

Pronunciation Problems with Vowels by Japanese Speakers of English: Insights from a Contrastive Analysis

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Abstract

This paper aims to compare the differences between English and Japanese vowels in order to explain why it is difficult for Japanese speakers to pronounce English vowels. Since Japanese has only five vowels, and each vowel covers more than one English vowel, Japanese learners of English often mispronounce English vowels by substituting them with Japanese vowels. In addition, Japanese speakers are not aware of how they should move their mouths, lips, and jaws when they speak English because Japanese does not require large facial expression or movement when speaking. It is very important for learners to recognize the differences because recognizing is the first step to learn pronunciation of foreign language. In order to teach Japanese speakers to pronounce English vowels correctly, teachers should also be aware of these differences and incorporate this knowledge in teaching.

Introduction

When a Japanese tourist was staying in America, he went to a supermarket near his hotel. He wanted to buy a pen case, but he could not find it. So he asked a store clerk, "Where is a pen case?" The worker smiled and said, "Follow me!" and took him to the food section. Then she smiled again, pointing to the pancake mix on the shelf and said, "Here you are." This funny story reflects the reality that most Japanese speakers are poor at pronouncing English vowels. He pronounced *pen* as /pæn/ although he should have pronounced it as /pɛn/. There are some English sounds that are difficult for Japanese speakers, and many of them are vowels.

The focus of this paper is to find out what makes North American English (NAE) vowels difficult for Japanese speakers to produce by comparing and contrasting vowels in the two languages. The discussion follows the Contrastive Analysis Hypothesis (CAH) framework, where two or more languages are compared in order to determine what needs to be learned and what does not in a second language learning situation. This analysis is based on a theory of second language acquisition that claims that the major source of error in learners' production and/or reception of a second language is the native language (Gass & Selinker, 2001). Although this might not be the only reason why learners make errors in their production, this paper posits that con-

trastive analysis could reveal a part of the problems that Japanese speakers have in pronouncing/ recognizing English vowels.

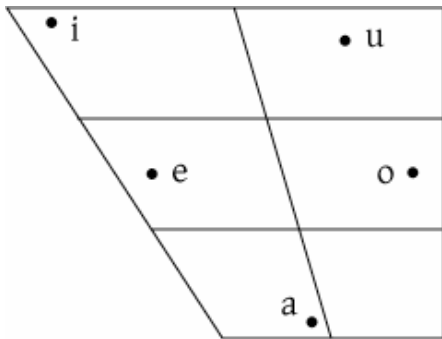
Before starting the major discussion, in order to simplify the analysis, I want to mention first that since Japanese does not have stressed and unstressed vowels, this paper does not focus on the difference between stressed and unstressed vowels in English. Secondly, in this paper, phonetic symbols are put in | |'s for English vowels and < >'s for Japanese vowels in order to distinguish one from another. The purpose of doing this is to let the readers know that the quality of English |a| and Japanese <a> is noticeably different even though the same symbol is used; for example, Japanese <a> has a wider range than English |a| (i.e., Japanese <a> covers all of the English vowels |a|, |æ|, |ʌ|, and sometimes |ɔ|). See Figure 2 below for details). By using different enclosures for the two languages, the confusion of which vowel is being discussed can be avoided.

Japanese Vowels

Let us start with describing the general characteristics of Japanese vowels. Japanese has five vowels: あ(<a>), い(<i>), う(<u>), え(<e>), and お(<o>), whereas English has 14 or 15 vowels (Ladefoged, 2001). Figure 1 below shows the place of articulation in Japanese vowels. The Japanese low central vowel <a> is as high as the English |a| but more front. The

Japanese high front vowel <i> is similar to the English high front vowel |i|, but the lips should not be as spread as in English. The Japanese mid front vowel <e> is a little higher than the English mid front vowel [ɛ]. The Japanese mid back vowel <o> is similar to the English |ɔ|, but slightly higher and more front (Kaneko, n.d.). The Japanese high back vowel <u> is the most unique and different from the English high back vowel |u|; <u> is somewhat not rounded while |u| is rounded (Ladefoged, 1982).

Figure 1. Japanese vowels.



Note. From Bigpedia, by Bigpedia, n.d..

According to Yamaguchi (2006), the Japanese language was simplified after the Meiji era, and this movement reduced the language's variation. Japanese used to have more than five vowels in the Nara era, but some vowels disappeared as the simplification of the language took place. For example, *ゐ* (<yi>) and *ゑ* (<ye>), which used to be considered as vowels in addition to the ones described above, are not used anymore. Nowadays, they are considered to be the same as Japanese *い* (<i>) and *え* (<e>), and young people do not distinguish them from *い* (<yi>) and *え* (<ye>). In addition, English uses secondary features such as glides in |i̯|, |u̯|, |e̯|, and |o̯| to make these vowels distinguishable from the corresponding |ɪ|, |ʊ|, |ɛ|, and |ɔ|; in Japanese, these glides are considered as two

vowels and are put in a separated sequence (e.g., |e̯y| are <e> and <i> in Japanese).

Problems with English Vowels

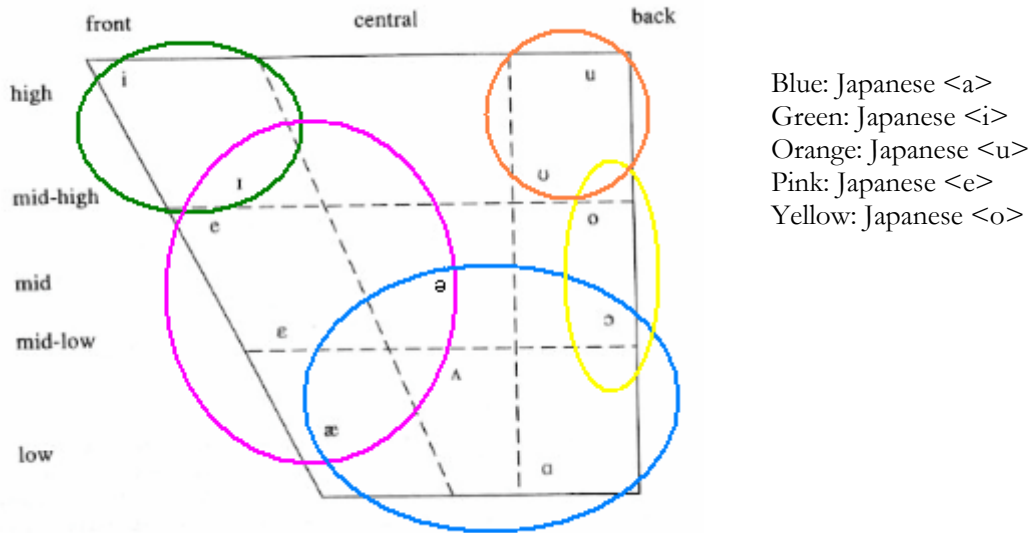
Lambacher, Martens, and Molholt (2000) studied how well Japanese speakers can distinguish ten American English vowels: |i|, |ɪ|, |ɛ|, |æ|, |ɑ|, |ə|, |ʌ|, |ɔ|, |ʊ|, and |u|. They gave both Japanese and American undergraduate students a listening test. The result showed that the mean rate of accuracy for the Japanese students was only 63%, rather low compared to the accuracy rate by American students, which was 95%. The result also revealed that the Japanese students had a particularly hard time distinguishing four of the ten English vowels: |ɑ| (35%), |æ| (48%), |ʌ| (49%), and |ɔ| (Lambacher et al., 2000). Although this research focused on listening instead of producing, it still shows that Japanese speakers have difficulties in distinguishing certain English vowels.

Then, why are these vowels confusing to Japanese speakers? Figure 2 shows the position of English vowels and Japanese vowels. In Figure 2, the colored circles are added on the chart to show the range of each Japanese vowel. Each circle represents each Japanese vowel <a>, <i>, <u>, <e>, and <o>. English vowels that are circled with more than one color sound like one Japanese vowel to Japanese speakers. The blue circle represents Japanese <a>. It is important to note that <a> covers four English vowels (|ɑ|, |æ|, |ʌ| and |ɔ|), which means everything inside the blue circle sounds like Japanese <a>. The green circle represents Japanese <i>, and both |i| and |ɪ| fall inside this circle. Therefore, it is easy to see that Japanese speakers have a hard time distinguishing those two. The orange circle, which represents Japanese <u>, is very small compared to the others. The pink circle represents Japanese <e>, and it covers five English vowels (|ɪ|, |e|, |ɛ|, |æ| and |ə|). As can be seen, each Japanese vowel covers more than one English vowel. This makes it difficult for Japanese speakers to pronounce English |e| correctly. In addition, as shown in Figure 2,

English |ɔ| falls inside both the blue circle, which represents Japanese <a>, and the yellow circle, which represents Japanese <o>;

as a result, it is often very hard for Japanese learners of English to make a distinction between them.

Figure 2. English Vowels with Japanese Vowel Range.



Note. From *Phonetic Transcription*, by Johnson, K., n.d..

The difference between English vowels and Japanese vowels also influence *gairaigo* (words of foreign origin). When new words from foreign countries are adopted, the English vowels that are not familiar to Japanese speakers are replaced by the closest Japanese sounds. For example, *hotel* (|howtel|) becomes *hoteru* (<hoteru>), and *cup* (|kʌp|) becomes *koppu* (<koppu>). The spread of *gairaigo* cannot be ignored because it sometimes affects Japanese speakers' production in English. Japanese is a very flexible language in the sense that it is able to adopt new words from other languages (in other words, Japanese becomes more diversified to accommodate borrowed words); however, the fact that Japanese reduces the distinction in the source language (e.g., English) to make the borrowed words fit the Japanese sound system might lower Japanese speaker's ability to pronounce in English vowels in a target-like manner (Matsuzawa, 2004).

Given the above differences between the vowel systems of the two languages, a reason why Japanese speakers have difficulties distinguishing English vowels may be because second language learners "perceive nonnative sounds in terms of L1" (Lambacher et al., 2000, p. 216); in other words, since Japanese has only five vowels, Japanese speakers tend to substitute English vowels with the Japanese vowels with which they are already familiar.

Another reason is that the Japanese language does not require significant oral movement when speaking. The reason for this matter might be that the Japanese language has been simplified in history, and the number of vowels has been reduced. As a result, Japanese speakers can communicate without moving their mouths much to make a distinction between each vowel (Makino, 2005).

Problems with English Diphthongs

Another issue that confuses Japanese speakers is diphthongs in English. When Japanese speakers say *coke*, they tend to pronounce /kōk/ instead of /kowk/ - this error comes from the difference between Japanese long vowels and English diphthongs. To pronounce Japanese long vowels, one needs to pronounce the vowels <a>, <i>, <u>, <e>, and <o> two times long. (In this paper, they are represented as <ā>, <ī>, <ū>, <ē>, and <ō>.) Making a distinction between short vowels and long vowels is very important when speaking Japanese because it affects the meaning. For example, in Japanese, *biru* and *biiru* have completely different meanings (the former means “buildings” and the latter means “beer”). English also makes a distinction between long and short vowels, but what English dictionaries call “long vowels” (i.e. ā, ē, ī, ō, ū) are not really “long” today; the long/short distinction became one of tense, which includes |iy|, |ey|, |a|, |ɔ|, |o| and |uw|, vs. lax, which includes |ɪ|, |ɛ|, |æ|, |ʌ| and |ʊ| (Celce-Murcia, Brinton, & Goodwin, 1996).

Diphthongs in English are sounds that “have a change in vowel quality during the course of the syllable” and are counted as single vowel units (Ladefoged, 2001, p. 29). According to House (1998), the first vowel in a diphthong is longer (dominant) and the second vowel is shorter (reduced). Therefore, they are still considered as one sound where two vowels are paired together in one sequence. In Japanese, these sounds count as two different vowels and are not considered as one vowel. Each vowel that counts as a single vowel has a single syllable. Among English diphthongs (|ay|, |aw|, |ɔy|, |ey| and |ow|), |ay|, |aw|, and |ɔy| are not problematic for Japanese speakers because Japanese can replace its vowels for English diphthongs; the English diphthongs that sometimes confuse Japanese speakers are |ow| and |ey|: they are often replaced with Japanese <ō> and <ē>. A word such as *coke* (|kɔk|) is problematic for Japanese speakers because in Japanese, it

becomes <kōku>, and as a result, Japanese speakers tend to pronounce it as <kōk>.

Suggestions for Teaching English Vowels to Japanese Learners

Kewley-Port, Akahane-Yamada and Aikawa (1996) suggest that to pronounce English vowels correctly, Japanese speakers must acquire at least six new vowels: |i|, |ɪ|, |e|, |ɛ|, |æ|, and |ʌ|. At the same time, these English vowels are the most problematic for Japanese speakers to recognize and/or produce. Then, how can they acquire these sounds effectively? Below are the some suggestions for teaching the most problematic English vowels based on Makino (2005), Takebayashi et al., (2003), and Swan & Smith (2001).

|i| vs. |ɪ|: |ɪ| is between the Japanese <i> and <e>, therefore Japanese speakers sometimes confuse *six* (|sɪx|) with *sex* (|sɛx|) and *pit* (|pɪt|) with *pet* (|pɛt|). |i| is close to the Japanese <i>, but it requires the speaker to spread the lips.

|u| vs. |ʊ|: Both are bilabial vowels; therefore, they are different from the Japanese <u>. To pronounce |u|, the speaker needs to pronounce the Japanese <u> with his lips sticking out and more rounding.

|ɛ| vs. |æ|: When pronouncing |ɛ|, tongue tends to be lower and gradually goes to the middle place whereas |æ| is between the Japanese <a> and <e>. As the result, Japanese speakers have troubles with distinguishing these sounds in pronouncing them (e.g., *pat* |pæt| vs. *pet* |pɛt|). |æ| tends to be longer than |ɛ|; therefore, it can be a good clue for Japanese speakers.

|a| vs. |ʌ|: Both sound like the Japanese <a>; one of the differences is that when pronouncing |a|, the speaker needs to open his mouth bigger and say it longer, which is not necessary when pronouncing |ʌ|. Since |a| is usually spelled “o” (e.g., |a| in *map*, *bomb*, *hot*, *lock*, *doll*), Japanese speakers tend to pronounce it with the Japanese <o>. There is another reason for this phenomenon: the British pronunciation

of some of these words has |ɔ|, and this pronunciation has been used as a model for teaching English in many cases.

Conclusion

In summary, the differences between English and Japanese vowels give many Japanese speakers difficulties in pronouncing English vowels correctly. Japanese has only five vowels, and each vowel covers more than one English vowel. Japanese <a>, for example, is the only vowel that occurs in

the area of English vowels |æ|, |ɑ|, |ʌ|, and |ɔ|; therefore, Japanese speakers tend to substitute <a> for these vowels. Also, since Japanese does not require large facial expression or movement when speaking, Japanese people are not aware of how they should move their mouths, lips, and jaws when they speak English. In order to teach Japanese speakers how to pronounce English vowels correctly, teachers should know these differences and incorporate this knowledge in teaching.

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