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Accent and speech rate effects in English as a lingua franca



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ABSTRACT

The study examines whether a slower speech rate enhances listening comprehension of unfamiliar English varieties. The participants were 179 Japanese university students studying English as a foreign language in Japan. Speech samples elicited from a variety of fluent English speakers were digitally recorded. In our first experiment, we determined that a less familiar accent (Indian English) was more difficult for these students to comprehend than a more familiar North American English accent. In the second experiment, Japanese participants heard the samples first at the original speech rate and then, several weeks later, at a reduced rate. When listening to the most heavily accented speaker, participants, irrespective of their proficiency, achieved significantly higher mean comprehension scores with the slowed speech rate. However, no significant speech rate effect was observed for the less heavily accented samples. The results of the study will contribute to pedagogical developments in teaching English as a Lingua Franca (ELF).

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1. Introduction

Although linguistic diversity of English has been recognized by scholars and educators, most textbooks, standardized tests, and local classroom practices need to keep pace (Canagarajah, 1999; Matsuda, 2009; McKenzie, 2013; Seidlhofer, 2011; Shin, Eslami, & Chen, 2011). Individual educators, however, are beginning to raise students' awareness of English varieties, develop strategies for communicating in English with speakers of other varieties, and offer models of what different varieties sound like while showing how lexical or syntactic patterning can also vary (Jenkins, 2006, 2009; Murata & Jenkins, 2009). Yet how to teach English from such a pluralistic perspective in order to ensure comprehensibility among such diverse speakers is only just being explored.

Linguistic features which appear to be relevant to perceived accentedness include segmentals, prosody (supra-segmentals), syllable structure, voice quality (Anderson-Hsieh, Johnson, & Koehler, 1992), and extended discourse (Major, Fitzmaurice, Bunta, & Balasubramanian, 2002, 2005). In research pertaining to second language learner academic listening, Flowerdew (1994) noted two major input variables: accent and speech rate. In the present study, we address two second language listener variables important to comprehensibility for our learners in Japan: perception of accentedness and rates of speech (actual and modified). We believe that Japanese learners' perceptions and performance in relation to listening

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comprehension of various accents in English have the potential to inform both comprehensibility studies and teaching practices in other countries as well.

In Japan, English has been taught and assessed as a foreign language with native-speaker only models (Yano, 2011) most often with American and, to a much lesser extent, British Englishes (Hu, 2012). Other English varieties may prove more difficult for the Japanese university student to comprehend in instruction or assessments. However, since Japanese students may encounter different varieties of English in their future careers or continuing education, the educational reform in Japan has indicated a need to incorporate different varieties of English rather than depend upon an essentially US-only variety (Matsuda, 2009; McKenzie, 2013).

Kachru's (1992) model of Inner, Outer, and Expanding Circles provides a useful framework for classifying the Englishes of countries worldwide. This model places Japan, where English is neither an official nor auxiliary language, in the Expanding Circle. Researchers in ELF have noted that large-scale tests of English have had a focus on Inner Circle English varieties, specifically American and British (Bruthiaux, 2010; Harding, 2012; Hu, 2012; Jenkins, 2006, 2007; Khan, 2009). Applying native speaker accents and standards for the interpretation of error in testing has had a washback effect in that classroom materials and practices with a focus on Inner Circle varieties of English are used to the exclusion of others (Jenkins, 2006; Matsuda, 2009).

Authenticity in assessment, in which tests mirror real-life language usage, including the use of different varieties of English, has been studied in terms of equality of access to all learners and is increasingly being incorporated into large-scale assessments. Hu (2012) reported that the International English Language Testing System (IELTS) uses readings and listening texts from a variety of Inner Circle speakers, and adds non-native speakers as examiners for both oral and written tests. Harding (2012) found that the Test of English as a Foreign Language internet-based (TOEFL iBT) and IELTS both use a range of accents in the listening sections of the tests, although on the TOEFL iBT, this is limited to the mini lecture sections. The Test of English for International Communication (TOEIC) has been used in Japan, Korea and other countries to assess general language proficiency for employment purposes, including the ability to communicate about daily life and basic job duties (Stoyhoff & Chapelle, 2005). The listening section of the current TOEIC, implemented in 2006, includes varieties of Inner Circle English, while the original version had employed American English only.

A range of studies of listening comprehension have examined diverse varieties of English, and have assessed both perceived and actual effects on comprehension in order to avoid any test bias based on participants' native languages (Harding, 2012). Perceived accentedness may differ depending on the listener's native language (Munro & Derwing, 1995) or the listener's prior linguistic experience and general English proficiency (Gass & Varonis, 1984). Accentedness of non-native speakers of English may be judged severely despite high comprehension rates on the part of native speaking listeners (Anderson-Hsieh et al., 1992; Derwing & Munro, 1997; Munro & Derwing, 1995, 1998) and non-native listeners alike (Munro & Derwing, 2001).

The effects of non-native accents on comprehension by native and non-native speaking listeners have been studied by Major et al. (2002). Listeners from a variety of L1 backgrounds listened to TOEFL style lectures by speakers with several accents. Findings revealed that while Spanish speakers performed well when listening to other Spanish speakers, the same was not true for the Chinese listeners, who scored significantly lower when listening to speakers of their own first language speaking in English. The researchers speculated that similarities in prosody may have resulted in better comprehension even when accents were perceived as strong.

Speech rate assumed to facilitate or impede listener understanding of English has been examined by a number of researchers (Derwing & Munro, 2001; Griffiths, 1990; Munro & Derwing, 2001; Zhao, 1997). Flowerdew (1994) noted that somewhat slowed rates may facilitate both native and non-native speakers' understanding, although production that is too slow may actually be detrimental to comprehension. Evidence from research on speech rate is so far inconclusive.

Some research has shown that, when non-native speakers listened to speech samples from English native speakers, a slowing of speech rates elicited positive results. Griffiths (1990) varied speech rates with listeners of lower-intermediate levels of English responding to true-false comprehension questions. Results indicated a significant difference between the scores at fast and slow rates; however, the difference between the average and slowed condition was not significant. Zhao (1997) found that listening comprehension improved when L2 learners were able to control the speech rate of the recording. Native speaker listeners appear to be more sensitive to heavy L1 accents than to rates of delivery. Anderson-Hsieh and Koehler (1988) investigated native speaking listeners' understanding of various native and non-native speakers. The results of comprehension tests and scalar judgments of rate indicated that the native speaker of American English scored highest, as expected, and the listeners' scores for all speakers at the natural rate of speech were higher than those at an increased rate. Understandably, the comprehension of faster speech from the most heavily accented non-native speaker was significantly lower-rated.

Munro and Derwing (1998) surveyed how slowing the speech rate of Mandarin speakers of English can affect comprehension of native speaker listeners. Results indicated that the Mandarin speakers were generally judged to be less comprehensible and more accented when they slowed down, with their conscious efforts to slow down creating intonation problems which may have annoyed listeners. In a subsequent study, Munro and Derwing (2001) found a positive effect on both comprehension and accentedness with native speaker listeners when non-native speech was sped up; however, they also detected that there was "a point beyond which an increase in rate is detrimental" (p. 464), concluding that the relationship between speech rate and judgments of comprehensibility is curvilinear.

In a similar study by Derwing and Munro (2001), the slowed English speech of Mandarin speakers was not preferred by native English or native Mandarin listeners. A group of other non-native listeners, however, preferred a slowed Mandarin rate even to that of native English speakers. Yet this same group did perceive the rate of the slowest Mandarin speakers to be too

slow. The researchers concluded that a difference in processing costs for familiar and unfamiliar accents may affect preferred speech rates among non-native listeners.

As each of these studies indicates, the question of whether speech rate alone produces a significant effect on comprehension presents a challenge for researchers. The language backgrounds of speakers and listeners, the proficiency levels of listeners, and accent familiarity may affect results. In the present study, we first examine accent familiarity effects on Japanese learners' listening comprehension, and then effects of speech rates in unfamiliar English.

2. Experiment on accent familiarity

2.1. Research question

The first research question was whether English spoken in unfamiliar accents is more difficult for Japanese learners of English to comprehend than English in a familiar accent. In order to investigate this, we had tertiary level Japanese students complete listening comprehension tests that had been recorded in both familiar and unfamiliar English accents, and then had the students evaluate speech samples in terms of comprehensibility, accentedness, and speech rates.

2.2. Methods

2.2.1. Survey form

Fifteen listening comprehension test items were used to assess Japanese listeners' comprehension and their perceptions of accentedness and speech rate. All of these items were adopted from the Official TOEIC Bridge Guide Book (ETS, 2007) and the Official TOEIC Bridge Workbook (ETS, 2008). We employed monologue-type listening items from the several different types of listening tests in the TOEIC Bridge. Each item included a reading passage read by a single speaker, followed by a multiple-choice question. Examples of prompts were airport announcements, radio newscasts, and product advertisements. Each passage was fairly short, consisting of two to four sentences, and the vocabulary and sentence structures were basic. Participants would not have had difficulty understanding the meaning of prompts had they been given written scripts.

Three statements were also prepared to assess listener perceptions of comprehensibility, accentedness, and speech rate: "It is easy to understand this speaker," "This speaking accent is unfamiliar to me," and "This speaker's English is fast." These statements were followed by seven options: "strongly agree," "agree," "agree somewhat," "neutral (cannot decide)," "disagree somewhat," "disagree," and "strongly disagree." The "strongly agree" option was given a score of 1, with the "strongly disagree" a score of 7.

The survey also elicited information about participants' age, gender, major, and linguistic background.

2.2.2. Audio files

In order to select unfamiliar English accents, we recruited ten Outer Circle English speakers, all of whom were graduate students studying in the U.S., and asked them to read the passages prepared for the listening comprehension test. Since the English proficiency and accents of these Outer Circle speakers appeared to vary considerably, we decided to select a speaker who is fluent in English (fluency) and yet speaks with an accent unfamiliar to Japanese students (accentedness). For the measurement of these two criteria, two statements were created: "This speaker's accent is different from North American English accent" and "This speaker read the passages fluently." Each statement was followed by a seven-point rating scale, ranging from "strongly agree" (with a score of 1) to "strongly disagree" (with a score of 7). After tallying the accentedness and fluency ratings from four evaluators (two native English-speaking instructors and two native Japanese-speaking English instructors), we selected a male from India as the most-accented and yet fluent speaker of English. At the time of the survey, this speaker was in his early 30s and had been in the U.S. for three years, with Hindi as his native language and English as his second language.

A male in his early 40s from Canada was also asked to provide a voice recording. We believed his North American English accent would be familiar to the vast majority of Japanese students.

These two speakers read 15 reading passages for the listening test, and the speech samples were recorded digitally so the investigators could edit them with the sound editing software DigiOnSound 5 (2005). Unnecessary speech fragments such as false starts, mumbles, and interjections were eliminated, and the response time for each question was set at 10 seconds, as in the official TOEIC Bridge procedure.

2.2.3. Listeners

Seventy-five Japanese students, 40 males and 35 females, participated as listeners. They were recruited from two different universities, one in the Tokyo metropolitan area and the other in Northeastern Japan. All students had experienced studying English for at least six years at school as a mandatory subject. At the time of the survey, they were taking an English language course at university, though their majors varied. Their ages ranged from 19 to 22 with a mean of 20.74. We asked them to complete the listening comprehension tests recorded by the Indian and Canadian English speakers.

2.2.4. Procedure

In order to reduce any possible order effects, the Japanese listeners were divided into two groups (Group A and Group B), and took the same test at two data collection sessions. Students in Group A ($n = 37$) took the listening test read by the Indian

English speaker, and responded to the statements in relation to comprehensibility, accentedness, and speech rates. Several weeks later, this same group of students took the same test read by the Canadian English speaker. Conversely, Group B students ($n = 38$) took the test read by the Canadian English speaker first, and reacted to the statements in order for us to assess perceived comprehensibility, accentedness, and speech rates. They then took the test read by the Indian English speaker.

2.3. Results

The research question was whether English spoken with an accent less familiar to students is less comprehensible. The listening comprehension test scores of Group A and Group B were compared to determine whether non-familiarity with the Indian accent influenced student performance on listening tests. While both groups perceived the two speakers as having similar speech rates, their mean listening comprehension test scores were higher for the Canadian English speaker than for the Indian English speaker (Table 1). The mean score in Group A for the Canadian English speaker was found to be significantly higher than that for the Indian English speaker ($t = 4.475$, $p < .001$). Group B also displayed a higher mean score for the Canadian English speaker, although no significant difference was found. At the perceptual level, both groups of listeners reported higher comprehensibility ratings for the Canadian English speaker. The mean for this speaker from Group A was significantly higher than that for the Indian English speaker ($t = -10.166$, $p < .001$), and the mean score on the Canadian English test from Group B was also significantly higher than that obtained with the Indian English speaker ($t = -10.423$, $p < .001$). It should be noted that both groups tended to perceive stronger accentedness in the Indian English ($t = 5.241$ for Group A, $t = 4.463$ for Group B, $p < .001$) although they perceived similar speech rates for these two speakers (i.e., no significant difference). These results suggest that a fluent English speaker with an unfamiliar accent is more likely to be difficult to understand, in terms of both *perceived* and *actual* listening comprehension.

3. Experiment on speech rate

3.1. Research question

The research question for the second experiment was whether slowed speech rates of less familiar English accents produce better listening comprehension in Japanese university students. We then examined whether listener proficiency influences performance when students listened to English with adjusted speech rates. Specifically, who would benefit more from slowed speech rates: higher proficiency listeners or lower proficiency listeners?

3.2. Methods

3.2.1. Survey form

A new listening comprehension test of 20 items was used to assess Japanese listeners' perceptions and overall comprehension. Twelve items were adopted from the Official TOEIC Bridge Guide Book (ETS, 2007) and the Official TOEIC Bridge Workbook (ETS, 2008), and eight were created by the investigators. As in the test used for the experiment on accentedness familiarity, all 20 items were monologues followed by multiple-choice questions.

The survey form also included three statements followed by seven options (1 = strongly agree to 7 = strongly disagree) to access listener perceptions of comprehensibility, accentedness, and speech rate. The statements were, "It is easy to understand this speaker," "This speaker's accent is unfamiliar to me," and "This speaker's English is fast." The survey also asked for information about participants' profiles, such as age, gender, major, and linguistic backgrounds.

3.2.2. Audio files

Among the ten Outer Circle English speakers initially recruited, four were selected for this second experiment based on accentedness and fluency levels (Table 2). In other words, these four speakers exhibited both stronger accents and fluency in English. The speaker selection procedure was the same as the one for the accentedness familiarity experiment, in which four evaluators assessed accentedness and fluency through two statements ("This speaker's accent is different from North American English accent," and "This speaker read the passages fluently") through a seven-point rating scale (1 = strongly agree to 7 = strongly disagree).

Two sets of audio files were prepared: one at the unmodified speech rate and another at the modified (slowed) rate. The speech rates of the original versions ranged from 135 w/m to 179 w/m (Table 3). The slowed versions were made by stretching

Table 1
Average scores of Canadian and Indian English speakers.

	Listening scores		Comprehensibility		Accentedness		Speech rate	
	CES (sd)	IES (sd)	CES (sd)	IES (sd)	CES (sd)	IES (sd)	CES (sd)	IES (sd)
Group A	10.95 (1.18)	9.70 (1.50)	2.73 (0.65)	5.27 (1.29)	4.89 (1.02)	3.11 (1.55)	3.86 (1.40)	3.59 (1.46)
Group B	11.68 (2.12)	11.29 (2.01)	2.45 (1.13)	5.82 (1.33)	4.92 (1.46)	2.95 (2.13)	4.79 (1.36)	5.00 (1.23)

Table 2
Backgrounds of the Outer Circle English speakers.

Country	Age	Gender	L1	Length in US
Kenya	26	M	Swahili	8 years
India	26	F	Bengali	2 years
Ghana	44	M	Akan	9 years
Sri Lanka	26	F	Sinhalese	1 year

the original in time by 20%. We selected a 20% expansion time in line with Anderson-Hsieh and Koehler's (1988) study, which had stretched original speech samples by about 25% and found adverse effects on native speaker comprehension of non-native English. In order to stretch the original version, we used the Panasonic Language Laboratory System, which allows oral recordings to be stretched or condensed by 10%, 20%, and 30% without modifying pitch or prosody. Since the entire recording was slowed, pausing and other characteristics of the voice stream were slowed at the same rate as the actual speech production. We then digitized the expanded voice recordings, adjusted the answering time for each comprehension question to 10 seconds, and eliminated unnecessary speech elements such as false starts and interjections. DigiOnSound 5 (2005) software was used for this process.

3.2.3. Listeners

A new group of 104 Japanese university-level students, 44 males and 57 females (with three unreported), participated in the study. All of these students are native Japanese speakers, taking at least one English language course at their university either in the Tokyo metropolitan area or in Northeast Japan. Their majors varied, and their ages ranged from 18 to 25 with a mean age of 19.07. These participants were of intermediate to advanced levels of English proficiency, as suggested by the TOEIC scores of 45 students who reported scores ranging from 480 to 895.

The 104 participants were divided into two groups, i.e., an experimental and a control group, and each group was asked to participate in two data collection sessions. Initially, more than 70 student volunteers from each group had participated in both data collection sessions. However, since the original listening comprehension test scores of the experimental group were higher than those of the control group (9.25 and 8.21, respectively), the investigators adjusted the group scores by eliminating participants until both groups achieved the same range (4–15), the same mode (8), and similar means (8.79 for the experimental and 8.83 for the control). This process left 52 participants in each of the groups, and the participants in the two groups were considered to have comparable English proficiency.

3.2.4. Procedure

Data were collected in two sessions. In the first, both experimental and control groups were given the original version of the 20-item listening comprehension test. Students listened to five reading passages recorded by the same speaker, and selected the best option for each. After listening to the first speaker and answering the first five questions, the test administrator stopped the CD, and students rated the speaker's comprehensibility, accentedness, and speech rate. Then they moved to the next speaker for the next five listening comprehension questions, which were followed by questions regarding comprehensibility, accentedness, and speech rate.

Several weeks later, a second round of data collection took place, in which the experimental group took the listening test delivered at slowed rates and the control group took the same test at original rates. Neither group was informed that they were given the same reading passages, questions, and options; nor were groups told whether the speech rates differed from those in their first round.

3.3. Results

Our research question was whether a reduced rate would make unfamiliar English easier for Japanese learners to understand. To determine this, a *t*-test was run between the two groups on their overall listening comprehension test scores from all four speakers combined. The means for the original unmodified version did not differ between the control group ($M = 8.83$, $sd = 2.87$) and the experimental group ($M = 8.79$, $sd = 2.75$) at a significance level of 0.05. Similarly, the modified speech rate did not significantly enhance the mean scores between the experimental group ($M = 9.40$, $sd = 3.75$) over that of the control group ($M = 10.00$, $sd = 3.37$). Thus, on the whole, a reduced speech rate did not necessarily enhance listener comprehension.

Table 3
Speech rates of the original versions.

Speakers	Rate of speech
Kenyan	147 w/m
Ghanaian	135 w/m
Indian	147 w/m
Sri Lankan	179 w/m

Table 4
Averages of accentedness ratings.

	<i>M</i>	<i>sd</i>
Experimental group		
Ghanaian	3.12	1.52
Kenyan	3.58	1.50
Sri Lankan	3.60	1.70
Indian	3.94	1.46
Control group		
Ghanaian	3.06	1.38
Kenyan	3.38	1.49
Sri Lankan	3.39	1.52
Indian	3.81	1.26

However, more detailed analyses of the data revealed that a reduced speech rate did increase comprehension with regard to the Ghanaian speaker. As shown in Table 4, both experimental and control groups perceived the accent of this speaker as the least familiar. The mean score for the slowed version of the listening prompts by this particular speaker was 2.25 ($sd = 1.22$) compared with that of the unmodified version of 1.79 ($sd = 1.11$). A *t*-test suggested that these were significantly different ($t = -2.127, p = .038$), indicating better performance with the slowed version. With regard to the other speakers, however, significant differences were not found between the modified and unmodified versions. It appears that a slowed speech rate had a positive effect on the comprehension of accented English perceived as least familiar.

We then examined our secondary research question: whether a slower speech rate would be more beneficial to higher or lower proficiency level learners. English proficiency here is not defined as traditional English proficiency, but in terms of one aspect of ELF proficiency – i.e., how well these students understand different varieties of spoken English. Listeners from the experimental group were divided into two proficiency groups based on their initial listening comprehension test scores on the unmodified test. The higher and lower proficiency groups consisted of 26 students each. We examined overall listening comprehension test scores (the mean scores for all four speakers), and found no significant group effect after running a *t*-test on the differences between the first and second round of listening scores. We then focused on the data regarding the Ghanaian speaker, the most heavily accented speaker. As with the overall scores, no significant effect was found between these proficiency-based groups. These results suggest that both higher and lower proficiency groups benefited equally from the reduced speech rate when listening to what they perceived as heavily accented English.

4. Discussion

4.1. Accent familiarity and speech rate

Our first study, i.e., the accent familiarity study, confirmed that an unfamiliar accent significantly reduced the participants' understanding of English. As Munro and Derwing (1995) note, English that listeners perceive as accented might necessitate more cognitive cost at the stage of processing. And the stronger the accent is perceived to be, the greater that cost may be, which seems to be the case here. The Indian English accent used in our first study was different from the pronunciation commonly used and heard in Japanese classrooms, and thus the unfamiliar accent had been predicted to result in lower comprehensibility than the familiar Canadian English accent. The accent familiarity study supported this, with listeners performing better on listening comprehension when the accent of the speaker was familiar.

One of the most important findings of our study is that a reduced speech rate had a facilitating effect on listeners' comprehension of a heavily accented speaker. Zhao (1997) found a positive effect of slowed speech rate on intermediate to advanced level learners' comprehension; we concur, having seen that slowed rates exerted a positive effect on listening comprehension for our intermediate to advanced level EFL students in listening to Outer Circle English. The results of our study also support the findings by Anderson-Hsieh and Koehler (1988), who indicated that speech rate was a critical factor in the comprehension of accented speech. They reported that an increase in speech rate resulted in decreased comprehension for the most heavily accented speaker. However, their study involved native English speakers as listeners, and the researchers had increased (not decreased) the speech rate, a method that differed greatly from ours. In order to confirm our findings, future study is needed with English learners of other nationalities (i.e., non-Japanese Expanding Circle speakers).

Our findings, on the other hand, appear to contradict the results of Derwing and Munro's (2001) study, which found that slowed non-native readings of passages were evaluated as less comprehensible by native English-speaking listeners. Yet contradictions between our study and that of Derwing and Munro's seem largely attributable to differences in the English proficiency of listeners, and to differences in English speaking environments. Their non-native listeners, who had scored at least 550 on the TOEFL, were all graduate students residing in Canada for 4.7 years on average, whereas our listeners were intermediate to advanced level EFL students studying in Japan. Compared to the listeners in our study, Derwing and Munro's listeners had much higher English proficiency and may be assumed to be far more accustomed to spoken English, probably of both native and non-native varieties, in everyday situations. Another point that needs to be considered with regard to

differences between our study and Derwing and Munro's is that of data collection. In our study, the extent of listener understanding was assessed via listening comprehension tests, while Derwing and Munro examined listeners' subjective evaluations on a rating scale. What both studies investigated was quite similar (i.e., effect of speech rate on comprehensibility), but what each study actually assessed was quite different. Our study focused on speech rate that improved listening comprehension test scores, while theirs centered on rates at which listeners felt they better comprehended English input.

4.2. Pedagogical implications

The results of our study present important implications for pedagogy. For example, different varieties of English could be incorporated into teaching materials, and activities employing different accents could assist students in gaining confidence in listening to and using ELF. Thanks to technological developments, many EFL learners today have opportunities to listen to and even watch news reports and lectures from other parts of the world. Authentic listening texts such as these delivered in English may sound accented and too fast for learners of English. But since proficiencies, perceptions of accentedness, and speech rate differ from person to person, such learners might better comprehend unfamiliar English accents if they themselves could adjust speech rates. In class, adjustments might be made through a Computer Assisted Language Learning (CALL) system, for example. In this way, teachers could provide authentic listening classroom exercises. Outside class, students could be encouraged to make use of modern media playing devices that allow users not only to pause recordings of what may be unfamiliar English varieties, but also to reduce playback rates to enhance comprehension.

When students encounter a live interlocutor whose accent is unfamiliar and is perceived as strong enough to cause interference in comprehensibility, a common strategy is to ask the speaker to slow down. This popular and intuitive strategy might work for any level of learner engaging in ELF communication, as is suggested by our results. However, simply asking a speaker to slow down may have detrimental effects on comprehension as [Munro and Derwing \(1995, 1998, 2001\)](#) demonstrated, so requesting rate modification should be taught as only one of many pragmatic strategies.

4.3. Limitations

The study has several limitations in addition to the obvious one of having been conducted with Japanese learners only. For example, it may be argued that, in the first place, asking a speaker to slow down is not the same as slowing down the speech rate of a recording. Chief among other limitations to our experiments is the use of the same listening stimuli twice, by which the participants may have familiarized themselves with the content in the first round of listening, remembering parts or all of it in their second attempt. Although the two events were spaced several weeks apart, we cannot rule out the possibility of participants' having recalled information that may have influenced their responses the second time around. Such recall effects, however, would assumedly be spread across listening questions from all speakers employed, across listening tests given in any sequence, and across all student listening groups.

Another limitation can be found in the preset number of listening comprehension questions assigned to participants and the resulting limit in exposure to each speaker. In the accent familiarity experiment, student participants listened to 15 English passages and answered only 15 listening comprehension questions, and in the speaking rate experiment, they had 20 passages followed by 20 questions. Different types of data elicitation are worthy of further research, such as dictation or transcription tasks with exact word-match scoring ([Munro & Derwing, 1995](#); [Munro, Derwing, & Morton, 2006](#)). These may prove particularly valuable, as [Tarone \(1985\)](#) has suggested that task type also affects comprehensibility.

The number of speakers and range of English varieties were limited as well, and therefore, future research should expand the variety of listening input. Further, all speaker participants were residing in the U.S., and it is probable that their English was influenced by American English through a process known as dialect leveling, "the ways in which dialects lose distinctiveness when speakers come in contact with speakers of other dialects" ([Johnstone, 2010](#), p. 387). This may explain why the Japanese participants did not perceive these speakers' accents as "very strong" as noted in their accentedness ratings. A wider range of accented English from different localities should be employed in future studies to include native English varieties that are unfamiliar to learners (e.g., Australian English, Irish English, and South African English) as well as non-native varieties of English.

Finally, we were unable to standardize speech rates across speech samples due to technical limitations. We initially used computer software to adjust speech rates and found that the sound quality had deteriorated. We reverted to a language-laboratory system that enabled adjustment of overall speech rates to 10%, 20%, and 30% faster or slower than the original. In future studies, normalized rates for all speakers to a common speech rate may provide better insights as to the effect of rate.

5. Conclusion

The increasing importance of English for lingua franca communication, particularly among non-native speakers, motivated us to examine the effects of English accents and speech rate on listener comprehension. In examining the relationship between speech rate and comprehension when Japanese university students listened to less familiar accents in English, results showed no significant speech rate effect on test items spoken by people perceived to have slight to moderate accents. However, with a speaker perceived to have a heavier accent, we found a significant speech rate effect on comprehension, and both higher and lower proficiency groups of students appeared to have benefited from a slowed speech rate.

An implication for instructional planning that incorporates different English varieties may now also include input modification of speech rate. To promote effective communication and overcome bias among speakers from different first languages, further study is needed to determine what type of tasks and instructional activities would best assist learners in comprehending what they consider unfamiliar or heavily accented English, and in adjusting their own speech rates for others as needed.

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References

- Anderson-Hsieh, J., & Koehler, K. (1988). The effect of foreign accent and speaking rate on native speaker comprehension. *Language Learning*, 38, 561–613.
- Anderson-Hsieh, J., Johnson, R., & Koehler, K. (1992). The relationship between native speaker judgments of nonnative pronunciation and deviance in segmentals, prosody, and syllable structure. *Language Learning*, 42, 529–555.
- Bruthiaux, P. (2010). World Englishes in the classroom: an EFL perspective. *TESOL Quarterly*, 44, 365–369.
- Canagarajah, A. S. (1999). *Resisting linguistic imperialism in English teaching*. Oxford, UK: Oxford University Press.
- Derwing, T. M., & Munro, M. J. (1997). Accent, intelligibility, and comprehensibility. *Studies in Second Language Acquisition*, 20, 1–16.
- Derwing, T. M., & Munro, M. J. (2001). What speaking rates do non-native listeners prefer? *Applied Linguistics*, 22, 324–337.
- DigiOn. (2005). *DigiOnSound5*. Fukuoka, Japan: DigiOn.
- ETS. (2007). *TOEIC Bridge koshiki guide & mondaishu [Official TOEIC bridge guidebook]*. Tokyo: Institute for International Business Communication.
- ETS. (2008). *TOEIC Bridge koshiki workbook [Official TOEIC bridge workbook]*. Tokyo: Institute for International Business Communication.
- Flowerdew, J. (1994). Research of relevance to second language lecture comprehension – an overview. In J. Flowerdew (Ed.), *Academic listening: Research perspectives* (pp. 1–25). Cambridge, UK: Cambridge University Press.
- Gass, S., & Varonis, E. M. (1984). The effect of familiarity on the comprehensibility of non-native speech. *Language Learning*, 34, 65–89.
- Griffiths, R. (1990). Speech rate and NNS comprehension: a preliminary study in time-benefit analysis. *Language Learning*, 40, 311–336.
- Harding, L. (2012). Accent, listening assessment and the potential for a shared L1 advantage: a DIF perspective. *Language Testing*, 29, 63–80.
- Hu, G. (2012). Assessing English as an international language. In L. Alsagoff, S. L. McKay, G. Hu, & W. A. Renandya (Eds.), *Principles and practices for teaching English as an international language* (pp. 123–143). NY: Routledge.
- Jenkins, J. (2006). Current perspectives on teaching World Englishes and English as a lingua franca. *TESOL Quarterly*, 40, 157–181.
- Jenkins, J. (2007). *English as a lingua franca: Attitude and identity*. Oxford, UK: Oxford University Press.
- Jenkins, J. (2009). *World Englishes*. London, UK: Routledge.
- Johnstone, B. (2010). Indexing the local. In N. Coupland (Ed.), *The handbook of language and globalization* (pp. 386–405). Malden, MA: Wiley-Blackwell.
- Kachru, B. B. (1992). Teaching world Englishes. In B. B. Kachru (Ed.), *The other tongue* (pp. 355–365). Urbana: University of Illinois Press.
- Khan, S. Z. (2009). Imperialism of international tests: an EIL perspective. In F. Sharifian (Ed.), *English as an international language: Perspectives and pedagogical issues* (pp. 190–205). Buffalo, NY: Multilingual Matters.
- Major, R. C., Fitzmaurice, S. F., Bunta, F., & Balasubramanian, C. (2002). The effects of non-native accents on listening comprehension: Implications for ESL assessment. *TESOL Quarterly*, 36, 173–190.
- Major, R. C., Fitzmaurice, S. F., Bunta, F., & Balasubramanian, C. (2005). Testing the effects of regional, ethnic, and international dialects of English on listening comprehension. *Language Learning*, 55, 37–69.
- Matsuda, A. (2009). Desirable but not necessary? The place of world Englishes and English as an international language in English teacher preparation programs in Japan. In F. Sharifian (Ed.), *English as an international language: Perspectives and pedagogical issues* (pp. 169–189). Buffalo, NY: Multilingual Matters.
- McKenzie, R. M. (2013). Changing perceptions? A variationist sociolinguistic perspective on native speaker ideologies and standard English in Japan. In S. A. Houghton, & D. J. Rivers (Eds.), *Native-speakerism in Japan: Intergroup dynamics in foreign language education* (pp. 219–230). Buffalo, NY: Multilingual Matters.
- Munro, M. J., & Derwing, T. M. (1995). Processing time, accent, and comprehensibility in the perception of native and foreign-accented speech. *Language and Speech*, 38, 289–307.
- Munro, M. J., & Derwing, T. M. (1998). The effect of speaking rate on listener evaluations of native and foreign-accented English. *Language Learning*, 48, 159–182.
- Munro, M. J., & Derwing, T. M. (2001). Modeling perceptions of the accentedness and comprehensibility in L2 speech: the role of speaking rate. *Studies in Second Language Acquisition*, 23, 451–468.
- Munro, M. J., Derwing, T. M., & Morton, S. L. (2006). The mutual intelligibility of L2 speech. *Studies in Second Language Acquisition*, 28, 111–131.
- Murata, K., & Jenkins, J. (2009). *Global Englishes in Asian contexts: Current and future debates*. Basingstoke: Palgrave Macmillan.
- Seidlhofer, B. (2011). *Understanding English as a lingua franca*. Oxford: Oxford University Press.
- Shin, J., Eslami, Z., & Chen, W. (2011). Presentation of local and international culture in current international English-language teaching textbooks. *Language, Culture, and Curriculum*, 24, 253–268.
- Stoyanoff, S., & Chapelle, C. A. (2005). *ESOL tests and testing*. Alexandria, VA: TESOL.
- Tarone, E. (1985). Variability in interlanguage use: a study of style-shifting in morphology and syntax. *Language Learning*, 35, 373–403.
- Yano, Y. (2011). English as an international language and 'Japanese English'. In P. Seargeant (Ed.), *English in Japan in the era of globalization* (pp. 125–142). New York: Palgrave Macmillan.
- Zhao, Y. (1997). The effects of listeners' control of speech rate on second language comprehension. *Applied Linguistics*, 18, 49–68.