

Accepting English Phonemes among Japanese

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[1. Introduction]

The purpose of this project was to observe how Japanese in the Los Angeles area in California made substitutions for original English phonemes and accepted English words.

[2. How Well Japanese Living in California Understood English Loan Words.]

Many Japanese people live in California. Some of them immigrated before or after the Second World War and some of them have stayed in California for a short time on business, as students or with family members. They live in an English language environment; however, they can watch Japanese TV programs and read Japanese magazines and books. They can subscribe to Japanese newspapers such as the Asahi, the Mainichi, the Yomiuri, and the Nikkei. They can also subscribe to the Rafushinpo, an American publication in Japanese.

I interviewed twelve Japanese people who were staying or living in California to find out how well they understood the English loan words which were from the Mainichi, the Yomiuri, and the Rafushinpo. Over the course of a month, I found four hundred ninety-four English loan words in the Mainich and the Yomiuri. I also found seventy-three English loan words in the Rafushinpo. Interviewees understood less than 80% of the English loan words, some less than 60%.

The words in the list below show what the Japanese interviewees could not understand among the English loan words which were from the Mainichi and Yomiuri. The number in the parentheses shows how many interviewees could not understand each word.

ankā pāson (anchor person) (3)	purorōgu (prologue) (2)
autorō (outlaw) (2)	rēganomikusu (Reaganomics) (7)
esutekku saron (aesthetic saloon) (7)	riberaru (liberal) (3)
fā (fur) (2)	robiisuto (lobbyist) (8)
firudo nōto (field note) (4)	sakusesu repōto (success report) (2)
firu guddo (feel good) (4)	serufumedikēshon (self-medication) (3)
gurume (gourmet) (3)	sīrēn (sea lane) (6)
herushī (healthy) (2)	soshiaizēshon (socialization) (8)
hitto chāto (hit chart) (2)	suchikku (stick) (3)
manē būmu (money boom) (2)	toppudaun (top down) (5)
mōgeji (mortgage) (2)	toradishonaru (traditional) (2)
nosutarujia (nostalgia) (2)	tosu (toss) (2)
pairu (pile) (5)	tsūringu (touring) (3)

papi (puppy) (6)	uochingu (watching) (2)
pantagurafu (pantagraph) (4)	wārudo sukēru (world scale) (2)

Some English loan words in the Rafushinpo listed below were not understood by the Japanese interviewees. The number in the parentheses shows how many interviewees could not understand each word.

akusesu (access) (3)	paradaimu (paradigm) (8)
ātisutikku dauntaun (artistic downtown) (3)	
bikku ibento (big event) (3)	purezentā (presenter) (3)
bukku kīpingu (book keeping) (2)	satifikeito (certificate) (3)
inkamutakisu (income tax) (2)	sutokku opushion (stock option) (2)
gurōbarizēshion (globalization) (8)	

[3. Analysis of American Phonemes and English Phonemes]

The Japanese vowel and consonant systems are different from those of English; for example, the Japanese vowel system consists of [i], [e], [a], [o], and [u], and the consonant system consists of [p], [b], [t], [d], [k], [g], [Φ], [h], [s], [z], [ʃ], [ʒ], [tʃ], [dʒ], [m], [n], [ŋ], [R], [j], and [w]. On the other hand, the English vowel system consists of [i], [ɪ], [e], [ɛ], [æ], [ɑ], [ɔ], [o], [ʊ], [u], [ə], [ʌ], [ɚ], and [ɜ], and its consonant system consists of [p], [b], [t], [d], [k], [g], [f], [v], [θ], [ð], [h], [s], [z], [ʃ], [ʒ], [tʃ], [dʒ], [m], [n], [ŋ], [l], [r], [j], and [w].

From my previous studies “A Native Japanese-Speaking Adult’s Second Language Acquisition and Learning” (Saito 2003) and “Unassisted English Language Learning by A Native Japanese-Speaker” (Saito 2005), I found that Japanese substituted the English sounds in order to make English words easy to produce and accept them into the Japanese language. We substitute [i] for [ɪ], [e] for [ɛ], [ɑ] for [æ], [ə], [ʌ], [ɚ], and [ɜ], [o] for [ɔ], [Φ] for [f], [b] for [v], [z] for [ð], and [R] for [l] and [r]. Japanese syllables consist of a consonant plus a vowel except the sound of [n]; therefore, we added an extra vowel sound following a consonant in some English words such as [basu] instead of [bas] (bus).

The English loan words which were from the Mainichi and the Yomiuri in the list below show how Japanese substitute phonemes.

(1) The [i] and [e] sounds were substituted for [ɪ].

[trɪk] (trick)→[toriku]	[ɪmɪdʒ] (image)→[ime:dʒi]
[fɪtnəs] (fitness)→[Φitonesu]	[vɪdeo] (video)→[bideo]

(2) The sound [e:] was substituted for [e].

[kes] (case)→[ke:su]	[praɪmret] (primerate)→[praɪmure:to]
[redə] (radar)→[Re:da:]	[tebəl] (table)→[te:buru]

(3) The [e] sound was substituted for [ɛ].

[lɛvəl] (level)→[Reberu]	[blɛnd] (blend)→[burendo]
[ɪvɛnt] (event)→[ibento]	

- (4) The [ɑ] and [e] sounds were substituted for [æ].
 [blæŋk] (blank)→[burɑŋku] [pænik] (panic)→[paniku]
 [brænd] (brand)→[burando]
- (5) The [o] and [o:] sounds were substituted for [ɔ].
 [tɔpklas] (top-class)→[topukurasu] [pɔɪnt] (point)→[pointo]
 [ɔlkʌlə] (all color)→[o:rukara:]
- (6) The [i], [ɑ], [o], and [e] sounds were substituted for [ʌ] or [ə].
 [mədəʊn] (modern)→[modan] [risepʃən] (reception)→[risepuʃon]
 [əʀɪdʒənəl] (original)→[oridʒinaru] [bʌs] (bus)→[basu]
 [trʌk] (truck)→[toraku] [tʌnəl] (tunnel)→[tonneru]
- (7) The [e:] sound was substituted for [ɛ] and [ɑ:] was substituted for [ə].
 [swetə] (sweater)→[se:ta:]
- (8) The [ɑ:] sound was substituted for [ɜ].
 [skɜ:t] (skirt)→[skɑ:to] [pɜ:sən] (person)→[pa:son]
- (9) The [ɑ:] sound was substituted for [ar].
 [start] (start)→[suta:to] [smart] (smart)→[suma:to]
 [art] (art)→[a:to]
- (10) The [o:] sound was substituted for [ɔr].
 [kɔrs] (course)→[ko:su] [rɪpɔrt] (report)→[ripo:to]
 [rɪfɔrm] (reform)→[riΦo:mu]
- (11) The [Φ] and [h] were substituted for [f].
 [fil] (feel)→[Φiru] [rɪfɔrm] (reform)→[riΦo:mu]
 [frɛʃ] (fresh)→[Φureʃu]
 [nɒnfɪkʃən] (nonfiction)→[nonΦikuʃon] [kɔfi] (coffee)→[kofi]
 [megəfɒn] (megaphone)→[megahon] [fɪtnəs] (fitness)→[Φitonesu]
- (12) The [b] sound was substituted for [v].
 [vərəiəti] (variety)→[baraeti] [lɛvəl] (level)→[reberu]
 [kɜ:v] (curve)→[ka:bu] [ədvaɪs] (advice)→[adobaisu]
- (13) The [s] sound was substituted for [θ].
 [mæɾəθən] (marathon)→[marason] [siθru] (see-through)→[si:suru:]
 [juθhɔstəl] (youth hostel)→[jusuhosuteru]
- (14) The [z] sound was substituted for [ð].
 [smuð] (smooth)→[sumu:zu]
- (15) The [R] sound was substituted for [r] and [l].
 [ɛlit] (elite)→[eri:to] [blæŋk] (blank)→[burɑŋku]
 [sæləd] (salad)→[sarada] [drʌmə] (drama)→[dorama]
 [rʌʃ] (rush)→[raʃu] [trʌk] (truck)→[toraku]

Even though we have [d], [s], [z], [dʒ], and [m] sounds in the Japanese language, [t] was substituted for [d] in [batominton] instead of [bædmɪntən] (batominton), [dʒ] was

substituted for [d] in [sutadʒiamu] instead of [stedɪəm] (stadium) and in [puɾodʒusa:] instead of [prədʊsə] (producer), [ʃ] was substituted for [s] in [seku:ʃi:] instead of [seksi] (sexy), [dʒ] was substituted for [s] in [Φantadʒi] instead of [fæntəsi] (fantasy), [dʒ] was substituted for [z] in [bidʒinesu] instead of [biznis] (business), [n] was substituted for [m] in [sanpuru] instead of [sæmpəl] (sample).

We add an extra vowel after a consonant in the English words. For example, we produced [sarada] instead of [sæləd] (salad), [burendo] instead of [blend] (blend), [toriku] instead of [trɪk] (trick), [ka:bu] instead of [kɜ:v] (curve), and [Risa:tʃi] instead of [risətʃ] (research).

We use English loan words with deleted phonemes, participle markers, plural markers, and conjunctions; for example, we delete the [w] sound and produce [se:ta:] instead of [swetə] (sweater), delete the [h] sound and produce [aruko:ru] instead of [ælkəhɒl] (alcohol), and [jumɑ] instead of [hjumə] (humor). We delete the [l] sound and produce [integura] instead of [intəgrəl] (integral). We delete the participle markers, “-ed” or “-ing,” and produce [aisuti:] instead of [aɪstɪ] (iced tea), [sumo:kusa:mon] instead of [smoktsæmən] (smoked salmon), and [Φuraipan] instead of [frʌɪnpæn] (frying pan). We delete conjunctions and produce [hamuegu] instead of [hæmændæg] (ham and egg) and [kərəraisu] instead of [kəriændraɪs] (curry and rice). We also delete the plural marker and produce [sangurasu] instead of [sʌŋglæsɪz] (sunglasses).

We abbreviate English words to pronounce them more easily; for example, we produce [pɑ:to] instead of “part time job,” [interi] instead of “intellectual,” [masukomi] instead of “mass communication,” [inΦure] instead of “inflation,” [biru] instead of “building,” [apɑ:to] instead of “apartment,” [depɑ:to] instead of “department store,” [patoka:] instead of “patrol car,” [rimokon] instead of “remote control,” [anime] instead of “animation,” and [pasokon] instead of “personal computer.”

We produced foreign loan words by their spelling; for example, [areruɡi] as “allergy,” [bini:ru] as “vinyl,” [aruminju:mu] as “aluminum,” [aɪron] as “iron,” [enerugi:] as “energy,” [bitamin] as “vitamin,” and [ma:ɡarin] as “margarine.”

[4. How do Japanese Living in California Acquire English Loan Words and Proper Nouns?]

I interviewed twelve Japanese people who were staying or living in southern California. There are various differences among them such as age, educational background, and their length of stay in the U.S.A. I asked them to listen to a tape and repeat the proper nouns which were pronounced by a native English speaker. The proper nouns are names of places in the Los Angeles area, the famous people in the U.S.A., and the famous products; therefore, the interviewees would presumably be very familiar with these proper nouns. The proper nouns are below and the number in the parentheses shows how many interviewees produced the sounds.

- (1) Arcadia [ɑrkɛdɪə]
 [ɑr]→[ɑ:] (8), [ɑ] (2), [ɑru] (1) [ɛ]→[e] (3), [ɑ] (4) [ɪə]→[iɑ] (2)
- (2) Berkeley [bɜ̃kli]
 [ɜ̃]→[ɑ:] (7) [i]→[e] (10) [l]→[ɹ] (1)
- (3) Beverly Hills [bɛvəlihɪls]
 [ɛ]→[i] (1) [ə]→[ɑ] (2) [v]→[b] (3) [l]→[ɹ] (3) [s]→[z] (7)
- (4) Fountain Valley [fauntenvæle]
 [ɑu]→[o] (2), [ɑ] (6) [e]→[ɛ] (2) [æ]→[ɑ] (7) [f]→[Φ] (1)
 [v]→[b] (3) [l]→[ɹ] (2)
- (5) Hawthorne [hɑuθɔrn]
 [ɑu]→[o] (6), [o:] (5), [ɔ] (3) [ɔr]→[o:] (3), [o] (1) [θ]→[s] (4), [t] (1)
- (6) Hermosa Beach [hɜ̃mɔsəbitʃ]
 [ɜ̃]→[ɑ:] (3), [ɑ] (1), [ɛr] (4) [ɔ]→[o] (5), [ə] (1) [ə]→[ɑ] (5)
- (7) Marina Del Rey [mɑrɪnədəɪre]
 [ɑ]→[ə] (3) [ɪ]→[i] (7) [ɛ]→[e] (2) [l]→[ɹ] (2)
 [r]→[ɹ] (5) [e]→[i] (1) Deletion of [l] (1)
- (8) Monterey [monore]
 [r]→[ɹ] (8) Production of [t] (12)
- (9) Palos Verdes [pɑlɔsvɜ̃dɛs]
 [ɔ]→[o] (3) [ɜ̃]→[ɑ:] (8) [v]→[b] (2)
- (10) Redondo Beach [rɪdɔndbitʃ]
 [ɪ]→[e] (9), [i] (1) [ə]→[ɑ] (6)
- (11) Riverside [rɪvəsɑɪd]
 [r]→[ɹ] (8) [ɪ]→[i] (2) [ə]→[ɑ:] (7)
- (12) Rolling Hills [rɔlɪŋhɪls]
 [r]→[ɹ] (4) [s]→[z] (8)
- (13) San Diego [sɑndɪəgo]
 [ɑ]→[ə] (1) [ɪɛ]→[e:] (1)
- (14) Chevrolet [ʃɛvole]
 [ɛ]→[i] (7) [v]→[b] (1) [ʃ]→[s] (7), [tʃ] (1)
 Production of [t] (5) Addition of [o] after [t] (5)
- (15) Corvette [kɔrvɛt]
 [ɔr]→[ɔru] (5) [v]→[b] (1) Addition of [o] after [t] (10)
- (16) Rolls Royce [rɔlsrɔɪs]
 [r]→[ɹ] (2) [l]→[ɹ] (11) [ɔɪ]→[oi] (11)
- (17) Donald Regan [dɔnəldrɪgən]
 [ɔ]→[o] (11) [r]→[ɹ] (4) [i]→[e] (2), [e:] (2)
 Addition of [o] after final [d] (10)
- (18) Jimmy Carter [dʒɪmɪkɑrtə]
 [ɑr]→[ɑ:] (12) [ə]→[ɑ:] (4), [ə] (3), [ɑ] (2)

(19) Ronald Reagan [rɑnəldregən]

[ɑ]→[o] (11), [o:] (1) [e]→[i] (9), [ɛ] (2) [r]→[R] (2)

Addition of [o] after [d] (10)

The results of this interview show that the substitution of sounds here are similar to the substitution of sounds in other English loan words in the Japanese language. The [i] sound was substituted for [ɪ], the [e], [ɑ], or [ə] sound was substituted for [ɛ], the [o] or [ɑ] sound was substituted for [ɔ], the [a] sound was substituted for [ə], the [ɑ:], [ɑ], or [ə] sound was substituted for [ə], the [ɑ:] or [ɑ] sound was substituted for [ɜ], the [a] sound was substituted for [æ], the [Φ] sound was substituted for [f], the [b] sound was substituted for [v], the [s] or [t] sound was substituted for [θ].

One participant produced [hɑʊtɔ:n] instead of [hɑʊθɔ:rn]. In the name “Rolling Hills,” eight people produced [z] instead of [s] in [hɪlz]; however, the native English speaker of the tape produced [hɪls]. Ten people added an extra [o] after [d] in [rɔnɑrudo] instead of [rɑnəld] (Ronald) and [dɔnɑrudo] instead of [dɔnəld] (Donald). For Japanese people, the production of [r] is very difficult; therefore, most of the Japanese people could not produce [rɑnəldregən] (Ronald Reagan) and [dɔnəldregən] (Donald Regan) correctly. Ten people added an extra [o] after [t] in “Corvette” [kɔrvet] and produced [kɔrubetɔ]. Five people produced [s] instead of [ʃ], [i] instead of [ɛ] and produced [t] and then added an extra [o] in [ʃevole] (Chevrolet), producing [siboretɔ].

I chose six people from my interviewees and examined their English productions.

The first participant was Ms. K who was 29 years old and had been staying in the U.S.A. for seven years. She had graduated from a Japanese high school. After she came to the U.S.A., she went to an adult school for a month to learn how to speak English. She used the Japanese language in her home.

Her productions are below.

(1) The [i] sound was substituted for [ɪ].

[rɔlɪŋghɪls] (RollingHills)→[rɔrɪŋghɪls]

[sɑnbənədɪno] (SanBernardino)→[sɑnberunədɪno]

[ɛlɪzəbɛθ] (Elizabeth)→[ɛlɪzəbɛsu] [ɔlɪvə] (Oliver)→[ɔrɪbɑ:]

(2) The [ɑ] or [ɑ:] sound was substituted for [ɛ], [ə], [æ], [ɜ], and [ɑr], [tʃ] was substituted for [t].

[ɑrkɛdɪə] (Arcadia)→[ɑrukədɪə] [həntɪŋtən] (Huntington)→[hantʃɪŋtɔn]

[ræntʃɔpɑlɔsvɜdɛs] (Rancho Palos Verdes)→[rɑntʃɔpɑ:ɔsbɑ:dɛs]

[hɜ:mɔsəbɪtʃ] (Hermosa Beach)→[hɑ:mɔsəbɪtʃ] [ɜvaɪn] (Irvine)→[ɑ:bɑɪn]

[mæsətʊsɪts] (Massachusetts)→[mɑsətʃʊsɪts]

[gɑrdənə] (Gardena)→[gɑ:dɛnɑ]

(3) The [b] sound was substituted for [v].

[bɛvəlɪhɪls] (BeverlyHills)→[bɛbəlɪhɪls]

[pɑlɔsvɜdɛs] (Palos Verdes)→[pɑlɔsbɑ:dɛs]

- [gɑ:dɛŋgrɒv] (Garden Grove)→[gɑ:dɛŋɡuro:bu] [ɔlɪvə] (Oliver)→[orɪbɑ:]
- (4) The [Φ] sound was substituted for [f].
[sɑnfɛrnəndo] (San Fernando)→[sɑnΦɛrunando]
- (5) The [R] sound was substituted for [l] and [r].
[mɑrɪnədəɪre] (Marina Del Rey)→[mɑrɪnədəRure]
[pɑlɔsvɜ:dɛs] (PalosVerdes)→[pɑ:ROSubɑ:dɛs]
[rɔlɪŋghɪls] (RollingHills)→[ROlɪŋghirus]
[rɪdəndbɪtʃ] (RedondoBeach)→[Redandobɪtʃi]
[tɔrəns] (Torrance)→[tɔ:rensu] [kəlɔrɑdo] (Colorado)→[kORORɑdo]
- (6) The [s] sound was substituted for [θ].
[ɛlɪzəbɛθ] (Elizabeth)→[ɛlɪzabɛsu] [plɪməθ] (Plymouth)→[plɪməsu]

She added an extra vowel after a consonant.

- (1) Addition of [u] after [g] and [R] which was substituted for [l] in [gulɛndəl] (Glendale)
→[gURɛndɛRU].
- (2) Addition of [u] after [b] which was substituted for [v] in [gɑ:dɛŋgrɒv] (Garden Grove)
→[gɑ:dɛŋɡuro:bu].
- (3) Addition of [o] after [t] and added [i] after [tʃ] which was substituted for [t] in
[kənɛtɪkət] (Connecticut)→[konɛtʃɪkato].

The second participant was Ms. H who was 38 years old. She had been living in the U.S.A. for 15 years. When she was a high school student and a college student, she took English lessons from native English speakers privately. Even after she graduated from college, she took English lessons from native English speakers. After she got married to a native English speaker, she moved in the U.S.A. and used only English both at home and outside. Her pronunciation was quite accurate.

Her productions are below.

- (1) The [i] sound was substituted for [ɪ], [tʃ] was substituted for [t], and [s] was substituted for [θ].
[rɔlɪŋghɪls] (RollingHills)→[ROlɪŋghɪls] [plɪməθ] (Plymouth)→[plɪməsu]
[kənɛtɪkət] (Connecticut)→[konɛtʃɪkato]
- (2) The [ɑ] sound was substituted for [æ].
[fauntɛnvæle] (Fountain Valley)→[fauntɛnvale]
- (3) The [ɑ:] sound was substituted for [ɑr].
[gɑ:dɛnə] (Gardena)→[gɑ:dɛnə] [gɑ:dɛŋgrɒv] (Garden Grove)→[gɑ:dɛŋgrɒv]

The reason why she produced English sounds so well was that she had started listening to English and had used it when she was young, and she also had used only English in the U.S.A. for the previous 15 years.

The third participant was Ms. I who was 67 years old and she had been living in the U.S.A. for 50 years. She graduated from a Japanese high school. Her husband was

Japanese-American and she used only Japanese in her home. During the Second World War, she had lived in a detention camp for several years.

Her productions are below.

- (1) The [i] sound was substituted for [ɪ], [ɑ] for [ə], [o] for [ɔ], [b] for [v], and [tʃ] for [t].

[həntɪŋtən] (Huntington) → [hantʃɪŋton]

[rɔlɪŋghɪls] (Rolling Hills) → [RORɪŋghirus] [ɔlɪvə] (Oliver) → [ORɪbɑ:]

- (2) The [ɑ] sound was substituted for [æ] and [tʃ] was substituted for [t].

[mæsətʃsɪts] (Massachusetts) → [masatʃusets]

- (3) The [ɑ:] sound was substituted for [ɜ:], [i] for [ɪ], and [b] for [v].

[ɜ:væn] (Irvine) → [ɑ:bain] [bɜ:kli] (Berkley) → [bɑ:kle]

- (4) The [ɑ:] sound was substituted for [ɑr] and [ə], and [ɑ] was substituted for [ə].

[gɑ:dənə] (Gardena) → [gɑ:dənɑ] [kɑrtə] (Carter) → [kɑ:tɑ:]

[gɑ:dɛŋgrɒv] (Garden Grove) → [gɑ:dɛŋgrɒbu]

- (5) The [R] sound was substituted for [ɹ] and [r] sounds.

[ræntʃɔ] (Rancho) → [Rantʃo] [tɔrəns] (Torrance) → [to:rensʉ]

[əmɛrɪkə] (America) → [ɑmɛrɪkɑ] [kɑlɔrɑdɔ] (Colorado) → [kɔrɔrɑdɔ]

[flɔrɪdə] (Florida) → [ΦRORɪdɑ].

- (6) The [Φ] sound was substituted for [f].

[fauntenvəle] (Fountain Valley) → [Φontenbale] [flɔrɪdə] (Florida) → [ΦURORɪdɑ]

She added extra vowels in [gɑ:dɛŋguro:bu] (Garden Grove) and [to:rensʉ] (Torrance).

The fourth participant was Ms. J who was 56 years old and she had been living in the U.S.A. for 38 years. She graduated from the University of California at Los Angeles and majored in sociology. As her husband was a native English speaker, she used only English in her home. Her English production was reasonably accurate but sometimes she produced [ɑ:] instead of [ɑr] and [ə] instead of [æ] in [bɑ:bəŋk] instead of [bɑrbəŋk] (Burbank) and [masatʃusets] instead of [mæsətʃsɪts] (Massachusetts). She produced [gɛrɪ] instead of [gerɪ] (Gary). She also produced [kɔnɛtʃɪkɑtɔ] instead of [kənɛtɪkət] (Connecticut) and [ronɑld] instead of [rɑnəld] (Ronald). Even though the native English speaker produced [ɑrkɛdɔ], [vɜ:dɛs], and [kɔrvɛt], Ms. J repeated them as [ɑrkɛdɔ], [vɛrʉdɛs], and [kɔrʉvɛtɔ]. The first time she produced [rɪgən] both for “Reagan” and “Regan,” and after she listened to the native English speaker’s pronunciation, she produced [rɪgən] for “Reagan” and [rɛgən] for “Regan.”

Even though both Ms. I and Ms. J arrived in the U.S.A. when they were seventeen years old, Ms. J’s production was far more accurate. Their educational background and their environment of English language explain the difference between Ms. I’s and Ms. J’s production of English.

The fifth participant was Mr. S who was 15 years old and he had been living in the U.S.A. for six months. He went to a high school in the U.S.A. He started taking English conversa-

tion lessons when he was eight years old. He used only Japanese in his home. His productions are below.

- (1) The [i] sound was substituted for [ɪ], [ɑ:] for [ə], [tʃ] for [t], and [b] for [v].
[həntɪŋtən] (Huntington)→[hantʃɪŋton] [rɪvəsaɪd] (Riverside)→[rɪbɑ:saido]
- (2) The [ɑ] or [ɑ:] sound was substituted for [ɜ] and [b] was substituted for [v].
[ɜvəm] (Irvine)→[ɑ:bain]
- (3) The [ɑ:] sound was substituted for [ɑr].
[gɑrdənə] (Gardena)→[gɑ:dənə] [gɑrdɛŋgrɒv] (Garden Grove)→[gɑ:dɛŋgrɒv]
- (4) The [ɑ] sound was substituted for [æ].
[mæsətʊsɪts] (Massachusetts)→[masətusets]
- (5) The [ɹ] sound was substituted for [l] and [r].
[mɑrɪnədəɪre] (Marina Del Rey)→[mɑrɪnədəɪre]
[tɔrəns] (Torrance)→[tɔrənsu] [kɔrvɛt] (Corvette)→[kɔrɪbɛto]
- (6) The [s] sound was substituted for [θ] and [o:] was substituted for [ɔr].
[haʊθɔrn] (Hawthorne)→[hosɔ:n]

Even though he listened to a native English speaker's sounds, [ɑrkædiə] became [ɑrkadiə], [sɑnbənədɪno] became [sɑnbənədino], and [mɑrsɛdɪsbɛnz] became [mɛrɪsɛdɛsbɛnts]. Mr. S started taking English conversation lessons when he was quite young; however, he still had a little trouble to produce correct English sounds. It was because his length of stay in the U.S.A. was short and he was not yet familiar with proper nouns in the Los Angeles area.

The sixth participant was Mr. M who was 22 years old and he was a university student majoring in computer science at the University of California at Pomona. When he was 13 years old, he entered a junior high school in England. He lived in England for a year and later came to the U.S.A. His English production was quite accurate. He used only Japanese in his home. His productions are below.

- (1) The [ə] sound was substituted for [æ].
[mæsətʊsɪts] (Massachusetts)→[məsətusets]
- (2) The [ɑ] sound was substituted for [ə].
[sɑnfɛrnəndo] (San Fernando)→[sɑnfɛrnando]
[sɑnbənədɪno] (San Bernardino)→[sɑnbɑnədɪno]
- (3) The [ə] sound was substituted for [ɑr].
[gɑrdənə] (Gardena)→[gədɛnə]

The reason he could produce English sounds very well was because the length of his stay in English speaking countries was long and he knew proper nouns in the Los Angeles area well.

[5. Conclusion]

We have accepted many English words into the Japanese language; however, their sounds

are different from the English originals. It is because the Japanese vowel system and the consonant system are different from the English language. Therefore, we substitute the [i] sound for [ɪ], [ɑ] for [ɔ] or [o], [ɑ] for [æ], [ʌ] and [ə], [ɑ:] for [ə], [ɜ], and [ɑr], [Φ] for [f], [b] for [v], [s] for [θ], [z] for [ð], and [R] for [l] and [r]. We have also added an extra vowel after a consonant such as [sarada] (salad). Sometimes, we delete a sound such as [aisuti] instead of [aistti] (iced tea).

Even though Japanese people in this study were living or staying in an English speaking environment, the same substitution of sounds, addition of sounds, and deletion of sounds occurred among them the same as among Japanese in Japan. They substituted [i] for [ɪ], [o] for [ɔ], [ɑ] for [æ], [ʌ], and [ə], [ɑ:] for [ɑr], [ə], and [ɜ], [Φ] for [f], [b] for [v], [s] for [θ], [z] for [ð], [R] for [l] and [r]. They added an extra vowel after a consonant such as [gɑ:dɛnguro:bu] instead of [gɑdɛngrov] (Garden Grove).

These Japanese people were presumably familiar with the place names around the Los Angeles area and famous people's names in the U.S.A., but many produced [korumejɑ:] instead of [kaiemejə] (Calle Mayer), [dɛruɑmoʃopɪŋgusentɑ:] instead of [dɑrɛmoʃopɪŋgsɛnə] (Del Amo Shopping Center), [herumosabitʃi] instead of [hɜ:mɔsəbitʃ] (Hermosa Beach), [hosonburubɑ:do] instead of [hɑuθɔrnblvəd] (Hawthorn Boulevard), [pɑ:rosubɑ:dɛsuesutets] instead of [pɑlɔsvɜdɛsɛstets] (Palos Verdes Estates), [sannoze] or [sɑndʒose] instead of [sɛnhosɛ] (San Jose), [sepurubedɑ] instead of [sɛpɔvdə] (Sepulveda), and [torɛnsu] instead of [tɔrɛns] (Torrance). They produced "Calle Mayer," "Del Amo Shopping Center," "Sepulveda," and "San Jose" by their spelling. Their productions of proper nouns are very difficult for native English speakers to understand.

My project shows that we substitute the English phonemes to make English words easy to produce and accept. English phoneme substitution patterns are not different between Japanese living in Japan and those in the Los Angeles area. My project also shows that it is not easy to acquire the second language even if we live or stay in the area where the language is spoken.

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