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The Amount of English Use: Effects on L2 Speech

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Abstract

The amount of second language (L2) use has significant influence on native speakers' comprehension of L2 learners' speech. Nonetheless, few empirical studies examine how differences in the amount of language use affect the intelligibility and comprehensibility of nonnative speakers' reading and spontaneous speech. This study aims to contribute to this gap. Participants included 100 adult Vietnamese native speakers, who were asked to read five sentences and a 100-word passage and provide a one-minute oral description of their daily activities. Then, 20 American students in a graduate TESL program at Northern Arizona University, U.S.A., rated the speech samples for intelligibility and comprehensibility. Results show that the degree of L2 use contributed to considerable variance in predicting performance ratings of only L2 spontaneous speech. This study provides evidence that variation in the amount of L2 use affects L2 intelligibility. This study also challenges the well-established view that English language use best predicts the degree of L2 perceived comprehensibility, regardless of nonnative reading ability or spontaneous speech.

Introduction

Definitions of intelligibility and comprehensibility are diverse, as are the methods of measuring these constructs. According to Nelson (1982), intelligibility is defined as "the

apprehension of the message in the sense intended by the speaker" (p. 63). Munro and Derwing (1995) define intelligibility as the extent to which a speaker's message is actually understood by a listener. Munro and Derwing attempted to measure intelligibility by asking native listeners of English to transcribe utterances produced by L2 speakers. They found that there were no significant differences between the groups of listeners and the gender of the speakers. This notion of intelligibility is similar to that of Smith (1992), who measures intelligibility by the ability of word and utterance recognition.

Comprehensibility is also closely related to intelligibility and has also been defined in various ways in the literature. Munro and Derwing (1995) define comprehensibility as the ease or difficulty with which a listener understands L2 accented speech, which is judged on a rating scale of how difficult or easy an utterance is to understand. Gass and Varonis' (1984) definition of comprehensibility is similar to Munro and Derwing's (1995) definition of intelligibility. Despite these varying conceptualizations, there is currently no universally accepted means of assessment (Munro & Derwing, 1995).

The degree of L2 comprehensibility is often influenced by the amount of L2 use in a learner's environment. Derwing, Munro, and Thompson (2008) state that language use factors have a significant influence on the level of comprehensibility in L2 learners' speech. The environment in which the L2 is used consists of a network of different relationships with people and with social institutions. Although some studies (Derwing et al., 2008; Flege, Mackay, & Meador, 1999; Guion, Flege, & Loftin, 2000) have investigated the effects of L2 use on comprehensibility in the literature, there is no empirical evidence regarding L2 use and its effects on native listeners' judgments of intelligibility. Moreover, some research studies show contrasting evidence regarding English native speakers' judgments of comprehensibility. For instance, some showed that there was a difference in the amount of L2 use and native speakers' judgments of comprehensibility of nonnative reading speech (Flege et al., 1999; Guion et al., 2000), whereas others (Derwing et al., 2008) showed no difference in these two variables.

To fill this gap in the literature, the current study investigates the effects of L2 use on the degrees of intelligibility and comprehensibility in L2 reading and spontaneous speech. The study addresses two hypotheses:

1. Nonnative speakers who use their L2 more frequently will receive higher intelligibility scores for their reading or spontaneous speech from native speakers of English than nonnative speakers who use an L2 less frequently.
2. Nonnative speakers who use theirL2 more frequently will receive higher comprehensibility scores for their reading or spontaneous speech from native speakers of English than nonnative speakers who use their L2 less frequently.

Literature Review

English Use and the Degree of Comprehensibility of Nonnative Speech

The degree of L2 use is considered a significant predictor of variance in the performance ratings of L2 spontaneous speech in terms of intelligibility and comprehensibility. The factors that affect the degree of comprehensibility in the speech of L2 speakers have received much attention in the literature over the past few decades. The influence of language use patterns on the degree of L2 comprehension was first examined by Suter (1976) and Purcell and Suter (1980). They asked learners of English to estimate how much time they spent speaking English with native speakers at home, at work, or at school, and how many months they had lived with native speakers of English. While Suter used two types of reading samples and one type of spontaneous sample, it was found out that the amount of conversation in English and the amount of L2 use at work or school greatly influenced the degree of native listeners' comprehension. Purcell and Suter (1980) showed that amount of L2 use was not found to be a significant predictor of degree of native listeners' comprehension of the three types of speech samples.

Other studies examined the effect of L2 use or input on degree of L2 comprehensibility. For instance, Flege, Frieda, and Nozawa (1997) asked native Spanish participants to read several prepared sentences, then asked native English listeners to listen to the speech samples and rate the degree of comprehensibility. The authors reported that native Spanish participants' degree of L2 comprehensibility was not a significant predictor of the percentage daily English use. In contrast, Thompson (1991) asked native speakers of Russian to estimate the percentage of time they used English at work, at home, and with friends. Thompson used sentence-reading tasks as speech samples and asked native speakers of English to rate the comprehensibility of the sentences. Thompson found that although the amount of English use strongly affected the degree of L2 comprehensibility, English use was not identified as a significant predictor in a multiple regression analysis because it confounded with the age of L2 learning. Thompson stated that the subjects' continued high level of L2 proficiency might have been responsible for the degree of L2 comprehensibility by native speakers of English.

More recently, some studies have investigated the effect of variation in the amount of self-reported use of an L2 on L2 production accuracy. In a study by Flege, Mackay, and Meador (1999), native Korean subjects who used English relatively often (and Korean seldom) were found to have a significantly better pronunciation of English than those who used English relatively seldom (and Korean often) when the subjects performed sentence reading tasks. The authors concluded that the language use patterns exerted a significant and independent effect on the degree of L2 comprehension. Derwing et al. (2008) also investigated fluency and comprehensibility in Mandarin and Slavic English language learners' speech production in light of their exposure to English outside of their ESL class. The authors asked one group of Mandarin speakers and another group of Slavic learners to narrate a story based on a picture they provided. The results showed that Slavic learners of English were found to be more fluent and comprehensible than Mandarin speakers of English in their spontaneous speech because they had more exposure to English than Mandarin speakers. Therefore, the authors suggest that the

amount of exposure to a L2 had significant influence on the level of comprehensibility in the spontaneous speech of L2 speakers.

English Use and the Degree of Intelligibility of Nonnative Speech

Research has showed that the amount of language use affects speakers' production of English and native English speakers' ratings of L2 intelligibility (Flege, 1992; Flege, MacKay, & Meador, 1999; Matsuura, Chiba, & Fujieda, 1999). Flege (1992) pointed out that the intelligibility scores for the early bilinguals' English vowels were better than those for late bilinguals' English vowels. In other words, the later the speakers began to learn English, the less accurate their production of English vowels was; the amount of English use positively correlated the accuracy of English vowel production. Additionally, Flege et al. (1999) investigated native Italian speakers' perception and production of English vowels. The participants were matched according to the age at which they arrived in Canada and began to learn English and the amount of self-reported continued use of Italian. The intelligibility test was used to assess subjects' vowel production. That is, native English speakers listened to native Italian speakers' production of English vowels and attempted to identify the vowels spoken by the speakers. The findings showed that the native Italian speakers' intelligibility scores decreased when their age of arrival in Canada increased, and that the speakers who used Italian often produced English vowels less accurately than the other group who used Italian less often.

In a study by Matsuura et al. (1999), Japanese students evaluated the degree of intelligibility and comprehensibility of American English and Irish English. Dictation was used to measure the intelligibility of native speech, whereas a 7-point Likert scale was used to rate perceived comprehensibility. The results showed that even if the listeners found an utterance easy to understand, they could not necessarily transcribe the words correctly. More importantly, the amount of exposure and familiarity with different varieties of English were good predictors of perceived comprehensibility, but not of intelligibility.

Although several studies have investigated native speakers' reactions to comprehensibility and intelligibility in nonnative speech, there is no empirical study that used all of the three different types of tasks (sentence reading, passage reading, and spontaneous speech) and investigated any differences in the ratings of intelligibility and comprehensibility according to these different tasks. Therefore, the purpose of the present study was to contribute to the literature on the effects of L2 use on native speakers' ratings of nonnative speech's intelligibility and comprehensibility. In this study, native speakers judged both nonnative reading and spontaneous speech. The amount of L2 use was predicted to have a strong influence on the ratings of intelligibility and comprehensibility, regardless of reading or spontaneous speech.

The present study addressed the following questions:

1. How are two groups of nonnative speakers (one with frequent English use and one with less frequent English use) different in their speech's intelligibility scores?
2. How are two groups of nonnative speakers (one with frequent English use and one with less frequent English use) different in their speech's comprehensibility scores?

Method

Participants

Speakers

Speakers included two groups of 100 adult Vietnamese native speakers. The researchers contacted each speaker directly to obtain their permission to participate in the study. All of the speakers had been living in the United States for 30 years and learned English after puberty. They range in age from 35 to 50 years (M = 39.90, SD = 4.24). The English proficiency level of the two groups is intermediate (from 945 to 955 on English Language Proficiency Test). The speakers were matched on the basis of the age in which they arrived in the U.S. and began to learn English and how much they continued to use Vietnamese.

The two groups of participants began learning English at the same ages but differed in their English use according to their self-reported use of English. The self-reported use of English was measured withal five-point Likert scale (see Appendix A). The cut-point score was 3. A speaker who had three or above belonged to a group who used English frequently, whereas a speaker who had less than three was classified to a group using English less frequently. The scores were then computed using SPSS software (version 20.0) to determine the mean differences in language use between the two groups. Group One consisted of those who used English more frequently (M = 3.17, SD = .50), whereas Group Two included those who used English less frequently (M = 1.96, SD = .55). The mean scores for the amount of L2 use by the two groups are summarized in Table 1.

Table 1. Response to Five-Point Rating Scale Items on the English Language Use Self-Report

(n = 50 for Group One and 50 for Group Two)

Language Use Self-report Items	**Group One**		**Group Two**	
	M	*SD*	*M*	*SD*
Using English at home with adults	3.55	.51	1.75	.44
Using English at home with children	2.40	.50	1.05	.22
Using English at work with partners	2.80	.41	1.35	.49
Using English at work with boss	3.10	.31	1.85	.37
Reading English books or newspapers at home	3.55	.51	2.00	.65
Writing letters	3.40	.50	1.80	.77
Watching English TV programs	2.80	.70	1.85	.67
Listening to English radio programs	2.80	.47	2.70	.62

Language Use Self-report Items	**Group One**		**Group Two**	
	M	*SD*	*M*	*SD*
Using English with friends	4.00	.50	1.70	.57
Using English when shopping	4.00	.49	1.70	.47
Using English with people of same age	2.56	.51	2.50	.51
Using English with priest when attending services	3.25	.55	3.15	.88
Total Mean	3.17	.50	1.96	.55

Listeners

Listeners included 20 native English speakers (10 male and 10 female) who were second-year M.A. TESL students at Northern Arizona University, ranging in age from 27 to 44 (M = 35.00, SD = 6.52). The listeners grew up in the United States and have normal hearing. They have had regular contact with nonnative speakers of English in varieties of context through teaching English in abroad for at least three years and working as an instructor at the Program of Intensive English for at least one year. However, they had had little contact with Vietnamese native speakers during their overall teaching experiences.

Data Collection

The study used three different types of speech samples: sentence reading, passage reading, and spontaneous speech (see Appendix B).

Sentence reading

A list of five specially prepared sentences included English sounds that are known to be difficult for Vietnamese speakers to pronounce. For example, the sentence *Papa put the pen on the big brown book* was included because there is no released /p/ in Vietnamese. The sentence *I must finish my shopping by six o'clock* was also included because it contains a concentration of /s/ and /ʃ/, which do not exist in Vietnamese.

Passage reading

A 100-word reading passage was chosen based on the difficulty in pronunciation for Vietnamese speakers and the content, which related to safety tips during an earthquake. The topic is familiar to the speakers who experience small earthquakes in California all year round.

Spontaneous speech

Participants were asked to provide a one-minute reply to the following prompt: *In one minute, please describe your daily activities*.

A total of 15 sentences (5 sentences from sentence reading, 5 sentences randomly selected from the reading passage, and 5 sentences randomly selected from

spontaneous speech) were played to the listeners to obtain their intelligibility and comprehensibility ratings.

Variables

The independent variable was the amount of L2 use; dependent variables consisted of the judgment scores of intelligibility and comprehensibility. These variables and instruments will be further explained in the next section.

Instruments for Independent and Dependent Variables

Amount of L2 use

Data on speakers' amount of L2 use was collected from responses to a language use self-report. The amount of L2 use was determined based on a 12-item questionnaire that used a 5-point Likert scale (1 = *not at all*, 5 = *always*). Participants were asked about the time they spent speaking English with native speakers at home, at work, or during religious activities. The questionnaire was tested in a pilot study with the three participants to see if they understood all the questions and if the questions addressed the type of information sought. The scores were then computed using the SPSS (version 20.0) to determine the mean differences in language use between the two groups.

Intelligibility

Researchers have used different ways of assessing intelligibility, one of which is orthographic transcription. Lane (1963) counted the number of transcribed words that matched the original version exactly, whereas Barefoot, Bochner, John, and von Eigen (1993) counted the percentage of key words transcribed accurately in comparison to the stimuli. Brodkey (1972) and Hahn (2004) measured intelligibility through accurate paraphrases and main ideas. In addition, some researchers have asked listeners to use a Likert scale to make intelligibility judgments (Fayer & Krasinski, 1987). However, Samar and Metz (1988) proved that "writing down assessment" provided a "more accurate alternative for speech intelligibility assessment" (p. 307) than using a Likert scale. This study, therefore, employed Munro and Derwing's (1995) instrument for measuring intelligibility (see Appendix C). The listeners listened carefully to each utterance (5 sentences from sentence reading, 5 sentences that were randomly selected from the reading passage, and 5 sentences that were randomly selected from spontaneous speech) then wrote out in standard orthography exactly what they had heard. The recording was only played once. Intelligibility scores were calculated by counting the correctly transcribed words compared with the sentences from which the words were drawn. The scores were then computed using SPSS to determine the predictor of the ratings of intelligibility. The group that received high scores produced more intelligible speech than the other group.

Comprehensibility

Many previous studies have evaluated perceived comprehensibility of L2 speech using a rating scale with anchor points that are both "very easy to understand" and "extremely difficult to understand" (Derwing & Munro, 1997, p. 8). For instance, Moor (1983) used rating scales to measure perceptions with the numerical scoring 5 for "strongly agree" and 1 for "strongly disagree. "In a study by Matsuura et al. (1999), raters made

judgments about the degree of comprehensibility of American English and Irish English by using a7-point Likert scale. This current study evaluated L2 perceived comprehensibility using scalar judgment, 1 = *hard to understand*; 7 = *easy to understand* (See Appendix D). This single item scale is a version of Munro and Derwing's scale (1995). The listeners were asked to listen to 15 sentences (5 sentences from sentence reading, 5 sentences randomly selected from the reading passage, and 5 sentences randomly selected from spontaneous speech) and evaluate the comprehensibility of the sentences. The recordings were only played once for the rating. The scores were then computed using SPSS to determine the predictor of comprehensibility ratings. The group that received high scores produced speech that was more comprehensible than the other group.

Procedures

Speakers' task

Speakers' productions were recorded immediately after the informed consent form was signed and the language use self-report was administered. The speakers were then instructed to read or speak at their normal rate and volume and were allowed to look over the printed materials before reading them into the microphone. Only one attempt at recording was made and speakers were tested individually.

The speakers were randomly assigned to task sequences with a short rest period between tasks. The three samples were recorded on separate CDs and arranged randomly on the CDs so that the sequence of samples on each CD was different from the other two CDs. No preparation was allowed for the third sample, nor were there any verbal exchanges between the speaker and the researcher during the recording. The entire task lasted ten minutes for each speaker, including a five-minute break between the second and third recordings. The recordings of the speakers' speech samples were made using high quality digital recording equipment in a quiet and private room.

Listeners' task

For the intelligibility task, the researchers provided the listeners with two practice stimuli for orthographic transcription and rating, then gave them booklets with numbered spaces for transcriptions of each sample. The researchers instructed the listeners to listen carefully to each utterance and write down exactly what they had heard using standard orthography. In the comprehensibility task, the listeners listened to the three CDs in random order on three separate occasions. The stimuli were presented to each listener through earphones. When the listeners finished transcribing each speech sample, they were given a break of five minutes. The listeners were then asked to listen to the samples again and make judgments of comprehensibility after hearing each one.

The researchers presented the stimuli using high fidelity playback system in a quiet and private room. During the tasks, the researchers pressed the pause button at the end of each utterance. A new stimulus was not presented until all the listeners finished transcribing the previous one. The entire session lasted approximately 45 minutes.

Data Analysis

Cronbach's alpha was used to assess the internal consistency reliability of the judgment scores of intelligibility and comprehensibility. Reliability coefficients (standardized alpha) of .85 and .89 were calculated for perceived intelligibility and comprehensibility ratings, respectively. Then, independent samples t tests were performed to assess whether the different amounts of L2 use predicted the variance in the ratings of intelligibility and comprehensibility of two types of reading and of one type of spontaneous speech for the two groups.

Results

The composite values for the ratings of intelligibility were assigned based on a comparison of correctly transcribed words and the sentences from which the words were drawn. The composite values for the comprehensibility ratings were based on ratings from 9-point scale. Higher ratings indicate lower difficulty of intelligibility and perceived comprehensibility.

English Use and the Degree of Intelligibility of Nonnative Speech

Three independent samples t tests were conducted to address the first research question, which examines any differences in the ratings of intelligibility on three types of speech samples (sentence reading, passage reading, and spontaneous speech) for Group One (who used English more frequently) and Group Two (who used English less frequently). As shown in Table 2, for two types of reading samples (sentence reading and passage reading), independent samples *t* tests showed that Group One was not significantly different from Group Two on the intelligibility ratings, $t(98) = .62$, $p = .345$ and $t(98) = .79$, $p = .190$. Second, for the intelligibility ratings of spontaneous speech, an independent samples *t* test showed that Group One was significantly different from Group Two, $t(98) = 2.79$, $p = .00$. Inspection of the two group means indicates that the average intelligibility score for Group One ($M = 3.85$; $SD = 1.76$) is significantly higher than the score ($M = 3.68$; $SD = 1.23$) for Group Two. The effect size d is approximately .3, which is small according to Cohen (1988). In sum, the findings indicate that Group One, who used English more frequently, received higher scores in the ratings of intelligibility in spontaneous speech than Group Two, who used English less frequently. In other words, a difference was found in the ratings of degree of intelligibility of L2 spontaneous speech for the two nonnative groups, whereas there was no difference in the ratings of degree of intelligibility of L2 reading speech for the two groups.

Table 2. Intelligibility on Three Types of Speech Samples
(n = 50 for Group One and 50 for Group Two)

Variable	*M*	*SD*	*T*	*Df*	*p*	*D*
Sentence Reading			-.62	38	.345	.2
Group One	5.15	.52				
Group Two	5.03	.49				
Passage Reading			-.79	38	.190	.3
Group One	4.76	.61				
Group Two	4.19	.41				
Spontaneous Speech			2.79	38	.000	.3
Group One	3.85	1.76				
Group Two	3.68	1.23				

Note. Group One = Those who use English more frequently; Group Two = Those who use English less frequently

English Use and the Degree of Comprehensibility of Nonnative Speech

To address the second research question, which examines differences in the ratings of comprehensibility on three types of speech samples for the two groups, three independent samples *t* tests were performed. Table 3 shows that Group One was not significantly different from Group Two on the comprehensibility ratings of the sentence reading and passage reading, $t(98) = .51$, $p = .21$ and $t(98) = .68$, $p = .27$, respectively. However, the results for spontaneous speech were statistically significant. Group One differed significantly from Group Two on the ratings of spontaneous speech, $t(98) = 2.95$, $p = .010$. The results showed that the average score for Group One ($M = 3.22$; $SD = .27$) was significantly higher than the score ($M = 2.89$; $SD = .21$) for Group Two. The effect size *d* is .9, which is large (Cohen, 1988). In short, the native speakers of English considered the spontaneous speech produced by nonnative speakers who used English more frequently as more comprehensible than the spontaneous speech produced by those who used English less frequently.

Table 3. Comprehensibility on Three Types of Speech Samples
(n = 50 for Group One and 50 for Group Two)

Variable	*M*	*SD*	*T*	*Df*	*p*	*D*
			-.51	38	.210	.03
Group One	5.19	.23				
Group Two	5.01	.36				
Passage Reading			-.68	38	.273	.5
Group One	3.90	.39				
Group Two	3.81	.27				
Spontaneous Speech			2.95	38	.010	.9
Group One	3.22	.27				
Group Two	2.89	.21				

Note. Group One = Those who use English more frequently; Group Two = Those who use English less frequently

Discussion

Our study suggests that the more speakers use L2, the higher their L2 comprehensibility is. However, little empirical evidence was drawn from the effects of L2 use on the degree of intelligibility and comprehensibility of English production for three different types of speech samples. Thus, the purpose of this study was to examine whether the amount of English use affects comprehension of L2 speech when nonnative English speakers performed sentence-reading, passage-reading, and spontaneous speech tasks. The central finding of this study is that the amount of English use is the best predictor of judgments on L2 spontaneous speech. Moreover, this study provides more empirical evidence to support claims that the amount of language use affects the comprehension of nonnative speech. Results also reveal that the amount of L2 use was the feature that best predicted the intelligibility judgment scores of L2 spontaneous speech.

A comparison of the intelligibility ratings of the two groups revealed that Group One was rated more intelligibly than Group Two for only the spontaneous speech task, which indicates that the amount of L2 use was the best predictor of the degree of intelligibility in L2 spontaneous speech. Meanwhile, the amount of L2 use did not seem to affect the degree of intelligibility in an L2 speech when the speakers did sentence-reading and passage-reading tasks. The lack of difference in these two types of reading tasks between the two groups may be due to the similarity in the English proficiency level of the two groups. Both groups have been living in the U.S. for the same amount of time (30

years). Thus, when both groups of Vietnamese speakers who have the same English proficiency level performed the reading tasks, there was no variation found in the degree of intelligibility of their speech; Americans considered their speech as the same intelligible.

As far as we know, our study is the first to have used reading samples and spontaneous speech to measure how the amount of L2 use affects intelligibility. Therefore, additional research is necessary to further examine if the amount of L2 use only influences the intelligibility of L2 spontaneous speech.

Independent samples t tests were also performed to address the second research question: "How are two groups of nonnative speakers (one with frequent English use and one with less frequent English use) different in their speech's comprehensibility scores?" The results reveal that the amount of L2 use was the best predictor of the comprehensibility judgment scores on L2 spontaneous speech.

Similar to the results of the first research question, a comparison of the comprehensibility ratings of the two groups revealed that Group One was rated more comprehensibly than Group Two for only spontaneous speech. In addition, no difference was found for sentence-reading and passage-reading tasks between the two groups. The reason may also be due to the same English proficiency level of the two groups, which is explained in the discussion for the first research question above. In sum, if Vietnamese speakers use more English, their spontaneous speech will be found to be more comprehensible than those who use less English.

These findings also align with results obtained by Derwing et al. (2008) and Suter (1976). Both Derwing et al. and the current study use spontaneous speech as a speech stimulus. Derwing et al. found that Slavic learners of English were considered more comprehensible than Mandarin speakers of English because they had used English more than Mandarin speakers. The current study also found that the spontaneous speech produced by Vietnamese native speakers who used English more frequently was more comprehensible than the spontaneous speech produced by their partners who use English less frequently. Similar to Suter (1976), the current study used sentence-reading tasks and also showed that the amount of L2 use was not the predictor of the degree of perceived L2 comprehensibility for L2 sentence-reading speech.

However, the findings of this current study do not align with results obtained by Flege et al. (1999). They used sentence-reading tasks and found that native Korean subjects who used English relatively often (and Korean seldom) were considered to have a significantly better pronunciation of English and be more comprehensible than native Korean subjects who used English relatively seldom (and Korean often). Meanwhile, the current study also used sentence-reading tasks but found that there was no significant difference between native Vietnamese subjects (who used English frequently) and native Vietnamese subjects (who used English less frequently) in terms of comprehensibility in their sentence-reading tasks.

Conclusion

The results of the study provide new evidence regarding how the amount of L2 use or the strength of its representations strongly affects native listeners' judgments of intelligibility and comprehensibility in L2 spontaneous speech, not in L2 reading speech. In other words, the amount of L2 use is the best predictor of native speakers' judgments of nonnative spontaneous speech regarding intelligibility and comprehensibility. This study is also the first to examine how the amount of English use affects the comprehension of L2 speech when nonnative speakers of English perform three different tasks.

Nonetheless, the results of this small-scale study suggest that future research should take a number of factors into consideration. The first consideration concerns the raters. All of the raters in this study are U.S. graduates who have limited exposure to Vietnamese speakers' accents. The level of familiarity with an L2 accent is proved to affect comprehension, thus affecting listeners' judgment scores (Derwing & Munro, 1997; Gass & Varonis, 1984). Raters who are accustomed to hearing accented speech may be more lenient in their judgments of foreign accents than less experienced listeners would. Hence, additional research is needed to further investigate the extent to which experienced and inexperienced raters' judgments are affected.

The second consideration involves the speech samples. The speech samples used in this study were performed only by intermediate level speakers, which reduces the generalizability of ratings to other proficiency levels. More research is needed to show more evidence of the effect of different types of speech samples performed by different proficiency levels of L2 speakers to judgment scores. The third consideration relates to the speakers' L1 backgrounds. The speakers in this study were all Vietnamese, so our results might not generalize to L2 speakers of other languages. For this reason, more research is needed to include speakers of other varieties of English in order to find out whether there are any differences in listeners' rating scores among different groups of nonnative speakers.

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Appendix A

Language Use Self-Report (for Speakers)

Directions: Answer the following questions 1-5 and put (•) where best applies to you from questions 6 to 17.

1. How old are you? _____
2. What is your job? _____
3. How old were you when you arrived in the U.S.? _____
4. How old were you when you began studying English? _____
5. How long have you been living in the U.S.? _____
6. I like to use English for conversation with adults.
Not at all____/____/____/____/____Always
7. I like to use English for conversation with my children.
Not at all____/____/____/____/____Always
8. I use English at work for conversation with fellow workers.
Not at all____/____/____/____/____Always
9. I use English at work for conversation with the boss.
Not at all____/____/____/____/____Always
10. I read English books or newspapers at home.
Not at all____/____/____/____/____Always
11. I use English for writing letters.
Not at all____/____/____/____/____Always
12. I watch TV programs in English everyday.
Not at all____/____/____/____/____Always
13. I listen to English radio programs everyday.
Not at all____/____/____/____/____Always
14. I use English with my friends.
Not at all____/____/____/____/____Always
15. I use English when I go shopping.
Not at all____/____/____/____/____Always
16. I use English with people of the same age in the neighborhood.
Not at all____/____/____/____/____Always
17. I use English with my priest when I attend services.
Not at all____/____/____/____/____Always

Thank you very much for your participation!

Appendix B

Samples for Sentence Reading

/p/ vs. /b/: Papa put the pen on the big brown book.
/s/ vs. /ʃ/: I must finish my shopping by six o'clock
/ʧ/ vs. /ʤ/: The children bought a jar of jam and some cheddar cheese
/n/ vs. /ŋ/: Listen! The children are singing a new song
/s/ vs. /z/: Cats have beautiful green eyes and intelligent faces.

(*Taken from* Morley, J. (1992). *Intensive consonant pronunciation practice: Improving spoken English: consonants in context*. Ann Arbor: University of Michigan Press.)

Sample for the Passage Reading

Living in California, we face the constant threat of earthquakes. Many people today are asking what we can do to prepare ourselves better. In fact, there are some simple precautions. First, we should stock up on earthquake supplies, such as water, canned goods, nuts, and dried fruit, and keep these on hand. Second, we should prepare an earthquake kit, including warm clothing and blankets, a flashlight, a pocket radio, simple tools, and first aid supplies. Anchor your bookcases and other heavy items to the wall, and don't hang pictures above your bed. Perhaps most importantly, get to know your neighbors.

(*Adapted from* Celce-Murcia, M., Brinton, D. M., & Goodwin, J. M. (1996). *Teaching Pronunciation: A Reference for Teachers of English to Speakers of Other Languages*. Cambridge: Cambridge University Press.)

Sample for Spontaneous Speech

Topic: In one minute, please describe your daily activities

Appendix C

Transcription Booklets (for Intelligibility Ratings)

Sentence Reading

1. _____
2. _____
3. _____
4. _____
5. _____

Passage Reading

6. _____
7. _____
8. _____
9. _____
10. _____

Spontaneous Speech

11. _____
12. _____
13. _____
14. _____
15. _____