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Comprehensibility in the global context: “She is heavily accented but pauses at the word end help comprehension”

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Abstract

This study aims to tease out the pronunciation difficulties of four Japanese learners which caused comprehension problems as revealed in the evaluations of 26 English-speaking teachers (ESTs) and 20 English-speaking non-teachers (ESNTs). It also intends to identify learners' linguistic strategies to ease these difficulties.

The findings showed that most listeners noticed a typical Japanese /r/ versus /l/ pronunciation difficulty. However, when these problems were combined with realizations based onJapanese *mora*, rather than English syllables, they could not identify some of the English words. This occurred particularly where the English word has been borrowed into Japanese, leading to it being realized with Japanese phonology even in English. When these were key words in the talk, the problem caused the speech itself to be incomprehensible. However, when a speaker gave examples and showed some contrast to the words, the talk obtained much higher comprehensibility scores than that of another speaker with similar pronunciation problems. Not only the teaching of English syllables but also the application of these compensatory strategies should be encouraged in classroom.

1．Introduction

In a globalizing world, especially in countries in the expanding circle where learners study English as a foreign language, such as Japan (Kachru, 1985), speaking English is becoming more and more of a pre-requisite when job hunting, for example in the tourist industry. The Japan National Tourism Organization (2016). announced that a record 19.73 million non-Japanese tourists visited the country in 2015, up by 47.3 percent from the previous year. In this context, to get the message across would obviously be the goal in pronunciation, in particular for those with relatively little experience of speaking English.

When referring to “getting the message across” we need to distinguish between *intelligibility* and *comprehensibility*. The former is often assessed through transcription of spoken utterances, while the latter refers to a listener’s perception of the amount of effort involved in understanding a particular non-native speaker (NNS) (Derwing & Munro, 1997; Munro & Derwing, 1995, 1999, 2001).

In analyzing the listeners’ perception, this study aims to locate the difficulties for comprehensibility perceived in four Japanese learners’ individually made and memorized speeches. To investigate a potential gap between inside and outside of the classroom in the learners’ oral English, listeners were chosen to be 26 English-speaking teachers (ESTs) and 20 English-speaking non-teachers (ESNTs). The study also identifies learners’ approach to easing the difficulty of understanding their speeches.

２．Literature review

２．１．Pronunciation teaching and research

In pronunciation teaching and research, the main focus has been on intelligibility and comprehensibitiy of learners’ speech (Derwing, 2003; Derwing & Munro, 2015; Levis, 2005; Pickering, 2006; Thomson & Derwing, 2014). For this purpose, Jenkins (2000) proposed a lingua franca core that excludes most of the suprasegmentals together with the dental fricatives /ð/ and / θ /, one of the most difficult consonants for learners. Her proposal was supported by the finding that native speakers of English focused on segmentals rather than suprasegmentals while listening to English sounds (Riney, Takagi & Inutsuka, 2005).

However, through the analysis of various suprasegmental features, Kang, Rubin and Pickering (2010) have concluded that these account for nearly 50 percent of the understanding of spoken utterances. In fact, the teaching of suprasegmentals showed more improvement in comprehensibility than that of segmentals in an extemporaneous picture description narrative task (Derwing & Rossiter, 2003), although some questions remain as to whether some of the suprasegmentals can be taught and learned (Dauer, 2005; Pennington & Ellis, 2000). Also Field (2005) investigated the role of word stress in the recognition of words as opposed to that of vowel sounds by asking 49 English speakers and 48 non-English speakers to write down 22 English words with deviant stress and vowel quality. He found that both English speakers and non-English speakers tended to make more mistakes with wrongly stressed words. Word recognition seems to be related to the stress pattern of the words (Field, 2005).

As understanding spoken English involves both speaker and listener, comprehensibility is generally agreed to be influenced by variables related to these two parties. Variables relating to the former may be their mother tongues (L1) (Crowther, Trofimovich, Saito & Isaacs, 2015; Derwing & Munro, 1997; Munro & Derwing, 1995) and their English proficiency levels (Saito, Trofimovich & Isaacs 2016), while variables relating to the latter include their previous experience and their current context (Saito & Shintani, 2016).

Regarding the variables relating to the speaker, Major's Ontogeny Phylogeny Model (2001, 2008) hypothesized that mother tongue interference is the most powerful constraint in the early stages of phonological acquisition of a second language. Among lower-proficiency level learners in the non-English speaking environment, some mother tongue transfer can remain unnoticed. When talking to those with little experience of Japanese English, Japanese learners may face pronunciation problems that may not have been noticed. The issue for the listeners seems to be whether they are familiar with the possible mother tongue interference in the learners' English pronunciation. To identify these problems, the following section examines the difference between English and Japanese segmentals and suprasegmentals.

2．2．Segmental and suprasegmental differences between English and Japanese

English has 20 vowels, including diphthongs, and 24 consonants as opposed to Japanese, which has only 5 vowels and 14 consonants (Thompson, 2001). English has 20 vowels, including diphthongs, and 24 consonants as opposed to Japanese, which has only 5 vowels and 14 consonants (Thompson, 2001). It has been shown that the following English sounds do not exist in Japanese: consonants /b, t, d, f, v, θ, ð, s, z, ŋ, l, r, and vowels /ɪ, æ, ʌ, I, uː, ə, ʊ, ɔː ,ɜː, ə, n̩, l̩/ (Thompson, 2001, pp. 297, 298).

To describe suprasegmental differences, it can be said that while English is a stress-timed language*, Japanese is categorized as a *mora*-timed language (Hoequist, 1983). A mora consists of a consonant and a vowel, except for one mora in Japanese which only consists of the consonant /n/, and all morae are considered to have roughly the same duration (Kubozono, 2015). As each mora has its own Japanese phonological syllabary (kana) in writing, it is directly related to the Japanese writing system. Thus, for literate Japanese, the number of morae was associated with that of the Japanese phonological syllabaries. Kubozono (2015) stated that even Japanese school children easily counted the number of morae in Japanese words, such as the Japanese car

companies *Ho-n-da* and *To-yo-ta*. However, as syllables in English work differently, understanding English words in terms of Japanese morae causes a difficulty in pronouncing English words. For example, the two-syllabled word *Lon-don* has four morae, *ro-n-do-n*, in Japanese pronunciation. The Japanese loanwords exemplify this difficulty.

２．３．Loanwords in Japanese

Loanwords in Japanese have increased drastically over the years. *Sanseido*, one of Japan's leading dictionary publishers, released the fourth edition of the *Concise Dictionary of Katakana Words* (Sanseido, 2010), a compilation of 48,100 loanwords, most of which are of English origin.

Whenever English words were adopted as loanwords in Japanese, several suprasegmental changes were shown to have taken place. One change was the use of epenthetic vowels, or the insertion of a vowel between consonants (Irwin, 2011). Epenthetic vowels have been studied extensively in phonetics (Dupoux et al., 2011; Irwin, 2011; Kaneko, 2006). Another change is the appearance of *sokuon* (Ishikawa, 2002), a Japanese phoneme used after a vowel and before consonants /k, g, t, d, p, b, s, z/ (Otaki, 2013). The phoneme is not pronounced but works as a short pause, creating a mora. In writing, it is represented by repeating the preceding consonant, for example for the car company *Nissan* as *Ni-s-san* with three morae, instead of *Ni-san*. Thus, to become a Japanese loanword, the English word *truck* /trʌk/ is pronounced as ***to-ra-k-ku***, with the epenthetic vowel /o/ (Blair & Ingram, 2003, p. 102).

Therefore English loanwords may create a pronunciation problem for Japanese learners because they tend to apply Japanese pronunciation rules to English words (Ando, 1997; Sheperd, 1996; Simon-Maeda, 2005). By the same token, it would be similarly difficult for English speakers to identify some loanwords because filtering them through Japanization causes them to sound totally different to native English speakers' ears (Blair & Ingram, 2003; Daulton. 1999, 2007, 2010).

However, studies on loanwords have drawn attention mainly from phoneticians (Kawahara, 2011; Kim, 2008; Kubozono, 1995, 2006; Yazawa, Konishi , Hanzawa., Short., & Kondo, 2015) as well as from researchers of Japanese cultural studies (Hogan, 2003) and those interested in Japanese society (Daulton, 2010; Kay, 1995).

To investigate barriers to comprehension of Japanese English learners' oral English due to mother tongue transference, it would be useful to ask for evaluation by those with and without experience of dealing with Japanese learners, such as teachers and non-teachers. Previously, to compare the evaluation by teachers and non-teachers,

questions have been asked on a scale of criteria, such as grammar, vocabulary, appropriateness, fluency, and content (Hadden, 1991; Hsieh, 2011; Kim, 2009).

To tease out speakers' pronunciation problems for comprehensibility, it seems necessary to listen to their talk more than once and to obtain comments on the learners' difficulties (Warren, Elgort & Crabbe, 2009). The comments can then be compared with the transcript of the speeches. The study by Warren, Elgort and Crabbe (2009) seems to be one of a few studies that carried out this type of analysis, although they did not collect comments from non-teachers. The authors gathered evaluations from six teachers and ten non-teachers about English sentences read by five Mandarin Chinese speakers. Their study showed similarities between the two groups of listeners in their evaluations and found a significant correlation of comprehensibility ratings with sentence prosody, word stress, consonant pronunciation, and vowel pronunciation.

Suprasegmentals seem to be important for comprehensibility, Recently through the evaluation of teachers and non-teachers about fluency and accuracy among the learners of Dutch, Duijm, Schoonen, and Hulstijn (2017) found teachers paid more attention to accuracy whereas non-teachers were relatively more attentive to fluency. Teachers can be concerned about the features that may escape non-teachers' attention.

The comparison of comments from both teachers and non-teachers can illustrate what learners need to be aware in pronunciation outside of the language class. Furthermore, their comments on learners' speeches would show what the listener noticed as speaker's approach to avoid a possible communication breakdown. It would be pedagogically beneficial to identify the listeners' strategies. One possible limitation of this type of investigation seems to be that the number of speakers can be limited as listeners need to listen to speeches more than once to comment on them.

3. The study

This study aims to find barriers to comprehension in pronunciation as perceived by the listeners to four Japanese learners' individually made and memorized speeches. The study also intends to identify the learners' approach to easing the difficulty in understanding their speeches by the listerns. The listeners were 26 English-speaking teachers (ESTs) and 20 English-speaking non-teachers (ESNTs). For this purpose, the listeners' comments were analyzed together with the transcript of the speeches delivered by the speakers.

３．１．The method

３．１．１．Speakers of oral presentations in English

Four Japanese university students with lower-intermediate to intermediate proficiency levels prepared six-minute speeches for a speech contest at the university. Their speeches were scripted and proofread by an English teacher to remove grammatical and lexical anomalies. The students memorized their speeches and delivered their presentations to be recorded by the researcher after the speech contest. Then, to accommodate the time available to the listeners, the length of the speeches was edited to include roughly the first two minutes of each one. Below is a brief description of the speakers.

Speaker A was a first-year male student who had the most serious pronunciation problems among the four. He tried to link words but as he was not used to employing word and sentence stresses together with pauses, it was sometimes difficult to decipher what he was saying.

Speaker B was a first-year female student whose pronunciation of consonants was influenced by Japanese language sounds. Unlike speaker A, however, she made a pause after each word, which made it easier to understand her.

Speaker C was a first-year female student. She sounded confident and fluent in the first half of her speech. As she dealt with a more psychologically charged topic than others, her speech was more engaging. However, as her speech included some words that were difficult to pronounce, they were sometimes difficult to understand. In the latter half of her speech, she seemed to have forgotten her lines which made her presentation difficult to follow.

Speaker D was a third-year female student. As she was familiar with oral presentation, and she appeared to be confident and fluent. However, she shared similar segmental problems with the other students.

３．１．２．Listeners

The listeners consisted of 26 English-speaking English teachers (ESTs) and 20 English-speaking non-teachers (ESNTs). The 26 ESTs were 10 American and 16 Australian nationals who had been teaching English speaking skills to English learners at American and Australian universities for more than three years at the time of the

evaluation. All of them were familiar with Japanese learners' pronunciation problems. The 20 ESNTs were all American undergraduates who belonged to the Department of Education at one of the mid-Western universities and had taken Linguistics courses for at least one semester. The students were chosen because it was assumed that students without any knowledge of describing language were less likely to be able to comment on the Japanese students' speeches. All had talked with Japanese English speakers but only half of them stated that they were able to identify Japanese accents.

3．1．3．Data-collection procedure

To avoid any influence of visual images on the evaluation, only audio recordings were used. The evaluation took place in a classroom or meeting room located in the universities. After distributing a questionnaire (see Appendix) to each individual listener, they were asked to listen to the speeches twice: the first time for comprehensibility and the second time for comments on pronunciation problems and advice for improving pronunciation.

4．The results

4．1．Evaluation of comprehensibility

Listeners assessed the comprehensibility of the four Japanese speakers on a scale of one to five for the descriptors shown in TABLE 1.

TABLE 1．COMPREHENSIBILITY EVALUATION DESCRIPTORS

Scores from 1 to 5:
5 points: 100% comprehensible: non-native but fully functional and easy to understand
4 points: 75% comprehensible: non-native but functional and understandable
3 points: 50% comprehensible: understandable but with some difficulty
2 points: 25% comprehensible: only a portion of what has been said is understandable
1 point: 0% comprehensible: hardly anything that has been said is understandable

TABLE 2 shows the results of the assessment of comprehensibility of Speakers A, B, C, and D. Mean scores are shown on a five-point scale by ESTs and ESNTs. The results show that both ESTs and ESNTs understood about 25 % of Speaker A's talk, while understanding at least half of the talks of Speakers B, C, and D. The detailed description of their talk will be shown later.

TABLE 2. SPEAKERS' AVERAGE SCORES OF COMPREHENSIBILITY

Speakers / Evaluators	speaker A	speaker B	speaker C	speaker D
26 EST	2.10/5.00	3.10/5.00	**3.40**/5.00	3.70/5.00
20 ESNT	2.10/5.00	3.30/5.00	**4.10**/5.00	3.60/5.00
t value (45)	0.9611	-0.044	**-3.6625**	0.2634
p	0.8151	0.4822	**0.0003**	0.6032
r	14	01	**48**	04

To examine the difference in the scores between the ESTs and the ESNTs, a two-tailed t-test was carried out and the results show that they differed only in the evaluation of Speaker C [t(45)=3.66, p=.0003] with *r* (effect size) 48 as shown in TABLE 2. Thus the comprehensibility ranking by the ESTs from worst to best was Speaker A, B, C, and D while that of the ESNTs was Speaker A, B, D, and C.

4．2．ESTs' and ESNTs' perception of Japanese speakers' pronunciation problems

After the second listening, comments were collected about the pronunciation problems that needed to be improved for comprehensibility. As specific problems were expected, the analysis did not include those that made no comments or gave vague descriptions, such as "articulation was not clear," as shown in TABLE 3.

For the analysis, the comments provided by ESTs and ESNTs on the problems were divided into those on (1) segmentals: (2) suprasegmentals; (3) a combination of both segmentals and suprasegmentals; and (4) no specific comments, as shown in TABLE 3.

TABLE 3. COMMENTS FROM ESTS AND ESNTS ON FOUR JAPANESE SPEAKERS' PRONUNCIATION PROBLEMS

Speaker	Evaluators	Comments including those limited to consonants or vowels				
		Segmental	Supra-segmental	Segmental and supra-segmental	No specific comment on difficulties	Total No.
A	26 ESTs	2 (7.69%)	6 (23.07%)	16 (61.5%)	2 (7.69%)	26
	20 ESNTs	9 (45.00%)	1 (5.00%)	5 (25.00%)	5 (25.00%)	20
B	26 ESTs	2 (7.69%)	11 (42.30%)	9 (34.61%)	2 (7.69%)	26
	20 ESNTs	13 (65.00%)	1 (5.00%)	2 (10.00%)	4 (20.00%)	20

C	26 ESTs	8 (30.76%)	8 (30.76%)	5 (19.23%)	5 (19.23%)	26
	20 ESNTs	14 (70.00%)	0	0	6 (30.00%)	20
D	26 ESTs	5 (19.23%)	8 (30.76%)	10 (38.46%)	3 (11.53%)	26
	20 ESNTs	14 (70.00%)	0	0	6 (30.00%)	20

The difference between ESTs and ESNTs seems to show in the number of comments on suprasegmentals, indicating the difficulties of their identification by ESNTs. As some problems were shared by the four speakers, TABLE 4 shows the common segmental problems among the speakers. They were all related to mother tongue interference. ESNTs noticed consonants /r/, / l /, /ð/ and / θ / as problems for all speakers while ESTs found only /r/ and / l / as problems for all four speakers, but /ð/ and / θ / for three. Regarding vowels, both ESTs and ESNTs equally pointed out /æ/, /i/, /I/ and /ʌ/.

TABLE 4. JAPANESE SPEAKERS' SHARED PERCEIVED DIFFICULTIES

Evaluators / Common problems	Noticed by ESTs		Noticed by ESNTs	
	Vowels	Consonants	Vowels	Consonants
Shared by all 4 speakers	None	/r/, /l/	None	/r/, /l/, /ð/,/ θ /, /n/
3 speakers	/æ/, /i/, /I/	/ð/, / θ /, /s/	None	None
2 speakers	/ʌ/	/z/	/i/, /I/, /æ/	/s/, /z/, /t/

When the segmental problems recognized by both ESTs and ESNTs were analyzed, some of them gave examples of words with pronunciation difficulties, as shown in TABLE 5, with problematic consonants and vowels underlined and bolded. These words indicate more precisely the location of the problem, such as the word ending or consonant cluster /nsp/ in the word medial position as in "transportation," providing data for what was noticed. It was interesting that the problems often include words that were loanwords in Japanese such as *accident, college, speech, and year.*

TABLE 5．DIFFICULT SEGMENTS AND EXAMPLES IN WORDS

Speakers	Evaluators	Examples of Consonants [No]	Examples of Vowels [No]
A	ESTs	*alcohol* [1]	*alcohol* [1]
	ESNTs	*alcohol* [2], final /s/ and/z/[2]	NONE
B	ESTs	*transportation* [1]	*bad* [2], *bus* [2]
	ESNTs	*manners and opinions* [3] *students* [5] *opinions* [5] *transportation* [5] *inconvenienced* [5]	*bad* [1]
C	ESTs	*burn* [2], *disfigured* [1]	
	ESNTs	*accident* [5], *transplant* [4]. *accident* [2], *transplant* [1] plural and third person *s* [3]	*accident* [3],
D	ESTs	*see* [1], *she* [1], *year* [1] as opposed to *ear* final consonants such as /t/ and /d/ [1]	*hat* [1], not *hut* [1] *lack* [1], *book* [2], *six* [1], *research* [2] & *personal* [2]
	ESNTs	knowledge [2], *college* [2], *experienced* [1]& *honoured* [1], *he* [1]	*have* [1], *book* [1], *speech* [3] & *serious* [3],

TABLE 5 also shows that all in all ESTs tended to give examples of problems with both consonants and vowels for the four speakers, while ESNTs were only able to recognize few problems with vowels when the speakers' intelligibility was low. However, when comprehensibility scores were higher, ESNTs were more likely to notice problems on consonants than ESTs, but often they were mainly less heavily functionally loaded, such as the lack of plural and third person /s/, and past tense marker /ed/.

Of the four speakers, the least comprehensible one, Speaker A, was found to have received the fewest comments from both ESTs and ESNTs. Only 2 ESTs and 2 ESNTs raised a problem with *alcohol*, a Japanese loanword that Speaker A used, and 2 ESNTs noticed a lack of past and plural /s/ and /z/. It seems that for most of the listeners, regardless of their experience of dealing with Japanese learners, **alcohol* was hardly recognized, although, as shown in TABLE 4, */l/* was identified as a common problem for all the speakers. By acquiring a Japanized pronunciation, this word presents segmental and suprasegmantal difficulties in English, for example a segmental problem of */l/* – a dark */l/*, a vowel /o/ in */hol/* – and a consonant cluster */alc/* with four morae of /aru-co-o-ru/ instead of three syllables, as in /al-co-hol/. The very low comprehensibility scores seemed to be related to this combination of multiple segmental and suprasegmental changes.

TABLE 6 shows the comments on suprasegmentals, presenting ESNTs with difficulties in commenting on suprasegmentals.

TABLE 6. EXAMPLES OF SUPRASEGMENTALS

Speaker	Evaluators	Comments on suprasegmentals				
		Word stress	Sentence Stress/rhythm	Intonation/ pitch	syllables	linking
A	26 EST	8 (30.76%)	8 (30.76%)	3 (11.53%)	1 (3.80%)	2 (7.69%)
	20 ESNT	2 (10.00%)	3 (15.00%)	3 (15.00%)	5 (25.00%)	0
B	26 EST	7 (26.92%)	11 (42.30%)	8 (30.76%)	0	7 (26.92%)
	20 ESNT	7 (35.00%)	4 (20.00%)	9 (45.00%)	2 (10.00%)	0
C	26 EST	4 (15.40%)	4 (15.40%)	7 (26.92%)	0	1 (3.80%)
	20 ESNT	0	2 (10.00%)	0	0	0
D	26 EST	4 (15.40%)	8 (30.76%)	2 (7.69%)	0	3 (11.50%)

ESTs tended to comment on suprasegmentals at a discourse level, such as sentence stress and intonation, while ESNTs were more likely to comment on word stress. However, it was interesting that one ESNT commented on Speaker D's English as follows: "very good intonation and rhythm really aids listener in understanding." Suprasegmentals seem to help the identification of segmentals.

Because the identification of some words is more important than other words to understand the oral delivery (Munro & Derwing, 2006), the scripts of the delivered speeches shown in the following boxes were analyzed together as was the case in the study by Warren, Elgort and Crabbe (2009). While underlined segments show segmental difficulties, the words in **bold** font present those that were commented as suprasegmental problems. For Speaker A, the main issue seemed to be related to the fact that *alcohol* had a heavy function load as it was one of the key words, and he did not give any examples to explain *alcohol*, such as *Japanese sake*.

His speech also included difficult words for his proficiency level, such as *binge drinking* and *hospital episodes*. It looks as though he was using language he was not familiar with. Furthermore, he did not seem to be aware of the difficulty of pronouncing multisyllabic words, such as moderately, unfortunately, and

hospitalizations, all of which involve the problem of /*l*/. His comprehensibility difficulties seem to come from not only his pronunciation but his word choice and the use of language to compensate for his difficulties.

Speaker A

Will you continue? (123 words)

Today alcohol is widely used and enjoyed and for many of us it forms a part of an enjoyable lifestyle. And so many young people are inclined to drink. We, college students drink with our club or friends. Some drink moderately but unfortunately others drink very much and begin to suffer the effects of the binge drinking. The result of binge drinking is alcohol poisoning. Recent evidence has confirmed that alcohol has potential to cause much harm and it is a cause of drug-related deaths and hospitalizations, counting about 113 death form 1986 to 2002 and 14,000 hospital episodes in metropolitan area in 2001. Almost of this number is college students. So I'd like to talk about scene of drinking of college students.

Speaker B also seemed to have various types of problems. Two ESNTs stated that Speaker B sounded as if she was speaking Japanese with English words. They described segmental problems such as consonants /ð/, / *θ* /, /r/, /l/, /s/, /z/, and /n/, and suprasegmental problems such as Japanese mora-based rhythm. Nevertheless, both ESTs and ESNTs did understand about 50 percent of what she said, as opposed to only 25 percent comprehensibility for Speaker A. The script of her speech shows that she used only few multisyllabic and difficult words, unlike Speaker A. In terms of mother tongue interference, Speaker B had a serious problem pronouncing the consonant /s/ and the vowel /i/, causing a difficulty with pronouncing *seat* in English. *Seat* is another Japanese loanword, and its pronunciation is close to *sheet*. Again only one EST pointed out this problem, indicating that few evaluators may have identified this word.

However, the functional load of *seat* was not so heavy as the key word was *bus*, a word which Speaker B repeated eight times below, creating a contrast such as *by train and bus* to improve comprehensibility. Also one of the other ESNTs made a comment that, as she spoke slowly with pauses after her words, her English was easier to understand than that of Speaker A. Her choice of words and her strategy to clarify the meaning seemed to pay off.

Speaker B

Good manners on buses (189 words)

Have you ever taken a bus? Maybe, almost all people would answer yes. In my case, I go to school by train and bus everyday. But recently, I feel uneasy when I take a bus because of the bad manners many people display on buses. So today, I would like to talk about this. And I would also like to make some suggestions.

In my opinion, using cellular phones, talking loudly, eating or drinking on buses are not good manners. Moreover, how to wait for a bus is also a problem. Many people don't stand in a line waiting for the bus, and causes some troubles. Two of them are especially serious. There are people who come early and wait for rather a long time, and yet, they sometimes cannot get a seat or ever get on the bus. That's because those who come later make it hard to get on, because they crowd at the door of the bus. The result of this is obstruction and so inconvenient on the transportation. We must stand in a line in over to get on the bus and get a seat

Speaker C was scored best by ESNTs but second best by ESTs. Her speech was emotionally charged to support the term *facial transplant*. She was able to keep up some fluency until she struggled to remember the lines in the middle of her talk. She also had a similar problem to Speaker A in that she needed to pronounce difficult words, that is, multisyllablic words with consonant clusters, such as *disfigured* and *transplants*. *Transplants* was a key word. She also had two loanwords, one from Latin/Italian, *scenario* and the other from English, *accident*, as important words in her talk. Compared to a few evaluators pointing out Speaker A's problem of pronouncing *alcohol*. many of the ESTs and ESNTs described pronunciation problems of Speaker C such as *consonant clusters*, and /i/ and /æ/ in *accident*, *transplants*, and *disfigured*. Identification of the problems seem to indicate the recognition of the words because her comprehensibility scores were much higher than those of Speaker A. Very few listeners pointed out Speaker A's problems, which seems to be related to suprasegmental difference between the two.

Another significant difference between Speakers A and C was that most of the perceived problems of Speaker C were to do with segmentals, while those of Speaker A came from both segmentals and suprasegmentals. The combination of segmental and suprasegmental problems seems to make word recognition more difficult.

Speaker C

Living our own life. (137 words)

Today surgeons in some countries: America, the Netherlands and England, are preparing to carry out full-face transplants for patients who are seriously disfigured. So I will discuss facial transplants.

You may think it doesn't concern you, but if you have a traffic accident or burn your face, what would you do? Please imagine this scenario. Do you have the courage to live life with unsightly scars on your face? If someone in your family, your boyfriend or girlfriend or just somebody you care about is disfigured by cancer, burns, or accidents, can you bear the situation?

I have seen a picture. The picture shows a woman. But all of her face was melted and dirty. I was terribly shocked at it. She was a victim of an atomic bomb. So I personally will support such facial transplants.

Speaker D was rated best of the four speakers by the ESTs, but second best by the ESNTs. Both pointed out more problems with consonants and vowels for C and D than for A and B. *Serious* being a loanword, /s/ can cause some interference but it was not a key word in her talk. She used neither long words nor loanwords from English with difficult pronunciation. Compared to Speaker C, Speaker D seemed to have fewer pronunciation problems. Furthermore, as she was a third-year student with some experience of public speaking, her suprasegmentals received positive comments from teachers as shown before.

Speaker D

Proof of intellect (162 words)

In the world, there are many ways to gain knowledge. And in a civilized country like ours, Japan, reading is considered to be one of the most important ways. As we have all experienced, parents and teachers encourage youth to read books. When a child can prove to read well, he or she is highly respected and honored. This message of "reading is good" should be carried on for years. But, recently, people are losing interest in reading. For example, how many of you read a book such as a novel, last month? According to a personal survey I did on college students, many of them said that they haven't read any books for months. It seems as though interest in reading has been decreasing. I believe this is a serious problem all over Japan. Today, I'd like to discuss what might results from our lack of interest in reading. Lack of interest in reading can lead to serious damage for us.

4．3．Advice to the four Japanese speakers

ESTs and ESNTs were then asked for their advice as to how students could improve their pronunciation. Their advice was categorized according to (1) segmentals; (2) suprasegmentals; and (3) both segmentals and suprasegmentals. When it was not possible to categorize into segmentals and suprasegmentals, such as "get used to English sounds," they were put under the heading of "others," as shown in TABLE 7. The results seem to reflect their listening difficulties shown in TABLE 3 . ESTs tended to point out both segmentals and suprasegmentals, while some of the ESNTs suggested mainly segmentals. As can be expected, most of the ESNTs seemed to find it difficult to provide any advice on improving pronunciation. Instead, ESNTs tended to provide comments about their perception of the speed of delivery. Thus, they tended to give advice like *speak slowly*.

TABLE 7．TYPES OF ADVICE TO IMPROVE PRONUNCIATION

Speaker	Evaluators	*Type of advice relating to			
		Segmental	Supra-segmental	Segmental & suprasegmental	Others such as speak slowly, clearly
A	26 EST	6 (23.10%)	8 (30.76%)	11 (42.30%)	1 (3.80%)
	20 ESNT	7 (35.00%)	1 (5.00%)	0	12 (60.00%)
B	26 EST	1 (3.80%)	13 (50.00%)	9 (34.61%)	2 (7.69%)
	20 ESNT	4 (20.00%)	8 (40.00%)	1 (5.00%)	7 (35.00%)
C	26 EST	6 (23.10%)	9 (34.61%)	9 (34.61%)	1 (3.80%)
	20 ESNT	9 (45.00%)	3 (15.00%)	1 (5.00%)	7 (35.00%)
D	26 EST	3 (11.53%)	1 (3.80%)	10 (38.50%)	1 (3.80%)
	20 ESNT	6 (30.00%)	3 (15.00%)	1 (5.00%)	10 (50.00%)

However, their perception of speed did not seem to correspond with the actual speed of their delivery. TABLE 8 shows the number of ESNTs who advised *speak slowly*, and the number of words employed by Speakers A, B, C, and D in their speeches. Speaker A obtained most comments but according to TABLE 8, the impression of being a fast speaker seems to be due to pronunciation problems.

TABLE 8．ADVICE ABOUT SPEED

ESNT's non-linguistic advice	Speak slowly	Number of words in about 2:00 minutes
Speaker A	7	123
Speaker B	2	187
Speaker C	2	137
Speaker D	2	162

5．Discussion

This study aimed to tease out the pronunciation difficulties in the comprehension of four Japanese learners' individually made and memorized speeches by 26 English-speaking teachers (ESTs) and 20 English-speaking non-teachers (ESNTs). It also attempted to identify learners' linguistic devices to ease these difficulties.

It was found that comprehensibility was related to the identification of words. As the fewest problems of pronouncing English words were identified in the least comprehensible speaker by both ESTs and ESNTs, the lack of identification of difficulties indicates that the listeners were less likely to understand the speech itself. This presented two types of problems in understanding learners' speeches: One is the recognition of pronunciation difficulties of key words and the other is the identification of these words at all, which considerably lowers comprehensibility.

The examples of the former difficulty were consonants and consonant clusters in words identified by both ESTs and ESNTs. Indeed, as was hypothesized by Major's Ontogeny Phylogeny Model (2001, 2008), the most noticeable problem raised by ESTs and ESNTs was the speakers' mother tongue interference from consonants such as /r/ and /l/. The latter was found in the difficulty of identifying words *such as knowledge*, *alcohol*, which combined the problem of segmentals and suprasegmentals. In earlier studies, a lack of stress on the right syllable was found to decrease intelligibility (Field, 2005; Hahn, 2004).

This study shows that when both segmental and suprasegmental difficulties were involved in pronouncing a word, few ESTs and ESNTs recognized it. It has been argued that the acquisition of segmentals would be necessary for the accuracy of pronunciation (Anderson-Hsieh, Johnson & Koehler, 1992), while suprasegmentals were shown to help with the comprehensibility of learners' speech (e.g., Derwing & Rossiter, 2003; Field, 2005; Hahn, 2004; Kang et al., 2010). This study shows word recognition is crucial for comprehensibility, and thus classroom attention needs to pay attention to both segmental and suprasegmental features of words. The emphasis on both

segmentals and suprasegmentals seems particularly crucial to heavily functionally loaded words, as was shown by Munro & Derwing (2006). For this, Japanese learners of English may need some guidance on the difference between a mora and a syllable, which would lead to raising the comprehensibility of their speeches.

This study also shows how a speaker with a heavy pronunciation problem benefitted by using pauses after words or sentences. Tajima, Port and Dalby (1997) showed that temporal features, such as pauses and speech rate, influenced speech comprehensibility. Although breaking up the flow of speech may affect fluency influencing the evaluation of proficiency scores (Duijm, Schoonen & Hulstijn 2017), its use by lower level proficiency learners seems to help comprehensibility. According to comments from most of the ESNTs, the reason for higher scores for Speaker B as opposed to Speaker A seemed to be related to her pauses. They were at least able to identify the meaningful chunks, which aided comprehensibility. The analysis of the transcript also shows that providing a contrast or examples can help the listener to identify a potentially problematic word as Speaker B did such as *bus* versus *train* when *bus* has some pronunciation problems. By the same token, although Speaker A used *drink* to imply *alcohol*, it would be easier to guess the meaning if he had provided *beer* or *sake* as examples. As can be expected, some differences emerged between ESTs and ESNTs. First, although both noticed the irregularities of similar consonants, ESNTs were less aware of the speakers' problems with vowels when their speech comprehensibility was low. Thus, consonants problems were noticed earlier than those with vowels. In this sense, to aid comprehensibility, it seems useful to focus on learning consonants prior to vowels, which supports the idea of adopting mainly consonants in the lingua franca core (Jenkins, 2000). Second, ESTs tended to comment on both segmentals and suprasegmentals for discourse level problems while ESNTs gave comments mainly on segmental problems. Furthermore, although some ESNTs commented on suprasegmentals, they mostly referred to word stress. Obviously it was difficult to identify suprasegmental problems when listeners were not familiar with non-English speakers' English. Indeed, ESNTs' comments seemed to reflect the finding that native speakers tend to focus on segmentals when listening to English sounds (Riney et al., 2005). Furthermore, as regards the overwhelming difficulty of understanding the least comprehensible speaker's English, speed seemed to have been wrongly perceived as the cause of their problem.

The third difference appeared in the comprehensibility ratings of Speakers C and D. While Speaker C argued for a rather emotionally charged topic, the importance of *facial transplants*, Speaker D had a more mundane topic, *the importance of reading*. It

was interesting that although Speaker C lost her fluency in the middle of her talk, the ESNTs overall still gave higher comprehensibility ratings to her than to Speaker D. It can be said that ESNTs seemed to be somewhat influenced by her choice of topic and her emotionally charged presentation. Obviously the audience listen to the content rather than linguistic accuracy in real life.

The fourth difference was that the ESNTs paid more attention to the lack of less functionally loaded segments, such as the past and plural markers. This result may indicate some direction in the teaching of pronunciation. Inaccuracy of less functionally loaded words may not disturb the comprehensibility of the message. However, lack of accuracy may have some social implication as it is related to the membership in the speech community, which leads to the next issue here.

Finally this study raised the question of teaching a sound that is not included in the lingua franca core (Jenkins, 2000) because it does not hinder communication, that is, about the teaching of the dental fricative consonants /ð/ and /θ/. Because the majority of ESTs and ESNTs pointed these out as one of the problems, they seemed to be most noticeable and can be a marker for outsiders. Learning this sound might help empower non-native speakers from a social psychological perspective, in particular when there are English native speakers or very proficient English speakers in the audience.

6．Conclusion and Teaching implications

This study analyzed pronunciation problems for comprehensibility of a small number of Japanese speakers' speeches in English. Although a further study would be necessary to confirm the findings, the results showed some implications for teaching English pronunciation. First, learners should pay attention to the pronunciation of not only segmental but also suprasegmental features at a word level, in particular to the number of syllables which helps in the identification of words. Second, although giving accurate and fluent speeches can be ideal, it seems useful to employ a strategic approach to ease the learners' difficulty. For example, although adding a pause may disrupt fluency, it may help the identification of a word. Also, the identification of key words being crucial, learners can use contrasting words or examples to clarify the meaning. To teach pronunciation, classrooms should also provide compensatory strategies for pronunciation problems.

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Notes:

*The Oxford English dictionary states that a stress-timed language is characterized by a rhythm in which primary stresses occur at roughly equal intervals, irrespective of the number of unstressed syllables in between: retrieved from https://en.oxforddictionaries.com/definition/us/stress-timed

*Alcohol:1540s (early 15c. as alcofol), "fine powder produced by sublimation," from Medieval Latin alcohol "powdered ore of antimony," from Arabic al-kuhul "kohl," the fine metallic powder used to darken the eyelids, from kahala "to stain, paint." The al- is the Arabic definite article, "the."online tymology dictionary http://www.etymonline.com/index.php

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Appendix 1

Evaluation sheet

English native speakers' evaluation of Japanese learners' English

To teachers

Your teaching experience with Japanese students:

Evaluation

You are going to listen to six Japanese students delivering speeches in English.
Please evaluate the comprehensibility of the speeches according to the following five-point scale:

１．Comprehensibility

5 points: 100% comprehensible; non-native but fully functional and easy to understand
4 points: 75% comprehensible; non-native but functional and understandable
3 points: 50% comprehensible; understandable but with some difficulty
2 points: 25% comprehensible; you can only understand some parts of what has been said.
1 point: 0% comprehensible; you cannot understand what has been said.

The first time: Comprehensibility

Speakers	Speaker A	Speaker B	Speaker C	Speaker D
Comprehensibility scores				

２．Pronunciation

You are going to listen to the same speech again. This time, pay attention to their pronunciation. What do you think are the most serious problems in terms of making their speeches intelligible?

The second time: Pronunciation

Name	Comments on the pronunciation in relation to comprehensibility
Speaker A	
Speaker B	
Speaker C	
Speaker D	

3．Advice

Please provide advice as to how these speakers can make their speeches more comprehensible.

Name	Advice
Speaker A	
Speaker B	
Speaker C	
Speaker D	

To Non-teachers

Your information

1．Do you know foreign students whose mother tongue is not English?

Yes　　No

2．Do they include Japanese students?

Yes　　No

3．Can you tell Japanese students from other Asian students by their English?

Yes,　　Sometimes,　　No

Evaluation

You are going to listen to four Japanese students delivering speeches in English.
Please evaluate the comprensibility of the speeches according to the following five-point scale:

1．Comprehensibility

5 points: 100% comprehensible; non-native but fully functional and easy to understand
4 points: 75% comprehensible; non-native but functional and understandable
3 points: 50% comprehensible; understandable but with some difficulty
2 points: 25% comprehensible; you can only understand some parts of what has been said.
1 point: 0% comprehensible; you cannot understand what has been said.

The first time: Comprehensibility

Speakers	Speaker A	Speaker B	Speaker C	Speaker D
Comprehensibility scores				

2．Pronunciation

You are going to listen to the same speech again. This time, pay attention to their pronunciation. What do you think are the most serious problem in terms of making their speech comprehensible?

The second time: Pronunciation

Name	Comments on the pronunciation in relation to comprehensibility
Speaker A	
Speaker B	
Speaker C	
Speaker D	

３．Advice

Please provide advice as to how these speakers can make their speeches more comprehensible.

Name	Advice
Speaker A	
Speaker B	
Speaker C	
Speaker D	