The Influence of Foreign Accent
on the Listening Comprehension by Japanese EFL Learners

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Abstract

This research was conducted in order to investigate the effect of foreign accents of English on the degree of listening comprehension demonstrated by Japanese learners. To this end, we administered a test in which recordings of English passages made by a speaker of Received Pronunciation (RP) and another speaker whose native language is Hindi were played back to two groups of Japanese university students, with two varying levels of English ability, the “Upper-Level (UL) Group” \( n = 30 \) and the “Lower-Level (LL) Group” \( n = 30 \). The results indicated that (1) The LL Group demonstrated a low degree of listening comprehension of both the RP and Hindi accent speakers due to a lack of linguistic knowledge, whereas the UL Group demonstrated a gradual increase in comprehension over time through phonetic and linguistic mediation, particularly towards the accent of the Hindi speaker; and (2) Both the LL and UL Groups heavily favored a standard accent of English over the Hindi accent in terms of degree of comprehension. Our results found that when the listener has a relatively low proficiency in English, a mismatched interlanguage speech intelligibility disadvantage can be produced.

1. Introduction

The chances of English being selected as a language of international communication are exceptionally high among non-native English speakers. While English is certainly useful, there are likely a large number of individuals who have experienced difficulty in understanding the other non-native speaker in such situations. The primary cause of this phenomenon lies in the foreign accent of the speaker. In this paper, a foreign accent refers to the pronunciation of English produced in the phonetic patterns of the mother language of a non-native English speaker.

The majority of audio learning materials that accompany textbooks used in Japanese junior
high and high schools feature a relatively clear, standardized pronunciation. A typical example is New Horizon, an English textbook popularly adopted in junior high schools, which comes with audio teaching aids using General American (GA), a standard American accent (Tara, 2008). In reality, however, Assistant Language Teachers (ALTs) from a variety of countries are being placed in English classes in Japan. Their placement results in an increase in opportunities for Japanese students and teachers to encounter foreign accents of English. Still, Japanese learners of English who have a sense of adversity to particularly strong foreign accents are not few in number. To investigate the influence of the mismatch between standardized and foreign English pronunciation, we asked Japanese university students to listen to RP and a foreign accent of a Hindi speaker speaking English (HINDI). We then gauged the degree of listening comprehension, the confidence in answers provided and understandability demonstrated. Finally, based on the results obtained, we examined what kind of English accent would be ideal for teaching and facilitating English-based international communication.

2. Literature Review

The Audiolingual Method, which prevailed from the 1940’s on to the 1950’s, was influenced by both structural linguistics and behavioral psychology. Consequently, the intention behind accent coaching at that time was to train learners of English to acquire a near-native pronunciation. However, with the advent of the Communicative Approach in the 1980’s, the emphasis switched from near-nativeness to intelligibility. Given that there exist several thousand languages in the world, the English used by the speakers of those languages gives rise to a wide variety of accents. Simultaneously, strong accents ascribed to their mother tongues will result in communication issues at times. With English having come into worldwide use, the effect generated on the listener by the speaker’s accent became the subject of more intensive research.

However, thus far, the research conducted for Japanese learners of English have been limited in number: most of the studies have been exclusively for other language learners of English; Munro & Derwing (1995), who investigated the effect of the English pronunciation of Mandarin speakers on native English speakers; van Wijngaarden (2001), who investigated the effect of the pronunciation of Dutch speakers with practically no discernible accent and Americans who speak fluent but accented Dutch, on individuals who have used Dutch for 12 or more years; and Bent & Bradlow (2003), who added the mother tongues of the speaker and listener to the list of contributing factors and investigated the effect of the pronunciation of Chinese and Korean speakers of English on native English speakers and on Chinese and Korean speakers of English with the same linguistic background. To summarize the points of such research, foreign accents are not necessarily a key factor in diminishing the intelligibility and hence the possibility of comprehension. However, we will find that taking such results at face value and stressing the legitimacy of foreign accents is hasty in generalization, when we look into the fact that the
listeners in the aforementioned research are advanced learners of English. For example, the listeners in Bent & Bradlow’s study (2003) achieved a TOEFL (paper) score of 600 or higher.

Meanwhile, in Japan, researchers have conducted studies to investigate the issue of how the Japanese pronunciation of English is perceived by native English speakers: Suenobu, Kanzaki & Yamane (1987); Yamato (2000); Minematsu, Okabe, Shyu, & Hirose (2005); Akita (2008). Investigations of the effect of foreign accents on the listening performance of Japanese learners of English are nearly nonexistent at present. It goes without saying that research on how Japanese-accented English sounds to native speakers of English is a prerequisite in improving the English speaking skills in pronunciation. However, when examining the issue of pronunciation from the perspective of international communication, and when contemplating accent coaching as part of English educational efforts in Japan, (1) the effect of Japanese-accented pronunciation on non-native English speakers; and (2) the effect of accented pronunciation of non-native English speakers on Japanese learners of English, both represent critical areas of research. With this in mind, we elected to place the focus of our research interest on aspect (2). Our reasons for doing so are that research concerning aspect (2) is lagging behind, and that Japanese learners of English, despite their efforts to establish communication in English, tend to lose sight of what to say, should they be unable to comprehend the English spoken by the other party. The issue of how to deal with foreign accents is also crucial in improving communicative skills in pronunciation for Japanese learners of English.

Inspired by awareness of the issues mentioned above, we conducted an experiment that focused, in particular, on the research question of what effect standard and accented English pronunciations have on the degree of comprehension and intelligibility by Japanese learners of English with varying language abilities.

3. Experiment

3.1 Selecting a Foreign Accent and Recruiting Speakers

A number of foreign accents can be postulated. Based on a variety of factors that include the spread of nationalities across immigrants to the UK and their native languages, we elected to use a speaker whose first language is Hindi. The English of such an individual would have been defined by Kachru (1986) as a representative example of English belonging to the “Outer Circle.” Four applicants were recruited for recording. They had all been in the UK for less than a year and spoke Hindi as their native language.

Furthermore, in order to establish a frame of comparison, we also recorded a speaker of RP, which represents a standard accent of British English. A 28 year-old female monolingual speaker of English was selected.

3.2 Selecting a Recording Script

We prepared two scripts with similar levels of difficulty. As the subjects were Japanese
university students who had learned English as a foreign language, the inclusion of difficult terms and idioms would have yielded an effect on the degree of comprehension demonstrated. We therefore elected to utilize a script taken from the listening section of the 2nd grade of the STEP Test. Passages and questions were selected from Obunsha (2001), and a different set of ten passages and questions were presented in each test.

3.3 Recording Process and Determining the Final Hindi Speaker

Recordings were conducted in the anechoic chamber at UCL. The microphone was placed approximately 30 cm from the speaker's mouth, at approximately 15 degrees off the mid-sagittal axis, and the recordings were made at a sampling rate of 44.1 kHz. The script was presented on a monitor situated directly in front of the speaker.

![Figure 1. Sample of Screen Displayed on Monitor](image)

As shown in Figure 1, a time bar was utilized in order to control for the speaking rate. The time bar was set at 150 wpm, equivalent to the average rate used in the 2nd grade of the STEP Test. The bar changed color as time elapsed, and speakers were instructed to read the passage displayed in the time it took for the blue portion of the bar to disappear. Recordings were repeated until any elements that may potentially affect the subjects’ level of comprehension, such as mispronunciations or inappropriate reading speed, were absent.

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<th>Table 1. Screening Results of the Degree of Accent Possessed by Four Hindi Speakers</th>
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One Hindi speaker was selected out of the four recruited speakers, for use in the subsequent listening test, through the following process. All four speakers individually read out the same set of scripts, and the recordings of each of these speakers were then rated in terms of accentuatedness by five other Hindi speakers living in London. The raters were asked to evaluate the accentuatedness on a five-tier scale, where 1 was “A considerably strong accent”, 3 “Mid-range” and 5 “No accent whatsoever.” The evaluation results are shown in Table 1, where H stands for the Hindi speakers, and R stands for the raters.

While it is difficult to say that H4 exhibits a particularly strong accent, the five raters unanimously concluded that H4 has a stronger accent than the other speakers. For this reason, we elected to use H4 in the subsequent listening test. H4, whose accent can be interpreted as being mid-range, was a 22-year-old female speaker who had used English as a second language for 17
years, and had resided in the UK for two months at the time of the recording.

3.4 Subjects

In order to extract the subjects to participate in the experiment, we administered a series of the STEP Test 2nd grade level questions to 173 university students in Japan, all native Japanese speakers. The tests were administered during a university lecture. A total of 40 questions, consisting of 20 questions concerning grammatical usage, five questions involving sentence composition through rearranging words and 15 listening comprehension questions, were featured (full score of 40). Based on these test results, two types of subjects were extracted: those bearing a level equivalent to passing the 2nd grade of the STEP Test, called the Upper-Level Group (UL, $n = 30, M = 34.13$) here for reasons of convenience, and those who fell short of that level, called the Lower-Level Group (LL, $n = 30, M = 10.07$).

3.5 Investigative Process

In order to provide a counterbalance, we divided the UL and LL Groups into two subgroups each. The UL Group 1 and LL Group 1 were administered the RP listening comprehension test followed by the HINDI listening comprehension test. The UL Group 2 and LL Group 2 were administered the tests in the opposite order.

The majority of methods used to gauge listening comprehension in earlier research efforts involved the administering of a transcription test in which subjects were asked to write down words and phrases exactly as they heard them. However, due to difficulties in implementing a complex test design within a limited class time frame, and limitations concerning equipment at our disposal, we opted for a multiple choice format.

Each listening test was comprised of ten questions, and subjects were asked to choose the correct answer out of four possible ones provided, and indicate their chosen answer on a multiple-choice answer sheet. Directly after answering each question, they were asked to indicate their level of confidence regarding their answer on a scale of 1 to 3: 1 “No confidence whatsoever,” 2 “Unable to say either way” or 3 “Confident in answer.” Additionally, at the end of the test, subjects were asked to evaluate the intelligibility of both speakers on a scale of 1 to 5, where 1 “Considerably hard to understand,” 2 “Harder to understand than not,” 3 “Normal,” 4 “Easier to understand than not,” and 5 “Considerably easy to understand.”

3.6 Listening Score that Factors in Level of Confidence

To increase the credibility accorded to scores given on the multiple choice listening test, we employed the Clustered Objective Probability Scoring (COPS) system (Shizuka, 2001). COPS takes into account the level of confidence indicated by the listeners for each question. The score calculation consists of: (1) rearranging answer columns according to the level of confidence indicated, (2) calculating the ratio of confidence versus answer accuracy for each question, and (3) multiplying the ratio of confidence versus answer accuracy obtained for each question by the actual number of correct answers. The system is summarized in Table 2 of Shizuka (2001: 280).
The rows in Table 2 indicate, for a particular Test Taker, whether the answer provided was correct (1) or incorrect (0), as well as their level of confidence (L(ow), M(edium) or H(igh)) for each question. The first step is to rearrange all of the data according to the level of confidence indicated, as in Table 3.

The second step is to calculate the ratio of confidence versus answer accuracy. For the level of confidence "L," only one correct answer was obtained out of four Ls given. Accordingly, the answer accuracy is calculated as 1 / 4 = 0.25. Next, since the number of correct answers was one, the score accorded to L-category answers becomes 0.25 x 1 = 0.25. After calculating M and H in the same fashion, we find that the Test Taker has achieved a score of 4.59. The COPS-adjusted scores will vary depending on the level of confidence assigned to each question, even for test takers exhibiting the same answer patterns. A test taker who answers correctly the questions in which they indicate a high level of confidence, and answers incorrectly those in which they indicate no confidence, will receive a high score after adjustment of scores with COPS. Shizuka pointed out that in addition to improving the credibility of test scoring, COPS demonstrated a vast improvement in the median value of discriminative power for each question.

4. Results

The data obtained was analyzed using the program Excel Statistics 2008. Figure 2 shows the mean listening test scores for each accent, as a function of the English ability of the listeners. Note that listening test scores have been adjusted according to the COPS system. A repeated two-way ANOVA uncovered no interaction between variables of English ability and accent where the listening test scores are concerned (F (1, 58) = 0.5894, n.s.). However, the main effect yielded by both factors were identified (F (1, 58) = 90.4994, p = 0.000) for English ability variables; (F (1, 58) = 41.5519, p = 0.000) for accent
variables. Specifically, the UL Group ($M = 6.039, S.D. = 2.025$) exhibited higher values than the LL Group ($M = 2.630, S.D. = 0.905$), and for accent variables, RP ($M = 4.815, S.D. = 2.266$) exhibited higher values than HINDI ($M = 3.854, S.D. = 2.285$).

Next, Figure 3 shows the mean ratings of intelligibility for each accent as a function of the English ability of the speaker. A repeated two-way ANOVA uncovered no interaction between variables of English ability and accent where scores on the listening test are concerned ($F (1, 58) = 0.000, n.s.$). However, the main effects yielded by both factors were identified ($F (1, 58) = 61.9010, p = 0.000$) for English ability variables; ($F (1, 58) = 604.6809, p = 0.000$) for accent variables. Specifically, the UL Group ($M = 3.133, S.D. = 1.346$) exhibited higher values than the LL Group ($M = 2.167, S.D. = 1.291$), and for accent variables, RP ($M = 3.817, S.D. = 0.833$) exhibited higher values than HINDI ($M = 1.483, S.D. = 0.701$).

5. Discussion

In our research, we conducted an experiment centered on the question of what effect foreign accents have on the degree of comprehension and intelligibility demonstrated by Japanese learners of English with varying abilities in the language.

For the degree of comprehension demonstrated in the listening test, no interaction between variables of English ability and accent was found; however, the main effect yielded by both was identified. In other words, learners with a high level of English ability go on to achieve higher scores than learners with lower abilities regardless of accent; furthermore, from an accent point of view, the demonstrated level of comprehension of RP was higher than that of HINDI. It is conceivable that listeners in the UL Group, who possess a level of English ability equivalent to passing the 2nd grade of the STEP Test, became accustomed to HINDI over time. Therefore, one may deduce that the listening comprehension of this Group was mediated alongside the passage of time through the use of phonetic and linguistic knowledge (McClelland & Rumelhart, 1981; Altmann, 2001). However, listeners in the LL Group, whose English ability is on a level not capable of passing the 2nd grade of the STEP Test, faced difficulties wrought by the distinct nature of phonetic perception and difficulties arising from a lack of sufficient English ability to comprehend the subject matter at hand. These two factors are largely opaque, and indicate a distinct possibility that this Group conducts listening comprehension efforts based on the Japanese
voice schema (Lobo & Yoshida, 1982). As such, the LL Group is rendered unable to mediate speech on a phonetic and linguistic level in the same manner as the UL Group. Another possibility is that the LL Group felt an irritation with the unfamiliar Hindi accent (Gynan, 1985), and did not lend their ears to the speaker to begin with (communication avoidance). In order to prove such theories, it may be necessary to use an MRI or similar device to examine the cerebral activity of listeners, in order to investigate the relationship between foreign accents of English and phonetic and linguistic perception on the one hand, and the listening comprehension efforts of the Japanese learners on the other. However, our research further supports, at least indirectly, the claim of “acclimation” or “mediation,” as demonstrated by the UL Group towards HINDI. Figure 4 summarizes the changes in the average score over time.

No significant change is visible in the RP score for the UL Group (solid line) as time progressed. However, a gradually elevating HINDI score is evident in the UL Group (dotted line). This substantiates in theory the acclimation felt towards HINDI by the UL Group. A look at both the RP scores (single-dotted and dashed line) and HINDI scores (double-dotted and dashed line) for the LL Group clearly shows that fluctuations in these scores are positioned on a lower level than those exhibited by the UL Group. Those for HINDI in particular remain practically unchanged over time. Bent & Bradlow (2003) pointed out that in English-based communication between two non-native speakers, even if the respective mother tongues of the participants communicating differ, there is little in the way of negative effects placed on the listener as long as the pronunciation of the speaker is clear, thereby potentially yielding the mismatched interlanguage speech intelligibility benefit. Conversely, one may also claim that given that the HINDI speaker in our research has a fair foreign accent, a mismatched interlanguage speech intelligibility disadvantage may arise when conducting English-based communication with listeners with a relative disadvantage in English ability.

6. Conclusion

A study investigating the effect that foreign accents of English have on the listening performance of Japanese university students learning English was conducted, using RP and HINDI. This research has found that foreign accents may potentially produce a mismatched
interlanguage speech intelligibility disadvantage, particularly in cases where the listener possesses a low level of English ability. However, in instances in which the speaker has a strong foreign accent, even a highly proficient listener may not be capable of responding to the accent. While HINDI was selected as the foreign accent for the purpose of this research, the need to investigate the effect of other foreign accents on Japanese learners of English is certain to rear itself in the future. Simultaneously, we must examine the effect the accent of Japanese learners of English has on listeners who speak English in a non-native capacity.

When discussing a model for pronunciation, two conceivable positions may be taken: that of prescriptivism and that of variationism (Tanabe, 2003: 193). Prescriptivism is founded in the idea that internationally-accepted standards such as RP and GA should be adopted as pronunciation models. Variationism, on the other hand, views the English spoken in each country as an independent form of that language, and seeks to establish a pattern for each of those forms. Based on our limited results, given that individuals with varying forms of English ability will be prevalent in situations centered on English-based communication, it is surmised that English accent coaches should lean towards prescriptivism rather than variationism. Such a statement often invites misunderstandings along the lines of “Isn’t that an English Linguistic Imperialist way of thinking?” or “It is impossible for students to achieve a near-native accent in English.” However, we believe such perceptions to be incorrect. There is no doubting that studying a language requires some form of model to follow. That simply means that the pronunciation model to be followed should be RP, GA or the like, and in its base form, such an idea does not suggest that native speakers of such accents are superior to speakers with a foreign accent. Additionally, regarding the issue of whether or not the student can achieve the standard provided to them, one may view it as being “steeped in the learning process” or “founded in learning results.” In reality, the former perspective cannot be cut off from the latter. In regards to the current state of English accent coaching in Japan, Shibata, Yokoyama & Tara (2008: 56) pointed out that “A number of English teachers set low targets for pronunciation achievement, and are reporting that many students have not even achieved those targets.” This finding indicates the possibility that “setting low targets in the learning process” is linked to “learning results that fall below even the low targets established.” Therefore, it is clear where accent coaching efforts with low targets will eventually lead to. This is another reason why teachers of English must be mindful of the potential of their students, and conceive coaching techniques that produce English pronunciation capable of being understood internationally.

Acknowledgments

This research was supported by a Grant-in-Aid for Scientific Research (C) (No. 21520635). In the planning of our experiment, we received insightful comments from Michael Ashby, UCL.
References


