **comes**[j4]   **thro**[j2] **the**[j2]   **dark**   **and the**[j2] **dew;**
æz   frɔm   ði   ist   hi   kʌmz   θruː   ðə   dɑrk   ænd ðə djuː

The   **flowers**[j3 j4]   **lift**[j3]   **their**[j2] **heads**[j4]   **the**[j2]   **night**   **is**[j4 j5]   **gone**
ðə   flaʊəz   lɪft   ðɛə   hɛdz   ðə   naɪt   ɪz   ɡɔn

But   **where**   **are**   **you?**
bʌt   hwɛə   ɑr   juː

The[j2]   **countless**[j3j6]   **weary**   **steps**   **I**   **do**   **not**   **heed**
ðə   kaʊntləs   wɪːri   stɛps   aɪ   du   nɑt   hid

Tho'[j2] **they**[j2]   **be**   **over**[j6] **land**[j3]   **or**   **boundless**[j3]   **sea;**
ðou   ðɛi   bi   oʊvə   lænd   ɔr   baʊndləs   si

I   **care**   **not**   **where**   **the**[j2]   **road**[j6] **may**   **lead**[j3]
aɪ   kɛə   nɑt   hwɛə   ðə   roʊd   mei   liːd

If   **I**   **but**   **come**   **again**   **at**   **last**[j3] **to**   **thee**[j2].
ɪf   aɪ   bʌt   kʌm   əgen   æt   læst   tu   ði

Silently[j3]   **into**[j5] **the**[j2]   **night**[j5] **I**   **go**[j6],
saɪltli   ɪntu   ðə   naɪt   aɪ   goʊ

Into   **the**[j2]   **starry**   **night**   **of**   **heavenly**[j3]   **blue;**
ɪntu   ðə   stɑri   naɪt   ɑv   hɛvənli   blu

What	matters [j4]	where	the[j2]	road[j6]		may	lead [j3]
hwɑt	mætəz	hwɛə	ðə	roʊd		meɪ	li:d

If	I	but	come		again	at	last[j1]	to	you
ɪf	aɪ	bʌt	kʌm		əgɛn	æt	læst	tu	ju:

Silently[j3],	silently [j3]		I	come	to	you
saɪltli	saɪltli		aɪ	kʌm	tu	ju:]

[j1] : Japanese might use [h] instead of [f]

[j2]: Japanese might use [z] or [d] for [ð] and [s] or [t] will be used for [θ]

[j3] : Japanese often confuse to distinguish English [r] from [l], They will tend to use a sound which sounds most like an [l] to the English listener, although at times the substituted sound may be a [d]

[j4] Final z may be pronounced more like [s]

[j5]: Only [i] sound occur in Japanese. So most of time they will pronounce [i] instead of [ɪ]

[j6]: Only [u] sound occur in Japanese. So most of time they will substitute [ʊ] instead of [u]

APPENDIX 5. TRAINING LYRIC EXAMPLES FOR JAPANESE STUDENTS II

Sure on This Shining Night words by James Ages and music by Samuel Barber.

Sure[j6] **on**   **this**[j2]   **shining**[j5]   **night**
[ʃʊə   ɑn   ðɪs   ʃaɪnɪŋ   naɪt

Of   **star**[j3] **made**[j5] **shadows**[j4]   **round**[j6j3],
ɑv   star   meɪd   ʃædoʊz   raʊnd

Kindness   **must** **watch** **for**[j1]   **me** [j5]
Kaɪndəs   mʌst   wɑtʃ   fɔr   mi

This[j2j5] **side**   **the**   **ground**[j6j3]
ðɪs   saɪd   ðə   graʊnd

The[j2] **late**[j3] **year** **lies**[j5j4] **down**[j6]   **the**   **north**[j2].
ðə   leɪt   jiə   laɪz   daʊn   ðə   nɔrə

All   **is**[j5j4] **healed**[j3]   **all**   **is**[j5j4] **health**[j2j3].
ɔl   ɪz   hɛlə   ɔl   ɪz   hɛlə

High[j5] **summer**   **holds**[j6j4]   **the**[j2] **earth**[j2].
haɪ   sʌmə   hoʊldz   ði   ɜːə

Hearts   **all**   **whole**[j6].
harts   ɔːl   hoʊl

Sure[j6] **on**   **this**[j2j5] **shining**[j5]   **night**[j5].
ʃʊə   ɑn   ðɪs   ʃaɪnɪŋ   naɪt

I[j5]   **weep** **for**[j1] **wonder**   **Wandering** **far**[j1] **alone** [j6]
aɪ   wiːp   fɔr   wʌndə   wandrɪŋ   far   əloʊn

Of   **shadows**[j6]   **on**   **the**[j2] **stars**[j4]
ɑv   ʃædoʊz   ɑn   ðə   starz]

[j1] : Japanese might use [h] instead of [f]
[j2]: Japanese might use [z] or [d] for [ð] and [s] or [t] will be used for [θ]

[j3] : Japanese often confuse to distinguish English [r] from [l], They will tend to use a sound which sounds most like an [l] to the English listener, although at times the substituted sound may be a [d]

[j4] Final z may be pronounced more like [s]

[j5]: Only [i] sound occur in Japanese. So most of time they will pronounce [i] instead of [ɪ]

[j6]: Only [u] sound occur in Japanese. So most of time they will substitute [ʊ] instead of [u]

APPENDIX 6. TRAINING LYRIC EXAMPLES FOR KOREAN STUDENTS I

Into the night words and music by Clara Edwards

Silently[k3] **into**[k6] **the** **night** **I**[k6] **go,** **into**[k6] **the**[k2] **fragrant**[k1k3] **night**[k6]
[saɪltli ɪntu ðə naɪt aɪ goʊ ɪntu ðə freɪgrənt naɪt

I[k6] **know**[k7] **not** **where;**
aɪ noʊ nɑt hweə

The[k2] **path**[k2] **is**[k6] **strange**[k5] **my**[k6] **weary**[k3k6] **steps** **are** **slow** [k3k7]
ðə pæθ ɪz streɪʤ maɪ wɪːri stɛps ar sloʊ

I[k6] **do** **not** **find**[k6] **you** **there**[k2]
aɪ du nɑt faɪnd juː ðeə

I [k6] **turn** **my**[k6] **gaze** **toward** **the**[k2] **morning**[k6] **sun**
aɪ tɝn maɪ geɪz twɑrd ðə mɔrnɪŋ sʌn

As **from**[k1k3] **the**[k2] **east** **he** **comes**[k4] **thro**[k2] **the**[k2] **dark** **and the dew;**
æz frɔm ði ist hi kʌmz θruː ðə dɑrk ænd ðə djuː

The[k2] **flowers**[k1k7] **lift**[k3 k6] **their**[k2] **heads** **the** **night** **is** [k6] **gone**
ðə flaʊəz lɪft ðɛə hɛdz ðə naɪt ɪz gɔn

But **where** **are** **you?**
bʌt hweə ɑr juː

The **countless**[k3k7] **weary**[k3k6] **steps** **I** [k6] **do** **not** **heed**
ðə kaʊntləs wɪːri stɛps aɪ du nɑt hid

Tho'[k2] **they**[k2] **be** **over**[k7] **land** **or** **boundless**[k7] **sea;**
ðou ðɛi bi oʊvə lænd ɔr baʊndləs si

I[k6] **care** **not** **where** **the**[k2] **road**[k3k7] **may** **lead**[c4]
aɪ kɛə nɑt hweə ðə roʊd mei liːd

If[k6] **I** **but** **come** **again** **at** **last** **to** **thee**[k2].
ɪf aɪ bʌt kʌm əgɛn æt læst tu ði

Silently[k3] **into**[k6] **the**[k2] **night** **I** **go**[k7],
saɪltli ɪntu ðə naɪt aɪ goʊ

Into[k6] **the**　　**starry**[k3]**night**[k6]　　　**of**　　**heavenly**　　**blue;**
ɪntu　　ðə　　stɑri　　naɪt　　　　ɑv　　hɛvənli　　blu

What　**matters**[k4]　　**where**　　　**the**[k2]　**road**[k7]　　**may**[k6] **lead**
hwɑt　mætəz　　　hwɛə　　　ðə　　roʊd　　meɪ　li:d

If[k1]　**I**　　**but**　**come**　　　**again** **at**　　**last**　**to**　**you**
ɪf　　aɪ　　bʌt　kʌm　　　əgɛn　æt　　læst　tu　ju:

Silently[k6]**,**　　**silently**[k6]　**I**　　**come** **to**　**you**
saɪltli　　　saɪltli　　　aɪ　　kʌm　tu　ju:]

[k1]: Only [p] sound occur in Korean. So most of time they will pronounce [p] instead of [f]

[k2]: Korean might use [d] for [ð] and [s] will be used for [θ]

[k3] Korean often confuses to distinguish English [r] from [l], They will tend to use a sound which sounds most like an [l] to the English listener.

[k4] Final z may be pronounced more like [s]

[k5] Both affricative [dʒ], and fricative [ʒ], they confuse to pronounce these sounds

[k6]: Only [i] sound occur in Korean. So most of time they will pronounce [i] instead of [ɪ]

[k7]: Only [u] sound occur in Koran. So most of time they will substitute [ʊ] instead of [u]

APPENDIX 6. TRAINING LYRIC EXAMPLES FOR KOREAN STUDENTS II

Sure on This Shining Night words by James Ages and music by Samuel Barber.

Sure[k7] **on**   **this**[k2k6]   **shining**   **night**
[ʃʊə   ɑn   ðɪs   ʃaɪnɪŋ   naɪt

Of   **star**   **made**   **shadows**[k4 k7]   **round**[k3],
ɑv   star   meɪd   ʃædoʊz   raʊnd

Kindness[k6]   **must**   **watch**   **for**[k1]   **me**[k6]
Kaɪndəs   mʌst   wɑtʃ   fɔr   mi

This[k2]   **side**   **the**[k2]   **ground**[k3k7]
ðɪs   saɪd   ðə   gaʊnd

The[k2]   **late**[k3]   **year**   **lies**[k34k6]   **down**[k7]   **the**   **north**[k2].
ðə   leɪt   jiə   laɪz   daʊn   ðə   nɔrθ

All[k3]   **is**[k6]   **healed**   **all**[k3]   **is**[k6]   **health**[k2 k3].
ɔl   ɪz   hɛlθ   ɔl   ɪz   hɛlθ

High   **summer**   **holds**[k3k7]   **the**[k2]   **earth**[k2].
haɪ   sʌmə   hoʊldz   ði   ɜ:θ

Hearts   **all**   **whole**[k7].
hɑrts   ɔ:l   hoʊl

Sure[k7] **on**   **this**[k2]   **shining**   **night.**
ʃʊə   ɑn   ðɪs   ʃaɪnɪŋ   naɪt

I   **weep**   **for**[k1]   **wonder**   **Wandering**   **far**[k1]   **alone**[k3k7]
aɪ   wi:p   fɔr   wʌndə   wɑndrɪŋ   fɑr   əloʊn

Of   **shadows**[k4 k7]   **on**   **the**[k2]   **stars**[k4]
ɑv   ʃædoʊz   ɑn   ðə   stɑrz]

[k1]: Only [p] sound occur in Korean. So most of time they will pronounce [p] instead of [f]

[k2]: Korean might use [d] for [ð] and [s] will be used for [θ]

[k3]: Korean often confuses to distinguish English [r] from [l], They will tend to use a sound which sounds most like an [l] to the English listener.

[k4] Final z may be pronounced more like [s]

[k5] Both affricative [ʤ], and fricative [ʒ], they confuse to pronounce these sounds

k6: Only [i] sound occur in Korean. So most of time they will pronounce [i] instead of [ɪ]

k7: Only [u] sound occur in Koran. So most of time they will substitute [ʊ] instead of [u]

APPENDIX 7. GLOSSARY

1. Mean (M or X): the arithmetic average

2. Median (Mdn or Md): the midpoint between highest and lowest in an array of scores.

3. Standard deviation (SD or s): indicator of the dispersion from the mean for a set of scores.

4. ANOVA: (Analysis of Variance): A statistical method for testing the null hypothesis when differences between two or more groups are involved, done by comparing between-groups variance against within-groups variance.

5. T Score: Conversions made from raw scores that indicate how much a given raw score differs from the mea, in terms of standard deviations; the mean is arbitrarily set at 50 and each standard deviation assigned a value of 10. All T values are, therefore, positive.

6. T-Test: A statistical procedure used to determine the significance of an observed difference between two means; it compares the difference between means against the standard error of that difference.

7. Tukey HDS ad hoc Test: A post-hoc test, meaning that it is performed after an analysis of variance (ANOVA) test. This means that to maintain integrity, a statistician should not perform Tukey's HSD test unless she has first performed an ANOVA analysis. In statistics, post-hoc tests are used only for further data analysis; these types of tests are not pre-planned. In other words, you should have no plans to use Tukey's HSD test before you collect and analyze the data once.

8. p<.05; p<.01: Levels of probability (significance) most frequently used by researches when testing hypotheses. The .05 level indicates a less than 5 percent chance that a finding is occurring because of sampling error; the .01 level indicates a less than 1 percent chance. (Merthler & Charles, 2008)

REFERENCES

Best, C. T. (1995). A Direct Realist View of Cross-Languages Speech Perception. *In Speech Perception and Linguistic Experience: Theoretical and Methodological Issues in Cross-Language Speech Research (*Edited by W. Strange). Baltimore, MD: York Press.

Bloom, B. (1956). *Taxonomy of Educational Objectives, Handbook 1: The Cognitive Domain*, New York, David McKey.

Bohn, O. S. (1995). Cross-Language Speech Perception in Adults: First Language Transfer Doesn't Tell It All. In W. Strange (Ed.) *Speech Perception and Linguistic Experience: Issues in Cross-Language Research*. Timonium, MD: York Press, 279-304.

Celce-Maurcia, M., Brinton, D. M., & Goodwin, J. M. (1996). *Teaching Pronunciation: A Reference for Teachers of English to Speakers of other Languages.* Cambridge, UK: Cambridge University Press.

Cheng, F. (1998). The Teaching of Pronunciation to Chinese Students of English. *English Teaching Forum*, *36(1),* 37.

Cho, T., & Ladefoged, P. (1999). Variation and Universals in VOT: Evidence from 18 Languages, *Journal of Phonetics, 27*, 207-229.

Choo, M., & William, O. (2003). *The Sounds of Korean.* Honolulu: University of Hawai'i Press.

Doscher, B. M. (1994). *The Functional Unity of The Singing Voice.* Lanham, Md., & London, UK: The Scarecrow Press.

Eisenson, J. (1974). *Voice and Diction.* New York: Macmillan Publishing Co., Inc.

Ewan, W. G., Hombert, J. M., & Ohala, J. J. (1979). Phonetic Explanations for the Developments of Tones. *Linguistic Society of America, 55(1),* 37-58. The document at http://www.jstor.org/stable/412518 was retrieved on June 4, 2012.

Faculty of Peking University. (1971). *Modern Chinese: A Basic Course*. New York: Dover Publication.

Faircloth, S. (1973). Phonetic Science; A Program of instruction. Englewood: Prentice-Hall.

Goldstein, B., Fabiano, L., & Washington P. S. (2005). Phonological Skills in Predominantly English-Speaking, Predominantly Spanish-Speaking, and Spanish-English Bilingual Children. *Language, Speech, and Hearing Services in Schools*, *36*.

Gut, U. (2009). *Non-Native Speech. A Corpus-Based Analysis of Phonological and Phonetic Properties of Le English and German*. Frankfurt: Peter Lang.

Foote, J. A., Holtby, A, K., & Derwing, T. M. (2011). Survey of the Teaching of Pronunciation in Adult ESL Programs in Canada, 2010. *TESL Canada Journal /Revue TESL DU Canada, 29*, 1-22.

Huer, M. B., & Saenz, T. I. (2003, May) Challenges and Strategies for Conducting Survey and Focus Group Research with Culturally diverse Groups. *American Speech-Language Hearing Association, 12*, 209-220. doi: 10.1044/1058-0360 (2003/067).

Institute of International Education. (2012, Nov 12). Open Doors 2012 Data. Retrieved from http://www.iie.org/en/Research-and-Publications/Open-Doors.

Jensen, K. (2003). Teaching the ESL Singer. *The Journal of Singing, 59*, 415-424.

Karna, D. R. (Eds.). (2010). *The Use of the International Phonetic Alphabet in the Choral Rehearsal*. Lanham, MD: Scarecrow Press.

Katayama, A. (2007). Students' Perceptions of Oral Error Correction Author(s). *American Association of Teachers of Japanese, 41(1),* 61-92. This document at http://www.jstor.org/stable/30198022 was retrieved on June 6, 2012.

Kenworthy, J. (1988). *Teaching English Pronunciation*. London and New York: Longman.

LaBouff, K. (2008). *Singing and Communicating in English*. Oxford and New York: Oxford University Press.

Ladefoged, P., & Maddieson, I. (1996). *The Sounds of the World's Languages*. Cambridge, MA: Blackwell Publishers.

Ladefoged, P., & Wu, Z. (1984). Places of Articulation: An Investigation of Pekinese Fricatives and Affricates. *Journal of Phonetics, 12,* 276-278.

Li, W. (1999). *A Diachronically-Motivated Segmental Phonology of Mandarin Chinese.* New York: Peter Lang Publishing, Inc.

McKinney, J. C. (1994). *The Diagnosis & Correction of Vocal Faults: A Manual for Teachers of singing & for Choir Directors*. Long Grove, IL: Waveland Press.

Mertler, C. A., & Charles, C. M. (2008). *Introduction to Educational Research*. Boston, MA: Pearson Education.

Nakamae, A. (2000). *An American English Diction Handbook for Japanese Voice Students.* (Unpublished doctoral dissertation). Ball State University, Muncie Indiana.

Nishi, K., & Kewley-Port D. (2007, Dec) Training Japanese Listeners to Perceive American English Vowels: Influence of Training Sets, *American Speech-Language Hearing Association, 50*, 1496-1509. doi: 10.1004/1092-4388(2007/103).

Ohata, K. (2004). *Phonological Differences between Japanese and English: Several Potentially Problematic Areas of Pronunciation for Japanese ESL/EFL Learners.* Asian EFL *Journal, 6(4).* The document http://www.asian-efl-journal.com/december_04_KO.php at was retrieved on May 30, 2012.

Pennington, M. (1999). *Phonology in English Language Teaching: An International Approach*. London and New York: Addison Wesley Longman.

Singh, S., & Singh, K. (2006). *Phonetics: Principles and Practices*. San Diego, CA: Plural Publishing.

Schmidt, A. M. (2009) Working with Adult Foreign Accent: Strategies for Intervention, *American Speech-Language Hearing Association*. http://www.asha.org/…/clcsd1997WorkingWithAdultForeignAccentStrategies.pdf.

Taylor, I., & Taylor, M. M. (1995). *Writing and Literacy in Chinese, Korean, and Japanese.* Philadelphia, PA: John Benjamins Publications.

Tsuchida, A. (2001). Japanese Vowel Devoicing: Cases of Consecutive Devoicing Environments. *Journal of East Asian Linguistics, 10*, 225-245.

Uris, D. (1971). *To Sing in English*. New York: Boosey and Hawkes.

Yamaguchi, T. (2007). *Japanese Linguistics*. New York: Continuum.

Zhang, F., & Yin, P. (2009). A Study of Pronunciation Problems of English Learners in China, *Asian Social Science, 5*, 141-146.