

A Study of English Phonemes in Pronunciation Materials in Japan

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Abstract

The purpose of this paper is to report on the processes and results of a small-scale study of the following research questions: (1) Do English pronunciation reference books frequently used to learn and teach English pronunciation show any differences in terms of pronunciation of English phonemes; and (2) Do frequently used dictionaries in Japan show any differences related to English phonemes? In practice, the paper aims to examine the extent to which phonemes in pronunciation reference books and English-Japanese dictionaries frequently used in English learning and teaching contexts are consistent. The results reveal that both pronunciation reference books and English-Japanese dictionaries differ in terms of phoneme description, which might contribute to the current reluctance toward teaching English pronunciation in Japan.

Introduction

Studies of L1 reading indicate that there is a correlation between proficiency in phonological processing and reading comprehension skills (Badian, 2001; Vellutino, Tunmer, Jaccard, & Chen, 2007). Several L2 studies on relationships between phonological processing and reading comprehension skills have also revealed that proficiency in phonological processing is positively related to reading comprehension (Kojima, 2010; Koshimizu, 2010).

As Kameyama (1992) has pointed out, Japanese students have few opportunities to learn English phonemes—that is, an abstract sound unit that distinguishes one word from another (e.g. /p/ in *pit* and /b/ in *bit*). Although researchers such as Smith (2012) and Noguchi (2014) have demonstrated the need to teach English phonemes, the people involved in English instruction in Japan lack the materials to teach the topic. This situation is reinforced by the fact that no textbook adopted by public junior high schools in Tokyo since 2012 has included a section addressing English phonemes. A survey of textbooks adopted by junior high schools in 11 wards and districts of Tokyo, including Chiyoda, Chuo, Minato, Bunkyo, Taito, Shinagawa, Oota, Setagaya, as well as the Izu Islands and the Ogasawara Islands, provided by the Japan Textbook Distributors Association (<http://www.text-kyoukyuu.or.jp/kaiin/tokuyaku13.html>) found that only four English textbooks are used in these areas. Table 1 shows a list of these textbooks and publishers.

Table 1 *English Textbooks Adopted in 11 Wards and Islands in Tokyo Since 2012*

Title	Publisher	Year of publication
<i>New Horizon</i>	Tousho	2011
<i>Sunshine English Course</i>	Kairyudo	2012
<i>New Crown</i>	Sunseido	2012
<i>One World</i>	Kyosyutu	2012

Most of the activities and exercises encouraged in these textbooks are aimed at motivating students to speak in several communicative situations, asking questions in hotels, restaurants, and movie theaters, ordering products on the phone, introducing family members to a friend, and, talking with friends about international issues, and listening to authentic English dialogue about those same issues. However, these four textbooks contain no sections that address the relationship between English pronunciation in these four textbooks, though all of them encourage readers to purchase reference materials such as CDs, DVDs, and flash cards with English words on one side and their Japanese translations on the other. In the classroom, a teacher shuffles a stack of these cards, selects one, and asks a student to correctly pronounce and define the word. Yet, these cards do not have phonetic symbols, only Japanese translations. If students want to know whether their pronunciation is correct, then they must listen to the referenced CDs.

The teaching of phonetic symbols was not encouraged in previous editions of *Course of Study*, because learners tend to focus on consulting dictionaries to check the pronunciation instead of listening to native speakers' authentic pronunciation—a habit that can demotivate students from speaking in English (MEXT, 2008a, b, c, d).

There are 24 consonants and 20 vowels in English, though only 20 consonants and five vowels in Japanese (Rogerson-Revell, 2011).

Table 2 *English Vowel Chart* (Rogerson-Revell, 2011, p. 67)

	Front	Central	Back
High	i(:)		u:
Mid-high	ɪ(:)		ʊ
Mid-low		ə	
	e	ɜ(:)	ɔ(:)
Low	æ	ʌ	ɑ/ɚ

Table 3 *Japanese Vowel Chart* (Rogerson-Revell, 2011, p. 283)

	Front	Central	Back
Close	i		<u>ɯ</u>
Close-mid			
Open-mid	ɛ		ɔ
Open	a		

Note. Bold letters indicate that there are no corresponding phonetic symbols in Japanese, whereas italic letters indicate that there are no corresponding phonetic symbols in English. Underlined letters indicate that there is an equivalent phonetic symbol from one language to the other.

Because the number of Japanese vowels is quite limited compared to that of English, several replacements occur. For example, the absence of the phonetic symbol of /æ/ in Japanese may cause some confusion for a letter a is usually replaced by /a/ (e.g., *want* and *fat*). (Kameyama, 1992). In that sense, this paper aims to examine how English pronunciation reference books and English-Japanese dictionaries describe English phonemes, especially English vowels.

Materials

For Question 1, six English pronunciation books frequently used in Japan were collected. Table 4 shows a list of these English phoneme reference books. The English pronunciation reference books were the top English pronunciation reference books sold on Amazon.jp in December 2015.

Of the six reference books available online, one is published by a Japanese publisher, another by a US publisher, and four by UK publishers.

Table 4 *The List of English Pronunciation Reference Books*

Title	Publisher	Year of Publication
<i>Eigo Onseigaku Nyumon</i> [An Introduction to English Phonetics]	Taishukan	2008
<i>English Phonetics and Phonology: An Introduction</i>	Wiley-Blackwell	2013
<i>English Phonetics and Phonology: A Practical Course (4th edition)</i>	Klett Ernst/ Schulbuch	2010
<i>Cambridge English Pronouncing Dictionary with CD-ROM. (18th edition)</i>	Cambridge University Press	2010
<i>English Phonology and Pronunciation Teaching</i>	Continuum	2011
<i>Gimson's Pronunciation of English</i>	Routledge	2014

For Question 2, ten English-Japanese dictionaries were collected: One published by a UK publisher, another by a US publisher, and eight by Japanese publishers. Table 5 shows a list of English-Japanese dictionaries frequently used in English learning contexts in Japan. The dictionaries were the top dictionaries sold on Amazon.jp in December 2015.

Table 5 *The List of English-Japanese Dictionaries*

Title	Publisher	Year of Publication
<i>Longman English-Japanese Dictionary</i>	Longman	2007
<i>Cambridge English Pronouncing Dictionary</i>	Cambridge University Press	2011
<i>Advanced Favorite English-Japanese Dictionary</i>	Tokyo Shoseki	2002
<i>Kenkyusha's English-Japanese Dictionary for the General Reader (3rd edition)</i>	Kenkyusya	2012

	U	✓	X	X	X	X	X	X
	ʊ	X	✓	✓	✓	✓	✓	✓
	ə	✓	✓	✓	✓	✓	✓	✓
	ə̃	✓	X	X	X	X	X	✓
Long vowel	i:	✓	✓	✓	✓	✓	✓	✓
	ɛ:	X	X	X	X	✓	X	X
	ɑ:	✓	✓	✓	✓	✓	✓	✓
	o:	✓	X	X	X	X	X	X
	ɔ:	X	✓	✓	✓	✓	✓	✓
	u:	✓	✓	✓	✓	✓	✓	✓
	ə̃, ə̃:	✓	X	X	X	X	X	X
	ɜ:	X	✓	✓	✓	✓	✓	✓
Diphthong	eɪ	✓	✓	✓	✓	✓	✓	✓
	aɪ	✓	✓	✓	✓	✓	✓	✓
	ɔɪ	✓	✓	✓	✓	✓	✓	✓
	əʊ	✓(+ oU)	✓	✓	✓	✓	✓	✓
	aʊ	✓	✓	✓	✓	✓	✓	✓
	ɪə	✓(+ ɪə̃)	✓	✓	✓	✓	✓	X
	eə	X	X	X	✓	X	✓	X
	ɛə	✓(+ ɛə̃)	X	X	X	X	X	X
	ʊə	✓(+ Uə̃)	X	X	✓	✓	✓	✓
	ɑə	✓	X	X	X	X	X	X
	ɔə	✓	X	X	X	X	X	X
	ju:	✓	X	X	X	X	X	X

Note. ✓ indicates the symbol is described as English vowel and X indicates the symbol is not described.

Regarding phonemes used to describe English vowels in English-Japanese dictionaries, one term for each phoneme was chosen and consulted how the words are represented in each dictionary. For English short vowels, seven words were chosen: *kit*, *dress*, *trap*, *strut*, *lot*, *foot*, and *another*. To assess English long vowels, five words were chosen: *fleece*, *palm*, *thought*, *goose*, and *nurse*. To assess English diphthongs, eight phonemes were chosen: *face*, *price*, *choice*, *goat*, *mouth*, *near*, *square*, and *cure*. Tables 7, 8, and 9 below show the phonemes used to represent the underlined part of each word.

As for English short vowels, the underlined letters of *lot* and *foot* show inconsistencies among the dictionaries. Five dictionaries show that the letter *o* in *lot* can be pronounced as the long verb /a:/. The letters *oo* in the term *foot* show further inconsistency. Three dictionaries used /ʊ/ as a phoneme, four dictionaries used /U/, and two indicated /u/ as a phoneme of the letters *oo* in *foot*.

Table 7 *English Phonemes of Short Vowels Used in English-Japanese Dictionaries*

	<u>k</u> it	dress	tr <u>a</u> p	str <u>u</u> t	l <u>o</u> t	fo <u>o</u> t	an <u>o</u> ther
<i>Cambridge English Pronouncing Dictionary</i> (18 th edition)	ɪ	e	æ	ʌ	ɑ:/ɒ	ʊ	ə
<i>Longman English-Japanese Dictionary</i>	ɪ	e	æ	ʌ	ɑ:/ɔ	u	ə
<i>Advanced Favorite English-Japanese Dictionary</i>	ɪ	e	æ	ʌ	ɑ:/ɔ	ʊ	ə
<i>Kenkyusha's English-Japanese Dictionary for the General Reader (3rd edition)</i>	ɪ	e	æ	ʌ	ɑ	U	ə
<i>Kenkyusha's New College English-Japanese Dictionary (7th edition)</i>	ɪ	e	æ	ʌ	ɑ:/ɔ	U	ə
<i>Genius English-Japanese Dictionary (5th edition)</i>	ɪ	e	æ	ʌ	ɑ:/ɒ	U	ə
<i>Shogakukan Progressive English-Japanese Dictionary (5th edition)</i>	ɪ	e	æ	ʌ	ɑ:/ɔ	u	ə
<i>The Super Anchor English-Japanese Dictionary</i> (4 th edition)	ɪ	e	æ	ʌ	ɑ:/ɔ	ʊ	ə
<i>The Wisdom English-Japanese Dictionary (3rd edition)</i>	ɪ	e	æ	ʌ	ɑ(:)/ɔ	U	ə

As for English long vowels, the underlined letters of *palm*, *thought*, and *nurse* show inconsistencies among the dictionaries. Three dictionaries show that the letter *a* in *palm* can also be pronounced as /ɑ:l/ or /ɔ:/; the same applies to the letters *ou* in the term *thought*, which can also be pronounced as /ɑ:/. All dictionaries except one, *Cambridge English Pronouncing Dictionary (18th edition)*, presented /ɔ:/ to pronounce the letters *ou* in the term *thought*. The letters *ur* in the term *nurse* show further inconsistency. Six dictionaries used /ɜ:r/ to pronounce the letters *ur* in the term *nurse* whereas another dictionary presented /ɜ:/, /æ:/, and /ɜ:r/ to pronounce the letters *ur* in the term *nurse*. Moreover, three dictionaries also proposed /ə:/ as an alternative way to pronounce the letters *ur* in the term *nurse*.

Table 8 *English Phonemes of Long Vowels Used in English-Japanese Dictionaries*

	<u>f</u> leece	pal <u>m</u>	th <u>ou</u> ght	go <u>o</u> se	n <u>ur</u> se
<i>Cambridge English Pronouncing Dictionary</i> (18 th edition)	i:	ɑ:	ɑ:/ɔ:/ɔ:	u:	ɜ:/ɜ:
<i>Longman English-Japanese Dictionary</i>	i:	ɑ:	ɔ:	u:	ɜ: (r)
<i>Advanced Favorite English-Japanese Dictionary</i>	i:	ɑ:	ɔ:	u:	ɜ:r
<i>Kenkyusha's English-Japanese Dictionary for the General Reader (3rd edition)</i>	i:	ɑ:(l)/ɑ:	ɔ:	u:	ɜ:r
<i>Kenkyusha's New College English-Japanese Dictionary</i> (7 th edition)	i:	ɑ:(l)/ɑ:	ɔ:	u:	ɜ:/ə:
<i>Genius English-Japanese Dictionary (5th edition)</i>	i:	ɑ:, ɔ:/ɑ:	ɔ:	u:	ɜ:r
<i>Shogakukan Progressive English-Japanese Dictionary</i> (5 th edition)	i:	ɑ:	ɔ:	u:	ɜ:r
<i>The Super Anchor English-Japanese Dictionary</i> (4 th edition)	i:	ɑ:	ɔ:	u:	ɜ:r
<i>The Wisdom English-Japanese Dictionary (3rd edition)</i>	i:	ɑ:	ɔ:	u:	ɜ:r

As for English diphthongs, the underlined letters of *goat*, *mouth*, *near*, *square*, and *cure* show inconsistencies among the dictionaries. Four dictionaries show that the letters *oa* in *goat* can be pronounced as /oU/; two dictionaries as /ou/, one dictionary as /əʊ/, one dictionary as /əu/, and one dictionary as /oʊ/. The same applies to the letters *ou* in the term *mouth*. Four dictionaries showed /aU/, three showed /au/, and two showed /aʊ/ to pronounce the letters *ou* in the term *mouth*. The letters *ear* in the term *near* show similar inconsistency. Six dictionaries used /iər/ to pronounce the letters *ear* in the term *near* whereas two dictionaries used /iəʳ/, one dictionary used /ɪr/ and another dictionary used /iə/ to pronounce the letters *ear* in the term *near*. To pronounce the letters *are* in the term *square*, four dictionaries used /ear/, three used /eəʳ/, two used /ɛər/, one used /eə/, and another used /er/. To pronounce the letters *ure* in the term *cure*, four dictionaries used /uər/, three used /ɔ:/, two used /ʊəʳ/, another two used /Uər/, one used /Uəʳ/, /Uə/, /Ur/, and /ɔ:ʳ/ each.

Table 9 *English Phonemes of Diphthongs Used in English-Japanese Dictionaries*

	<u>face</u>	<u>pr</u> ice	<u>cho</u> ice	<u>go</u> at	<u>mo</u> uth	<u>ne</u> ar	<u>sq</u> are	<u>c</u> ure
<i>Cambridge English Pronouncing Dictionary (18th edition)</i>	eɪ	aɪ	ɔɪ	əʊ	aʊ	ɪr/iəʳ	er/eəʳ	ʊr/ʊəʳ, ɔ:ʳ
<i>Longman English-Japanese Dictionary</i>	eɪ	aɪ	ɔɪ	əu	au	ɪə(r)	eə(r)	uə (r)
<i>Advanced Favorite English-Japanese Dictionary</i>	eɪ	aɪ	ɔɪ	ou	au	ɪər	eər	uər
<i>Kenkyusha's English-Japanese Dictionary for the General Reader (3rd edition)</i>	eɪ	aɪ	ɔɪ	oU	aU	ɪər	ɛər	Uər
<i>Kenkyusha's New College English-Japanese Dictionary (7th edition)</i>	eɪ	aɪ	ɔɪ	oU	aU	ɪə/iəʳ	eəʳ/eə	Uəʳ /Uə, ɔ:
<i>Genius English-Japanese Dictionary (5th edition)</i>	eɪ	aɪ	ɔɪ	oU	aU	ɪər	eər	ʊər/ɔ:
<i>Shogakukan Progressive English-Japanese Dictionary (5th edition)</i>	eɪ	aɪ	ɔɪ	ou	au	ɪər	ɛər	uər
<i>The Super Anchor English-Japanese Dictionary (4th edition)</i>	eɪ	aɪ	ɔɪ	oʊ	aʊ	ɪəʳ	eəʳ	ʊəʳ
<i>The Wisdom English-Japanese Dictionary (3rd edition)</i>	eɪ	aɪ	ɔɪ	oU	aU	ɪər	eər	Uər

While *Handbook of the International Phonetic Association: A guide to the use of the International Phonetic Alphabet* states that there are variations in the phonemes of IPA, the learners and the teachers of English would find the variation inconvenient to learn the pronunciation of English words. In order to meet with the growing demand to identify English pronunciation efficiently and accurately, a material that describes variations of phonemes found in the reference books and dictionaries in this survey should be provided.

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