

A Study of Accentedness in the Speech of Chinese EFL Learners

LI Jingna^{[a,b],*}; WANG Yao^[a,b]

^[a]Lecturer. Shandong University of Technology, Zibo, Shandong, China.

^[b]PhD candidate. Shanghai International Studies University, Shanghai, China.

*Corresponding author.

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Abstract

This paper investigates accentedness in the speech of Chinese learners of English as a foreign language (EFL). 20 native English listeners rate for accentedness, comprehensibility and intelligibility after listening to 30 sentences produced by 28 Chinese EFL learners and 2 native English speakers. Through the rating task and a questionnaire, the study reveals: a) that among different aspects of pronunciation, prosodic features have a significant correlation with accentedness; moreover, they play the most important role in affecting comprehension of accented speech; b) that there is a significant negative correlation between accentedness and comprehension of accented speech; and c) that the English native speakers hold a fairly tolerant and positive attitude towards accentedness. Pedagogical implications of the study are discussed to shed light on English Phonetics teaching.

Key words: Accentedness; Perception; Comprehension; Attitudes

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INTRODUCTION

Researchers have been probing into judging how well a nonnative speaker of a language is transmitting a message. Usually there are two ways in judging this. The

focus can be either on the speaker or on the listener (Fayer & Krasinski, 1987). When the focus is on the speaker, it is in fact mainly on learners' interlanguage systems and their strategies for learning and communicating (Anderson-Hsieh & Koehler, 1988). When the focus is on the listener, it is mainly on how much of the message is understood and comprehended (Fayer & Krasinski, 1987). In the second focus, accentedness gains much attention and comprehension of accented speech has been largely investigated. Degree of comprehensibility of the non-native speaker's speech can cause "foreigner talk" (Gass & Varonis, 1984, p.66). It emphasizes what aspects of the non-native speaker and his/her speech "trigger" foreigner talk and lead to the change of native speakers' reactions and attitudes towards him/her and his/her speech, thus contribute to the adjustment of the native speaker. It is therefore very important to investigate foreign accent and its effect on the comprehension of nonnative speech and listeners' attitudes.

According to *Routledge Dictionary of Language and Linguistics*, accent is defined as idiosyncratic pronunciation of a foreign language, especially due to the articulatory or phonotactic characteristics of one's native language (Bussmann, 1996). It has "some deviant features in the aspects of pronunciation, such as segmentals, syllable structure and prosodic features" (Anderson-Hsieh, Johnson, & Koehler, 1992, p.529). Munro (1998) points out that the types of deviancy include "phone substitutions, deletions, and distortions; nonnative stress, rhythm, and intonation; and nonnative voice quality" (Munro, 1998, p.140). Researchers have investigated the relationship between accentedness and pronunciation. Fayer and Krasinski (1987), in a study investigating the reactions of native speakers and native Spanish speakers who listened to the speech produced by Puerto Rican learners of English, found that deviant articulation of words and hesitation were more distracting than intonation. However, more evidence has been presented to support the primacy of prosody over segmentals

in impressionistic ratings of nonnative pronunciation (Derwing, Munro, & Wiebe, 1998; Mareüil & Vieru-Dimulescu, 2006).

Accentedness is closely related to comprehension of speech. In the study of comprehension of accented speech, some researchers distinguish comprehensibility from intelligibility (Munro & Derwing, 1995; Derwing & Munro, 1997; Derwing et al, 1998). Comprehensibility is “the listener’s judgment of how difficult it is to understand L2 speech production and it is a subjective assessment” (Derwing & Munro, 1997, p.2), and it involves evaluative judgments and some type of rating scale. Intelligibility expresses the extent to which the listener understands the intended message and is the listener’s actual comprehension of speech. Some objective tests are needed to interpret intelligibility, such as a transcription task (Derwing & Munro, 1997), word and utterance recognition (Smith, 1992), rewriting or rephrasing (Fayer & Krasinski, 1987), or listening comprehension tests (Anderson-Hsieh & Koehler, 1988). Munro and Derwing (1995) investigated the interrelationships among accent, comprehensibility, and intelligibility, but the results in their study didn’t show which particular aspect of foreign-accented speech is most detrimental to comprehensibility. In a later study, Derwing et al (1998) showed that prosodic features have more advantage than segmental features especially in connected speech.

Accentedness not only interferes in the comprehension of nonnative speech but also causes change of attitudes and reactions of listeners towards such speech. Munro (1998) argues that even when accented speech is intelligible, however, less obvious costs to the speaker might come into play. Several studies have shown that listeners sometimes attribute lower status to speakers with nonnative accents (Brennan & Brennan, 1981a, 1981b), express irritation when exposed to accented speech (Fayer & Krasinski, 1987), and display discriminatory behavior toward people with nonnative speech patterns (Sato, 1991). Munro (2003a) investigates listeners’ attitudes towards foreign accent in the Canadian context and finds that negative attitudes toward foreign-accented speech have led to “discrimination against second-language users in Canada” (Munro, 2003, p.38).

Chinese is different from English in the sound system, which brings many difficulties to Chinese EFL learners in learning English speaking. Learners often find it difficult to pronounce correctly certain English phonemes. Besides, Chinese is a syllable-timed language and English is a stress-timed language. Learners often apply a Chinese intonation while speaking English and it seems that there are too many words stressed in their speech (Chen, 2008). The negative transfer of Chinese leads to a large degree of accentedness in the speech of EFL learners, which interferes in the understanding between speakers. This paper attempts to analyze Chinese EFL learners’ foreign

accent and its effect on listeners’ comprehension of accented speech and their attitudes towards accentedness. Specifically, it tries to solve the following three problems:

- a. What is the most important aspect in pronunciation that influences the perception of accentedness?
- b. What are the correlations among accentedness, comprehensibility and intelligibility in the speech of Chinese EFL learners?
- c. What are the attitudes and reactions of native English speakers towards the speech of Chinese EFL learners?

1. RESEARCH METHODS

1.1 Participants

There are two groups of participants in this study: a speaker group and a listener group. In the speaker group, there are 30 participants, among which 28 are Chinese EFL learners and 2 are native English speakers. The 28 learners are all college students and have received formal English instruction for an average of 11 years. The two native English speakers come from Great Britain and America respectively and are oversea students in China. In the listener group, 20 native English speakers participate in this study. They are oversea students in China and have stayed in China for about half a year. They come from Great Britain, America, Australia and New Zealand. They know little Chinese and can only speak a few Chinese words. All of them report normal hearing and volunteer to participate in the research.

1.2 Procedure

114 sentences are selected from several College textbooks (see the end note 1) and each of the 28 Chinese speaker is asked to read four sentences sequentially in a listening lab (That is $4 \times 28 = 112$ sentences). The rest two sentences are read by the two native English speakers respectively. The vocabulary level of these sentences is within the requirement of Chinese English Test, Band 4 (CET-4), making sure that the mispronunciation of these sentences is not caused by new words. After that, one sentence is carefully selected from those four read by each Chinese speaker depending on clarity and fluency of speech so that the listeners’ judgment would not be affected by these two factors. Together with the two sentences read by the native English speakers, there are 30 sentences in all used for the experiment.

The listeners are asked to listen to these 30 sentences and give their ratings on each sentence. This research explores not only the effects of different elements of pronunciation on the perception of accentedness but also the interrelationships among accentedness, comprehensibility, and intelligibility as well as the listener’s attitudes and reactions. Two listening sessions are therefore held. In order to prevent the listeners from

gaining some familiarity with the listening material, which may affect the reliability of the rating on comprehension, Session One is designed for the comprehensibility and intelligibility of accented speech, and Session Two is for the perception of accentedness. The sentences are randomly sorted and the order of the sentences in these two sessions is different so that the listener will not gain familiarity with certain sentences in Session Two. A questionnaire is given to the listeners at the end of Session Two in order to investigate their attitudes and reactions towards accented speech. The data is analysed with the aid of the software SPSS 17.0 for windows.

1.3 Measurements

1.3.1 Measurement of Comprehensibility

In this study, comprehensibility refers to the listener's overall understanding of a speaker's speech, and it involves subjective judgments and some type of rating scale. A 5-Likert scale is used in which 1=*impossibly understand* and 5=*completely understand*. In the experiment, each listener assigns a score of comprehensibility to one sentence. The scores given by the listeners to the same sentence are then averaged and the mean score is this sentence's score in comprehensibility.

1.3.2 Measurement of Intelligibility

Intelligibility expresses the extent to which the listener understands the intended message, and it is the real comprehension of the sentence. A transcription task is performed in which each listener is asked to write down the sentence he or she has heard word for word. Then the researcher counts the number of the words that exactly match those in the sentence read by the speaker, and then calculates the proportion of the right words in the sentence recognized by the listeners. Intelligibility is then the percentage of the average number of the right words written by each listener in one single sentence.

1.3.3 Measurement of Accentedness

Accentedness is defined as the extent to which a listener judges the speaker's pronunciation deviation from the target language. It is a kind of subjective judgment and an overall impression made by the listener.

In this study, a rating scale ranging from 1 to 5 is used to judge the perception of accentedness, where 1 = *no Chinese accent* and 5 = *very strong Chinese accent*. The final score of accentedness concerning each sentence is the mean score of the scores given by all the listeners.

1.3.4 Measurement of Prosodic Features

Prosodic features are mainly concerned with intonation. Like accentedness, they involve the listener's subjective judgments. A 5-Likert scale is also employed, in which 1 = *no prosodic features at all* and 5 = *native-like prosodic features*. Like accentedness, the final score of the prosodic features concerning each sentence is the mean score of the scores given by all the listeners.

1.3.5 Measurement of Segmentals and Syllable Structure

Apart from the prosodic features, segmentals and syllable structure are studied in the research. They are discussed in terms of errors in pronunciation.

According to Anderson-Hsieh et al (1992), errors in segmentals involve errors in consonants and vowels, such as the substitution of one sound for another or the modification of a sound. The substitution of a segment is that a segment is clearly interpretable as an English phoneme different from the correct one. The modification of a segment is that this segment can be recognized but it sounds noticeable nonnative. Errors in syllable structure involve the addition or insertion of a segment or syllable, the deletion of a segment, or the reordering of segments in syllables. The most common types of errors are consonant deletion and vowel insertion.

2. RESULTS AND DISCUSSION

2.1 Perception of Accentedness

Accent is the extent to which a listener judges one's pronunciation deviation from the target language. It has some deviant features in pronunciation and is an overall impression made by the listener or interlocutor. The results in this study show that the aspects of pronunciation do have some relationship with accentedness. The correlations of accentedness with the three aspects of pronunciation is summarized in Table 1.

Table 1
Correlations of Accentedness With Segments, Syllable Structure, and Prosodic Features

	Segments	Syllable structure	Prosodic features
Accentedness	.31	.39*	-.99**

* $p < .05$. ** $p < .01$.

The results show that prosodic features have a significant correlation with accentedness ($r = -.99$) at the 0.01 level, indicating that increase of good intonation entails decrease in the degree of accentedness. Moreover, syllable structure has a significant correlation with accentedness ($r = .39$) at the 0.05 level, showing that increase in syllable structure errors indicates increase in the degree of accentedness.

The table demonstrates that prosodic features are much more detrimental than segmental and syllable structure errors in affecting the perception of accentedness. This finding has confirmed the findings in Anderson-Hsieh et al (1992) which have found that prosodic errors are more serious than segmental errors. Mareüil and Vieru-Dimulescu (2006), using new technologies such as diphone speech synthesis and speech manipulation, reveal that prosody is a more reliable clue in distinguishing foreign accent.

Besides, syllable structure errors are more serious than segmental errors. Chinese EFL learners often commit vowel insertion errors and tend to add /ə/ at the end of a final consonant (e.g. bag /bæg/ becomes [bægə]) or insert /ə/ into a consonant cluster (e.g. grow /grəu/ becomes [gərəu]), which marks a heavy accent. This may be the reason why syllable structure errors have a higher correlation with accentedness than segmental errors.

2.2 Comprehension of Accented Speech

2.2.1 Correlation Between Comprehensibility and Intelligibility

The results in this study have shown that intelligibility and comprehensibility have a positive significant correlation ($r=.952$) although the correlation is not a perfect one. In Derwing and Munro (1997), Munro (1998), and Munro and Derwing (1995), they found that intelligibility had a significant positive and imperfect correlation with the perceived comprehensibility. The present study substantiates their research.

One reason that there is no perfect correlation between comprehensibility and intelligibility is that some listeners could not fully understand some sentences even though they had caught all the words correctly. Due to the lack of context, they “dare” not believe their own ears. For example, when the listeners listen to the sentences (a) “*We have some work to do now. We must stop one wedding and have another.*” and (b) “*The London policemen are always ready to help. Most of them are tall and good-looking men.*”, they know that the speakers said “*wedding*” and “*London*”, but they wondered why these two words occurred and ultimately gave the sentences 4 points (the full score is five in the comprehensibility task). This phenomenon also gives support to the finding in Gass and Varonis (1984), who investigated the effects of familiarity on the comprehension of accented speech and postulated that listeners brought with them to the listening task a set of values and beliefs about the world, which is known in the artificial intelligence literature as “belief space”. They argue that this set of values and beliefs allow easy interpretation of utterances that have a readily accessible real-world context, while utterances with a context that is removed from the real-world experience are more difficult to interpret. For example, one sentence (c) in the present study “*It is not possible for me to win a battle, but it is up to me to be a courageous soldier.*”, which got a high average score of 3.81. When hearing this sentence, it is very easy to interpret its meaning since a harsh life is often compared to a battle, and brave people to the courageous soldiers. However, for sentences (a) and (b), listeners have no related cognitive knowledge in mind. In other words, no appropriate context for the sentences exists or has been invoked in their belief space.

In addition, some listeners cannot fully catch all the words in a sentence, but they think they have already comprehended its meaning and thus give 5 points. One

typical example is their judgements about sentences produced by the two native English speakers. These listeners do not recognize all the words in the sentences, but they think they have understood the meanings because they have caught the key words in them.

2.2.2 Correlations of Accentedness With Comprehensibility and Intelligibility

The results have demonstrated that there are negative correlations of accentedness with comprehensibility and intelligibility, indicating that the increase of the degree of accentedness entails the decrease of comprehensibility and intelligibility. If these two sets of correlations are compared, it is found by a t-test that the correlation between accentedness and comprehensibility ($r(\text{Acc}\&\text{Com})$) is higher than that of accentedness with intelligibility ($r(\text{Acc}\&\text{Intel})$), (see Table 2), and $r(\text{Acc}\&\text{Com})$ and $r(\text{Acc}\&\text{Intel})$ are different at the 0.10 level ($t(0.01,5)=2.207>1.812$), which suggests accentedness affects comprehensibility more seriously. This result confirms the findings in Munro and Derwing (1995) which shows accentedness affects comprehensibility more seriously than it does on intelligibility.

The results show that accentedness has no significant correlations with the two variables, but it can affect the comprehension of accented speech. The results partly prove the findings in Anderson-Hsieh & Koehler (1988) which found that accentedness had significant negative correlations with comprehensibility.

Table 2
Correlations of Accentedness With Comprehensibility and Intelligibility

	Comprehensibility	Intelligibility
Accentedness	-.508	-.421

It is also reported accent is not necessarily the barrier of the comprehension of non-native speech, and heavily accented speech can sometimes be highly intelligible. In this study, one female speaker gets a comprehensibility score of 3.82; her accentedness score is also 3.82. Her comprehensibility and accentedness scores are close to the average scores of these two variables. This sample does not show that the increase of the degree of accentedness entails the decrease of comprehensibility. Another speaker get a comprehensibility score of 3.66 and an accentedness score of 3.42. They are also very close to the average scores. This indicates that in some cases accentedness does not necessarily affect comprehension of speech. These findings confirm the findings in Derwing and Munro (1997) and Munro (1998), which also find that heavily accented speech can be highly intelligible.

As for some other speakers, their accent scores are very low. However, surprisingly, their comprehensibility scores are also very low. For example, one male speaker receives an accentedness score of 2.05, which is much

lower than the average score. However, he gets a comprehensibility score of 3.26, which is lower than the average score. This demonstrates that although the spoken English of some speakers does not carry a heavy degree of accentedness, their speech is hard to comprehend. The reason for this might be that there are some other factors influencing the comprehension of accented speech, such as familiarity with the topic.

Table 3
Correlations of Three Aspects of Pronunciation With Comprehensibility and Intelligibility

	Comprehensibility	Intelligibility
Segmentals	-.03	-.08
Syllable structure	-.27	-.18
Prosodic features	.63**	.61**

** $p < .01$.

2.3 Attitudes and Reactions of Native English Speakers Towards Accented Speech

A questionnaire is given to the listeners at the end of the study, which aims to investigate the attitudes and reactions of native speakers towards accented speech. In all the 10 items in the questionnaire, the first six items are about the attitudes and reactions of the listeners towards the accented speech.

When further investigating the correlations of the three aspects of pronunciation with comprehensibility and intelligibility, this study shows that prosodic features influence them more than syllable structure and segmentals (see Table 3).

The table below demonstrates the results of the six items. In each answer blank of the table, the number above refers to the number of listeners who choose this answer. The number below is its proportion. Through the analyses of the first six items, the English natives are comparatively tolerant of accentedness and accented speech and they tend to hold a positive attitude towards accentedness and people with a foreign accent.

Table 4
Results of Listeners' Attitudes Concerning Accentedness

Items	A Strongly disagree	B Disagree	C Perhaps	D Agree	E Strongly agree
1. I enjoy hearing people speak English with a certain accent (e.g. Chinese accent).	0	3 15%	15 75%	2 10%	0
2. If someone speaks English with a strong accent (e.g. Chinese accent), I will feel uncomfortable.	13 65%	3 15%	2 10%	1 5%	1 5%
3. I like people with a certain accent (e.g. Chinese accent) when speaking English.	0	10 50%	10 50%	0	0
4. I think when speaking English with a certain accent (e.g. Chinese accent), it is really damage to English.	6 30%	9 45%	3 15%	2 10%	0
5. I enjoy listening to speakers who have a strong foreign accent (e.g. Chinese accent) but who can express themselves very well.	1 5%	4 20%	7 35%	6 30%	2 10%
6. When I hear people speaking English with a strong accent (e.g. Chinese accent), I get annoyed and irritated and do not want to continue to listen to what he or she is saying.	6 30%	8 40%	5 25%	0	1 5%

Item 7 asks listeners whether they have difficulty in understanding people with a strong accent, 30% of them think that they have no or little difficulty in understanding accented speech, and 50% of them say that they sometimes have difficulty, and only 20% report that they have much difficulty in understanding such speech. Items 8 is about the most important factor in the course of communication. 75% of the listeners chose

comprehensibility and none of them chose accent to be the most important aspect. This shows that most of the listeners think that language is used for communication and comprehensibility is the most aspect in this course. This also confirms the findings in Varonis and Gass (1982) which state that comprehensibility is the most important factor in evaluation. Munro (2003b) also suggests that pronunciation instruction should be guided

by intelligibility rather than salience of accentedness. When asked “What is the primary source of an accent? (Item 9)”, 85% of the listeners chose A (bad pronunciation of words). Concerning “What is the primary aspect influencing the comprehension of accented speech? (Item 10)”, 45% of the English speakers chose C (pronunciation accuracy). The answers to the two questions contradict the results from the analysis of the actual speech showing that prosodic features have the closest relationship with accentedness and the comprehension of accented speech. The reason for this contradiction might be that the listeners intuitively thought that bad pronunciation of words would affect more the comprehension of speech and the perception of accentedness.

CONCLUSION

Accentedness, comprehensibility and intelligibility are three related but independent variables. The present study investigates their interrelationships in the speech of Chinese EFL learners. Accentedness is related to all the aspects of pronunciation, in which prosodic features are the most detrimental to the perception of accentedness. It affects comprehension of nonnative speech to some extent, but a strong foreign accent does not imply low comprehensibility. Besides, the native speakers hold a tolerant attitude towards accentedness. Research in accentedness can help teachers and students set appropriate learning goals and identify pedagogical priorities in class. This study suggests that prosodic features should be the teaching focus of pronunciation, while segmental and syllable structures cannot be ignored.

END NOTES

1. The selected sentences are from the following textbooks:
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Roach, P. (1991). *English phonetics and phonology: a practical course*. Cambridge: Cambridge University Press.
Zhang, G. & Sun, J. (1996). *Practical guide to American pronunciation and intonation*. Beijing: Foreign Language Teaching and Research Press.
2. During this paper writing, the first author conducted the experiment and wrote the paper, and the second author recorded the sentences and revised the paper.

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