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Second Language Learners' Perceptions of Their Own Recorded Speech

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Second Language Learners' Perceptions of Their Own Recorded Speech

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The presence of a foreign accent in people learning English as a Second Language (ESL) as adults is, in the majority of cases, inevitable. Although it has been shown that having a foreign accent does not necessarily lead to communication breakdowns (e.g., Derwing & Munro, 1997; Munro & Derwing, 1995 a), and that the likelihood of actually eliminating a foreign accent is extremely low, the "accent reduction" industry is booming. The covers of accent reduction books and tapes make lofty promises such as "Accent reduction made easy: Learn in your car" (Wellborn, 1997) and "Lose your accent in 28 days!" (Ravin,2004). The websites, books, tapes, and CDs offering accent related products and services are innumerable. This indicates a strong demand on the part of ESL learners for something that will help them eliminate their foreign accents, as well as a belief that such a feat is possible. Derwing's (2003) study of ESL learners in Canada demonstrated the pervasiveness of the desire ESL students have to eliminate their accents. Of the 100 students she surveyed, 95% said that they wished they could sound like a native speaker (NS) of English. Clearly accent is a priority for ESL learners. Consequently it must also be a concern for ESL teachers. While it is common knowledge to linguists and ESL experts that fully eliminating an accent is extremely improbable for an adult learner, ESL students expect that their teachers will be able to offer help and guidance in identifying and ameliorating their pronunciation problems. Teachers, therefore, need to understand which classroom activities will best help their students identify and work on their own pronunciation difficulties. In this paper I will report on an experiment designed to test the effectiveness of one

common pronunciation teaching technique used for this purpose: asking students to listen to their own recorded speech.

Most people have a strong intuitive sense of what accent is. Lippi-Green (1997) defines second language (L2) accent as " …the breakthrough of native language phonology into the target language" (p. 43). Derwing, Munro, and Wiebe (1998) provide a similar definition, but place more emphasis on the listener, referring to accentedness as "the extent to which a listener judges second language (L2) speech to differ from NS norms" (p. 396). While it may be easy to understand what a foreign accent is, it is less obvious what having a foreign accent means for ESL speakers. As mentioned previously, having a foreign accent does not automatically make a speaker more difficult to understand. Munro and Derwing (1995a,b) and Derwing and Munro (1997) distinguish between accent (as defined above), intelligibility, and comprehensibility. According to the authors, intelligibility is an objective measure and refers to a listener's ability to understand what he/she hears. It is measured through objective means such as having listeners assign a true/false judgment to an utterance or transcribe what they hear. Comprehensibility, on the other hand, refers to a listener's perceived difficulty in understanding what he/she hears. Using these definitions, it is possible for an utterance to be deemed perfectly intelligible but not very comprehensible, i.e., difficult to understand. The researchers have consistently found that while speech that receives very low ratings in terms of comprehensibility and intelligibility will also be rated as highly accented, the reverse is not always true. Derwing and Munro (1997) also found that "…accent ratings are harsher than perceived comprehensibility ratings, which in turn are harsher than actual intelligibility scores" (p. 11). It is possible then, that an L2 English speaker may have an accent that most people would consider to be extremely heavy, yet that same person may be perfectly easy to understand.

Perhaps one reason that it is so difficult for ESL learners to learn native-like pronunciation is the sensitivity listeners have to even very small variations from the style of English that they speak. Munro, Derwing, and Flege (1999) conducted experiments with native speakers of Canadian English and Alabaman English. They played speech samples from Alabamans living in Alabama, Canadians living in Canada, and Canadians who had moved to Alabama. Both native Canadians and native Alabamans were able to determine which individuals came from each group based on the speech samples. This study showed that small differences in native varieties of English are detectible. There have also been studies showing that listeners can detect small differences in non-native English. Flege (1984) found that listeners were better able to detect foreign accent with long utterances; however, even when he played only a portion of a /t/ segment, they were able to identify NNSs fairly reliably. While Flege's study demonstrated that very short clips of speech can identify a speaker as being non-native, Munro, Derwing, and Burgess (2003) showed that even when segmental, stress, and intonation cues are removed it is possible to identify whether a speaker is a native speaker of English or not. They collected speech samples from Mandarin speakers of English and Canadian native speakers of English. They played the samples backwards for native speakers of English to see if they could identify which speakers were L2 English speakers. Playing the clips backwards removed most detectable features of accent. The researchers found that the raters were able to identify the L2 speech quite successfully even when the samples had been modified to equalize the rate of speech. This study indicated that as well as focusing on segmental and traditional prosodic pronunciation problems, students and instructors need to think about voice quality features such as pitch.

Researchers have also investigated how non-native speakers of English hear other non-native speakers of English. Major, Fitzmaurice, Bunta, and Balasubramanian (2002) investigated whether sharing a first language (L1) background with a speaker would improve the listeners' scores on a comprehension test. The results of the study were mixed. They found that while Spanish speakers did better when listening to English spoken by a Spanish speaker, Chinese speakers actually did worse when listening to English speech from Chinese L1 speakers. They also found that Chinese and Japanese listeners did equally well when listening to American accented English as when listening to Spanish accented English. Munro, Derwing, and Morton (2006) conducted an experiment to see if non-native speakers' first L1s would affect their judgments of L2 speech. They found that, generally speaking, the comprehensibility, accentedness, and intelligibility judgments of non-native speakers from different L1 groups agreed both with each other and with native speaker judgments. One small inconsistency was that Japanese speakers tended to favour Japanese English speakers. Clearly there are still questions that need to be answered about the effects of L1 in NNS / NNS speaker interactions.

While it is well established that the complete elimination of an accent is not necessary in order to be understood, many second language learners would still like to achieve native-like speech. Certainly some pronunciation problems can lead to breakdowns in communication. In a survey of Canadian ESL learners, Derwing (2003) found that 43% of respondents attributed most their communication problems to pronunciation and 55% attributed at least part of their communication problems to pronunciation. Jenkins (2002) argues that in the context of English as an International Language (EIL), most speakers of English are NNSs. For this reason, mutual intelligibility is considered important and the "NS standard measure" obsolete (p. 84). She proposes a new pronunciation syllabus that focuses solely on intelligibility. However, Derwing

and Munro (2005) point out that for learners living in English speaking countries there are many different issues to consider. Communication problems aside, there are other reasons L2 English speakers residing in English speaking countries may wish to change their accents. In Derwing's (2003) study of Canadian ESL learners, when learners were asked to respond to the statement, "Canadians don't like accents" twenty-five of the hundred agreed (p. 555). A third of the respondents indicated that they had suffered discrimination because of their accents. During open-ended interviews, participants shared their experiences of problems they had faced because of their accents. These fell into four broad categories: "lack of attention, rudeness, anger, and deliberate misunderstanding" (p. 557). In his article on accent discrimination, Munro (2003) points out that accent is "…one of a number of characteristics…that can serve as an excuse for discriminatory treatment" (p. 39). Even learners who don't face overt discrimination might find it more difficult to integrate into their new communities if people always see them as "foreign," regardless of how long they have been living in Canada.

Despite being conscious that pronunciation problems are often a source of communication breakdown, many ESL students are not aware of what their specific pronunciation problems are. In a survey of ESL learners in Canada, Derwing and Rossiter (2002) found that 39% of respondents could not identify their own pronunciation problems. Of the students who mentioned a specific problem, most cited segmental difficulties, with 26% citing the low functional load mistake of producing [ð] and [Ɵ] incorrectly. Despite a large amount of evidence showing the importance of prosody in pronunciation, only 10% of the problems identified by the learners involved prosodic errors. The students who were able to identify errors were usually unable to say how they knew about their pronunciation difficulties, but the most common response from those that did know was that someone else had told them.

Research has shown that it is possible to improve ESL learners' perceptions of accent differences. Bradlow, Pisoni, Akahane-Yamada, and Tohkura (1996) conducted a study to see if Japanese English learners could improve in their productions of /r/ and /l/ as a result of perception training in the difference between those two sounds. After three to four weeks of training in identifying the two phonemes, the researchers found that the learners improved both in their ability to perceive the difference between /l/ and /r/ and in their ability to produce /l/ and /r/ accurately. Wang and Munro (2004) conducted a study to see if perception training using a computer could help Mandarin and Cantonese learners distinguish between difficult vowel contrasts (eg. /i/ and /ɪ/). They used synthesized sounds to train students to ignore vowel length (a common problem) and to focus instead on vowel quality. After receiving perceptual training, the participants showed significant improvement on all of the vowel contrasts they had been taught.

Unfortunately, many ESL classroom teachers lack the knowledge needed to help students notice and fix pronunciation problems. Much remains unknown about best practices in pronunciation teaching. As a result, many pronunciation-teaching practices are a based on little more than tradition and instinct (Derwing & Munro, 2005). This may account for the rather disturbing finding of Purcell and Suter's (1980) study of factors affecting pronunciation. They found that "…teachers and classrooms seem to have remarkably little to do with how well our students pronounce English" (p. 285). This statement includes teachers and classrooms specifically focusing on pronunciation. Piske, MacKay, and Flege's (2001) review of factors affecting L2 accent corroborates with this statement, although they note that "if classroom teaching…involves special training in perception and production of L2 sounds, it may have a larger effect of pronunciation accuracy" (p. 201). Some studies of the effects of instruction on

pronunciation have yielded positive results (e.g., Macdonald, Yule, & Powers, 1994; Perlmutter, 1989). Derwing, Munro, and Wiebe (1997) conducted an experiment designed to test the effects of different types of pronunciation training on accent, comprehensibility, and fluency. They found that both lessons that focused on segmentals and lessons that focused on prosody led to improvements in the accent rating judgments given to the learners' sentences, although only the latter resulted in improvements in extemporaneous speech (accent ratings did not improve for either approach in extemporaneous speech). While these experiments show that it is possible for learners' pronunciation to improve as a result of instruction, this does not mean that most students in ESL programs today actually improve. There is a lack of research in the area of pronunciation and a tendency for teachers and material developers to fail to make use of the research findings that do exist (Derwing & Munro, 2005). In a survey of ESL programs in Canada, Breitkreutz, Derwing, and Rossiter (2001) found that while teaching pronunciation was generally seen as important, and many programs do have pronunciation instructors, only 30% of teachers actually have pedagogical training in the area of pronunciation.

Given the difficulties students seem to face in noticing their pronunciation errors on their own, current research in second language acquisition (SLA) on the effectiveness of form focused instruction, attention, and consciousness-raising has the potential to make a significant impact on the pronunciation classroom. Doughty (2001) notes that "[p]rogress in adult SLA is thought often to depend crucially upon cognitive processes such as paying attention to features of target input...and making insightful comparisons involving differences between input and output utterance details" (p. 206). Similarly, Schmidt (1990) argues that "conscious processing is a necessary condition" in language learning (p. 131). In order to help students notice and compare features of input and output, explicit instruction can be useful. In a meta-analysis of the

effectiveness of different types of second language instruction, Norris and Ortega (2000) found that teaching practices that focused on rules and forms explicitly were more effective than teaching methods that did not. Considering the trouble that students have in identifying their own pronunciation error difficulties (Derwing & Rossiter, 2002), the role that explicit instruction, attention, and consciousness play in SLA are of particular importance to pronunciation teaching. Despite this, pronunciation is often ignored in theories of SLA. In a book section on the role of attention in SLA, for example, Schmidt (2001) notes that "[m]ost discussions…focus exclusively on morphology and syntax, although a few have dealt with lexical learning", not even mentioning pronunciation (p. 6-7).

Clearly there is a need for more research that is directly relevant to ESL pronunciation pedagogy. In this paper I will report on an experiment I conducted in order to try to shed light on one common pronunciation teaching practice. Many ESL teachers use recordings of their students' speech in order to help students hear their own pronunciation problems more accurately. Logically and anecdotally this seems like a sound practice. It is, in fact recommended by teaching experts (e.g., Walker, 2005). However, there have been no studies investigating whether or not students are actually able to hear their own accents differently on a recording than they are when speaking in conversation. Two research questions guided this study:

1) Are ESL students able to hear their own accents differently when listening to their own recorded speech than when hearing themselves speak in conversation?
2) How similar are the ESL learners' ratings of their own recorded speech to native speaker ratings of the same samples?

In order to answer these questions I had learners rate their opinions of how accented they thought their English was both before and after listening to their own recorded speech to

determine whether listening to themselves on tape could change their opinions of the strength of their accents. I also compared ESL learners' judgments of their own recorded speech with native speaker ratings of the same recordings to see whether the two groups' ratings were similar. NS raters were used because other studies have shown that NS accent ratings of NNS speech have a high degree of reliability (e.g., Munro & Derwing, 1995a).

Method

Participants

Non-native speakers/listeners

Ten NNSs originally participated in this study, but two were removed due to errors during the data collection process. The students were enrolled in an academic ESL course at a college in Edmonton. Their Canadian Language Benchmark scores ranged from 5-8, and their ages ranged from 30-42 years with a mean age of 35. They came from three different L1 backgrounds: five Chinese speakers, two Russian speakers, and one Ukrainian speaker. The speakers had been studying English in Canada for one year or less at the time of the study, with the exception of one student who had been in Canada for five years. The amount of time spent studying English in their home countries ranged from 2-10 years with a mean length of 7 years 10 months. Only one student had had a native-English speaking teacher in her home country. When asked how often they spoke with native speakers of English for 10 minutes or more each week, four indicated two to three times a week, three indicated once a week, and one indicated that she never spoke with native speakers of English.

Native listeners

Twenty-eight native listeners volunteered as raters for this study. All were native speakers of Canadian English enrolled in education courses at the University of Alberta. One participant was removed from the study because she reported having a hearing problem. The ages of the participants ranged from 20-48 years with a mean age of 30 years. Most had taken an undergraduate linguistics course such as Linguistics 101.

Speech Stimuli

Stimuli collection

I recorded each non-native speaker reading two sentences: "Young children can be very noisy" and "Many people drink coffee for breakfast". These sentences were taken from a sentence bank created by Munro and Derwing for use in pronunciation experiments (e.g., Munro & Derwing, 1995a,b). They were used in this study because they had already been assessed as containing only high frequency lexical items and easily assigned truth values. This ensured that the NNSs would not encounter words they didn't know and that NSs would not be confused by the content of the sentences, which could have confounded the results of the experiment. The speakers were taken individually to a quiet room and given the opportunity to read the sentences to themselves and to ask any questions before recording began. The recordings were made using a high quality minidisk recorder. In a couple of instances, speakers made mistakes such as misreading or mispronouncing a word. In these cases they were asked to rerecord the sentence. The minidisk recordings were digitally transferred to a computer so that they could be randomized and burned to CDs. Two separate stimulus CDs were created: one for non-native listeners and one for native listeners.

Non-native listener stimuli

For the non-native listener stimulus disk, only the first sentence from each speaker ("Young children can be very noisy") was used. I used a paired-comparison method, matching the production from one individual against every other individual production. For example, the production by participant one was played against the production from participant two, then it was played again against the production from participant three, and so on. Every participant's productions were paired with all the other participants' productions in this way. Due to time constraints, I was not able to counterbalance the samples. Instead I made certain that productions from each participant were placed first in half the dyads and in second position in the rest. For example, the productions from participant one were recorded as follows: participant one then participant two, participant three then participant one, participant one then participant four, participant five then participant one, and so on. The pairs were then randomized on a CD with a one-second pause between the productions within each pair and a five second pause between each pair.

Native listener stimuli

The stimulus disk for the native listeners was made using all of the sentence productions collected from the non-native speakers. I took the first production from each NNS ("Young children can be very noisy"). The productions were then randomized, with a six-second pause between each one. I then took the second production from each participant ("Many people drink coffee for breakfast"). These productions were also randomized and put on the CD after the first productions. I made certain that the first production of "Young children can be very noisy" was not made by the same participant who produced the first rendition of "Many people drink coffee for breakfast" in order to avoid a lack of familiarity effect. I also ensured that the last production

of "Young children can be very noisy" was not made by the same participant as the first production of "Many people drink coffee for breakfast". This was done to ensure that each NNS participant's productions were rated separately. If the same participant was heard twice in a row, he/she may have been given the same rating automatically. Again, there was a six-second pause between each production.

Instruments

Non-native listener Likert scale

In order to measure each non-native speaker's opinion of his/her own accentedness, I created a Likert scale to be administered twice. The instructions asked participants to rate their own accentedness (1= *not at all accented*; 9 = *extremely accented*).

Native listener Likert scale

The Likert scale for the native speakers was the same as that used with the non-native listeners. In the instructions, native speakers were asked to rate each of the non-native speech samples.

Non-native listener paired comparisons

Response sheets were developed for the non-native speaker paired comparison task.

Procedure

Non-native listeners

The non-native listeners participated in the study twice. First, in a quiet room, listeners provided the speech samples that would be used later in the paired-comparison task; they also completed a Likert scale assessment of their own accentedness.

Two weeks later, the participants completed the non-native speaker paired-comparisons task. The listeners were instructed to circle the letter (a or b) that represented the less accented of the two sentences for each pair. Listeners were also asked to identify their own voices whenever they perceived them. Immediately following the paired comparisons task, the participants completed the Likert scale again, with regards to their own accents.

Native listeners

The native listener ratings were conducted in small groups over the period of a week. The raters did not receive any specific training, but all of the raters in this study had participated in a similar study immediately before this one. In the first experiment, the participants heard over 90 different speech samples that contained a range of accents similar to those in the current experiment. As a result, when they did this experiment, they already had a sense of the range of voices they would be hearing. They were given the Likert scale and were asked to circle the number that best represented the accentedness of each speech sample that they listened to; the participants were encouraged to use the whole scale. Before the stimuli were played, the two sentences were read aloud to the listeners in order to prepare them for what they would hear, that is, to ensure that familiarity would not have an effect.

Results

Non-native Speaker Likert Scores

The NNS Likert scores from Time 1 and Time 2 were entered into SPSS. The distribution of scores was shown to be normally distributed using the Kolmogorov-Smirnov test. The scores were then tested to see if a change had occurred from Time 1 to Time 2 using the Wilcoxon Signed Ranks test with significance set at .05. Overall, there was no statistically significant

change from Time 1 to Time 2. The participants' scores were almost identical, with three participants giving themselves the same score both times and the other participants rating themselves no more than two Likert scores away from their original scores.

Non-native Listener Paired Comparisons

The paired comparison scores for the non-native speakers were converted to percentage scores for each participant. This was done by looking at the better/worse scores the participants gave themselves. Each time participants rated their own voices as being less accented than other voices, they were given one point. The total number of points was then totalled and converted to a percentage score. For example, if participants chose their own sentences all eight times, they would receive a score of 8 out of 8 or 100%. The percentage scores were calculated in order to obtain rankings for use in comparison with the native speaker Likert scores.

The native speaker Likert scores showed an acceptable interrater reliability with a Cronbach Alpha value of 0.97. The mean scores for individual NNS speech samples ranged from 3.80 to 6.72. The mean score of all the native listener ratings of non-native data was 5.27. In order to compare these ratings with the scores the NNSs gave themselves on the paired comparison task, the mean score native listeners assigned each NNS was calculated by adding the total raw score for both of the sentences recorded by each NNS participant. These were then converted to percentage scores. This method of aggregating the data was used in order to derive a score that was comparable to the non-native speaker scores.

The scores from the non-native listeners and the native listeners were compared using a Pearson Product Moment correlation. Significance was set at the .05 level. A correlation of $r = -0.25$ was found, indicating that there was no statistically significant correlation.

Discussion

Based on the results of this study it is clear that the answer to the first question, "Are students able to hear their own accents differently when listening to their own recorded speech than they are when hearing themselves speak in conversation?" is no. There was almost no change in the Likert ratings from Time 1 to Time 2. This lack of change could be due to the fact that the participants already had a clear idea of how accented their own speech was and, therefore, listening to their voices on a CD two weeks later only confirmed their original opinions. With no treatment intervention, it is doubtful that their accents changed very much in only two weeks. Another possibility is that, regardless of how well the learners could hear their own accents to start with, listening to recorded versions of their own voices didn't make pronunciation errors any more salient than hearing their own voices in conversation. The chance that participants would rate their accents differently on the second Likert scale could also have been due to the fact that during the paired comparison exercise, participants were not told which sentences were their own, but rather had to make a check mark when they thought they heard their own voices. Only three of the eight NNSs were able to identify their own voices all eight times, and four of the eight identified their voices correctly four times or less. Regardless of how the participants rated their voices in the paired comparison activity, it would be unlikely for these ratings to change their overall opinions of their own accents if they didn't know which voices were their own. However, it is improbable that this alone accounted for the lack of change. Only one participant mistook another voice as her own. All participants had at least a couple of instances of knowingly listening to their own voices. It is also possible that with a larger sample of learners the results would have been different. However, seeing that there was no change at all between

the two samples, this seems doubtful. It appears that learners do not hear their accents any differently on tape than they do when speaking in conversation.

The answer to the second question, "How similar are the ESL learners' ratings of their own recorded speech to native speaker ratings of the same samples?" is that they are not able to perceive their accents similarly to NSs. Not only did the learners not rate themselves in a similar fashion to the native speakers, they actually showed a slight negative correlation with the native speakers' ratings, indicating that their opinions sometimes contradicted those of the native speakers. For example, participant eight rated only one person as being more accented than she was, while the native speakers rated only one person as being less accented than she was.

The lack of agreement between the ranking that emerged from the paired comparisons and the ranking from the Likert scores of the native listeners could be due to the small number of NNSs participating in this study. It is also possible that with a broader range of accentedness the results would have been different. The range of native listener scores was somewhat restricted; the mean scores of their judgments of individual NNS speech samples ranged from 3.80 to 6.72. With fairly similar voices in terms of accentedness, it would be more difficult to differentiate the more accented from the less accented voices. However, this explanation is unsatisfactory when viewed in light of the interrater reliability. With a Cronbach Alpha of 0.97, it is clear that the native listeners had strong agreement as to which voices were more accented. Therefore, I must conclude that, experimental design issues aside, non-native listeners' accentedness ratings of their own recorded speech are not similar to native listener judgments of the same speech.

The findings of this study are interesting in light of research in the field. Munro, Derwing, and Morton (2006) have demonstrated that proficient L2 English speakers tend to judge L2 accented speech in a similar fashion regardless of whether the speaker they are

listening to comes from their own L1 or not. However, while ESL learners' ratings of their own L1 accent groups may be similar to those of native speakers, the study reported here indicates that the ratings of their own accentedness do not agree with native speaker judgments. Bradlow et al. (1997) demonstrated that when L2 learners were able to perceive sounds more accurately, they were also able to produce them more accurately. It makes some sense then that students with strong accents may not perceive the differences between their own speech and native speaker norms as well as other listeners can. Derwing and Rossiter's (2002) finding that most ESL students who are aware of their pronunciation difficulties came to this knowledge through someone else supports this idea. While that study focused on learners' perceptions of their accents in general, rather than as a result of listening to their own recorded speech, it still suggests that most learners may not be aware of some aspects of their own accents. Evidently, listening to a recording of one's own voice is not enough to change this for the better.

Pedagogical Implications

This study showed that when listening to their own speech, students do not hear their accents in the same way that native speakers do. There is clearly a need for instruction that focuses on form and helps students notice the differences between their own productions and native speaker norms. Pronunciation instruction needs to be informed by current ideas and research in SLA relating to noticing, consciousness raising, and explicit instruction, in the classroom. The move away from pure communicative teaching to communicative teaching with a focus on form is especially important in pronunciation teaching. Schmidt (1990) argues that in order for input to become intake a learner must notice it. Therefore, if students cannot notice their pronunciation problems on their own, the teacher must help make these errors salient.

For classroom teachers looking for ways to help their students improve their pronunciation, recording students speaking is not, in and of itself, a very useful activity. Simply listening to themselves on tape will probably not lead students to new insights about their own pronunciation difficulties. This does not mean that recordings are not helpful, but it does mean that students need perception training in order to be successful. Many ESL students have no idea what their pronunciation problems are. Teachers using language labs or giving assignments that involve students making recordings need to think carefully about how those recordings are going to be used. Studies have shown that perception training with ESL learners can be successful. If teachers plan to use student recordings as a teaching tool in class, they must find ways to make sure that the recordings are useful. This could be done in a variety of ways. Students could mark a passage for intonation and then record themselves reading the passage. They could then listen to their recorded version of the passage in order to identify how closely their intonation followed native speaker patterns. Students could also listen to their recordings in groups, and analyze the their own accents with the help of their classmates. Munro, Derwing, and Morton (2006) showed that non-native speakers tend to rate accentedness in a similar fashion to native speakers, indicating that classmates, at least at an advanced level, can provide a valuable source of feedback for their peers.

Walker (2005) offers one potentially effective way to use students' recordings in a way that will help them notice the specific problems in their output. He suggests having students record monologues or dialogues which the teacher grades objectively for specific pronunciation features. With a limited number of problems to focus on and a grade indicating how severe those problems are, students have a guide to help direct their listening. For example, if a student listened to a recording that was graded for word stress only and was marked quite low, the

student would know that he/she should listen specifically for word stress on the recording to try to find his/her mistakes. This extra attention to detail, along with an idea of what to expect, may guide students to hear their mistakes. Walker also encourages students to work together when making recordings so that they can give each other feedback. He advocates this method only for monolingual classrooms because he believes that in multilingual classrooms, students "actively adjust their pronunciation in search of intelligibility" (p. 552). Walker's argument should not preclude the use of multilingual recordings in the multilingual classroom; however, communicative activities alone are not enough for many students to achieve their pronunciation goals. For this reason this activity could be as useful in a multilingual ESL setting as in a monolingual EIL setting.

Limitations and Suggestions for Further Research

This study was only a preliminary investigation into students' perceptions of their own speech. Further studies should be carried out using more participants in order to achieve results that can be generalized to the ESL population at large. This study also only investigated students' general perceptions of their own accents. In future studies it would be interesting to see how students perceive their own comprehensibility on tape. It would also be interesting to see if students can identify specific problems and features of accent when listening to their own recorded speech. It is possible that some features of accent, such as stress or voice quality, may be easier to perceive on tape than others. Finally, further research could investigate the effects of using students' recorded speech as part of perception training to see if it has the potential to improve student productions.

Conclusion

Accent often plays a large role in an ESL student's life. While most learners will never fully eliminate their accents, they have a right to expect their instructors to offer advice and activities to help them achieve speech that is highly comprehensible and intelligible. In this study I investigated how students hear their own recorded speech. I found that ESL students' ratings of their own accents do not match native speaker judgments of the same speech and, furthermore, learners are unlikely to change their views of their own accents as a result of listening to themselves on tape. These findings indicate that in order for students to experience success in the ESL pronunciation classroom, they need perception training. As in other aspects of second language acquisition, students need to notice and attend to errors if they want to improve. Teachers need to help students notice the differences between their own productions and target productions. Therefore, if teachers use recordings of their students in class, they need to ensure that they use them in activities that will help students perceive their pronunciation errors. Finally, it is clear that there is still much that is unknown about how L2 learners perceive their accents and how to best help them improve their perceptions of the sounds of English. More pedagogically-based research needs to done in order to give teachers the knowledge they need to help their students. In turn, teachers need to make sure that they are using teaching methods that are supported by relevant research.

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Appendix

Response Sheet Used for NNS paired Comparison Task

Please listen to the following pairs of sentences. Circle the sentence you think is less accented each time. If you hear your own voice please put a check mark beside the letter.

1.	a ___	b ___	24.	a ___	b ___
2.	a ___	b ___	25.	a ___	b ___
3.	a ___	b ___	26.	a ___	b ___
4.	a ___	b ___	27.	a ___	b ___
5.	a ___	b ___	28.	a ___	b ___
6.	a ___	b ___	29.	a ___	b ___
7.	a ___	b ___	30	a ___	b ___
8.	a ___	b ___	31.	a ___	b ___
9.	a ___	b ___	32.	a ___	b ___
10.	a ___	b ___	33.	a ___	b ___
11.	a ___	b ___	34.	a ___	b ___
12.	a ___	b ___	35.	a ___	b ___
13.	a ___	b ___	36.	a ___	b ___
14.	a ___	b ___	37.	a ___	b ___
15.	a ___	b ___	38.	a ___	b ___
16.	a ___	b ___	39.	a ___	b ___
17.	a ___	b ___	40	a ___	b ___
18	a ___	b ___	41.	a ___	b ___
19.	a ___	b ___	42.	a ___	b ___
20	a ___	b ___	43.	a ___	b ___
21.	a ___	b ___	44.	a ___	b ___
22.	a ___	b ___	45.	a ___	b ___
23.	a ___	b ___			

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Within the speech interactive Computer-Assisted Language Learning (CALL) program, scenarios are presented in which learners interact with virtual characters in the target language using speech recognition technology.Â Simulations offer the learner the opportunity for the development of their language in a given social context.Â The purpose of the study described in this paper is to investigate learner perceptions of and attitudes towards the speech interactive CALL game and how these attitudes change as the learner progresses through the game and for the different speech interactive scenarios. This paper first describes the various components of the speech interactive game and then provides details on the design.