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A Study on Accuracy of English Pronunciation by Students from the Area of Jianghuai Mandarin

Ruilan Cao[1,a], Wenjuan Dai[2,*,b]

[1]School of Foreign Languages, Anhui University of Technology, Ma'anshan 243002, P. R. China

[2] School of Foreign Languages, Anhui Normal University, Wuhu 241002, P. R. China

[a]630080335@qq.com, [b]1612496035@qq.com

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Abstract. In any language, its basis and physical carrier is speech sounds. Hence, foreign language learners have to master speech sounds first when learning a second language. From the perspective of language transfer and the theory of sound perception and production, this study is based on contrastive analysis with a questionnaire survey and a tape-recording to investigate the accuracy of English pronunciation by students from the area of Jianghuai Mandarin. With the aid of GoldWave and SPSS17.0, this research makes an overall assessment for the accuracy of students' English pronunciation, tries to find evidences of negative transfer form Jianghuai Mandarin occurring in English pronunciation acquisition, and expects to explore other impeding factors. With the population of 70 million in the region of Jianghuai Mandarin, this research is of significance in improving overall level of English learners' pronunciation.

1 Introduction

According to Professor A. C. Gimson, if a learner wants to master a language, he needs to acquire 1% of its vocabulary, 50%-90% of the grammar, but 100% of the phonological knowledge [1]. Therefore, speech can play a critical role in language acquisition. However, due to the influences exerted by the phonological system of their mother tongue, learners often speak the second language with a certain accent unconsciously. There is no exception for the students in the region of Jianghuai Mandarin (JHM).

According to *The Introduction to Modern Chinese Dialect* [2], JHM is a kind of mandarin, mainly distributed on the north part of Yangzi River in Anhui and Jiangsu provinces. The riverside on the south of the Yangzi River, to the east of Jiujiang and to the west of Zhejiang are also included in the JHM region [3]. *Language Altas of China* divided JHM into three regions from west to east [4]. The research carried in this paper mainly located in the Hongchao sub-dialect region. Presently, researches done by others are mainly about the JHM itself. However, there is little research on the relationship between the accuracy of English pronunciation and JHM.

To focus the relationship between JHM and English, comparison and transfer between two languages cannot be ignored. Language transfer falls into two categories, namely positive transfer and negative transfer. As its name implies, positive transfer refers to that when a learner's previously acquired knowledge, skill or ability facilitates his or her learning of new ones, and negative transfer refers to the impediment to the learned knowledge, skill, or ability resulting in the new learning. According to the report, language transfer by Chinese learners of English occurred at almost all levels, including phonetic, lexical, semantic and syntactic.

Sound perception refers to the second language learners' listening analysis and comprehension to the sound, which is one of research direction in psychological linguistics. Language acquisition and comprehension are the major topics in psychological linguistics. Flege systematically elaborated the hypothesis that pronunciation inaccuracy would be generated by the unskilled listening analysis [5]. He believed that the state of pronunciation by foreign language learners was the result of the sound system development of their mother tongue. Within the learning process, some sounds in foreign language would be replaced by the sounds in the mother tongue if the sounds were similar to each

other. In other words, the second language learners can perceive mistakes in their speech, but they cannot articulate the sound correctly. Flege once put forward that the second language learners could tell other people's foreign accent, but they could not tell that from their own accent [6].

2 Comparison of Sound System between Jianghuai Mandarin and English

According to Zhang Wenjing, there are 17 initials, 6 monophthong finals, 8 diphthong finals, 8 JHM vowel(s) and consonant finals in JHM [7].

Besides, the consonants [v] and [z] are also be added to JHM initials by Zhang. Since the voiced, unaspirated, labio-dental fricative [v] in JHM is usually used to replace the bilabial semi-vowel (approximant) [w], e.g. 问 as /ven/, 吴 as /vu/. What is more, the voiced post-alveolar approximant [r] is sometimes pronounced to be a front dental fricative [z], e.g. 软 as /zuan/. Therefore, JHM [v] and [z] are free variants of [w] and [r] respectively.

Comparing with English sound, the major differences between JHM and English sound system can be roughly classified as following:

(1) There are 12 monophthongs in RP, while only 6 in JHM, which means that each monophthong in JHM has to satisfy more requirements than that of in English. And in the natural language environment, such character results in some specific phoneme variants.

(2) Some distinctive features in RP do not exist in JHM, such as the long and short sounds or the tense and loose articulation.

(3) The similar sounds are common between RP and JHM, which results in both advantages and disadvantages for English learners.

The descriptions above are mainly about English segment, and the imparities in English supra-segment of them are also observed. It is known that Chinese is a typical tone language. There are four main tones. Apart from the those, a checked tone (入声 rusheng), commonly known by its Chinese calque entering tone is an important tone in JHM. However, English is a typical intonation language. English words do not have their own tones, but sentences do. The intonation of English sentences depends on the last stress syllable. Such differences lead to difficulties in learning the supra-segment.

3 Research Purpose and Significance

"Since English is the main foreign language in China emphasis on how to teach and learn from grammatical analysis led to practices of linguistic contrasting which have resulted in nearly 1,000 articles in 1949[8]." Mastering English pronunciation is a foundation for English learners. In China, English mispronunciation is mainly caused by effects of dialect accent. There are great differences between JHM and English in initials, finals and tone, which evidently influences English speech acquisition.

This paper is of significance and necessity since only a few studies focus on relationship between the acquisition of English pronunciation and JHM. And this thesis is to serve for this purpose. Hopefully, through researching the English pronunciation accuracy of students in JHM region, the phenomenon of negative transfer by JHM and other factors influencing the proficiency of English pronunciation could be explored. It is believed that the significance would not only fall in advancing pronunciation skills, but also in enriching the study of this filed.

4 Research Design

Before starting the investigation, questions needed to be explored in this research should be confirmed first. They are:

(1) What is the proficiency of the speech of JHM by students in JHM area?

(2) What is the proficiency of English pronunciation by students in JHM area?

(3) Is there any evidence proving that negative transfer by JHM occurs in students' English

pronunciation acquisition?

(4) Does the awareness of English pronunciation by students influence their English pronunciation accuracy?

(5) Is the students' sound perception and pronunciation consistent in this research?

(6) Is there any other factors influence the accuracy of English pronunciation，such as gender, education background or major?

The participants in this investigation are all students (English major, non-English major and high school students) and they mainly born in Anhui province. They are living in cities of Hefei, Ma'anshan, Wuhu, Huainan, Chuzhou, Fuyang, Bengbu, Anqing, Tongling and Chizhou. 68 valid data material are collected and 60 of them are selected as research samples.

5 Materials and Ways of Analysis

The whole investigation is composed by three parts. The beginning part is blanks for subjects to record basic information such as their gender, education background, major and birth place.

The second part is tape recording. The tape-recording part is the reading material, which is composed by four types of context. First one is the Chinese paragraph, the second is word list, which are selected from *Contemporary College English & Pronunciation* [9]. According to the selected sounds tested in JHM, the correspondent sounds in English are chosen. The material of English dialogue is the third type and is selected from the official linguistic corpus, which is used to test abilities related to English. The English paragraph is the fourth type. It is also selected from *Contemporary College English & Pronunciation*.

The third part of the investigation is questionnaire. There are totally nine questions in this part. The first five questions are general questions, which aim to get overall information of the English speech sound awareness and attitudes possessed by students in JHM area. Questions 6 and question 7 are aim to test the consistency between pronunciation perception and pronunciation reality of students in segment part. The last two questions are specific questions about linking and intonation, which play the same role as questions 6 and question 7. Both the recording and questionnaire materials for this research can be found in appendix.

Here are the steps to deal with the collected material. First of all, the previous tape-recording collected by recording pen is made in the form of MP3, and the raters do their listening analysis through the professional software GoldWave, and then they make notes for every student's tape-recording. Next, the data of tape-recording and questionnaire is simply handled through Excel, and a closer analysis would be done through the professional data processing software SPSS17.0. Finally, the findings would be summarized according to the results from SPSS17.0.

6 Overall Pronunciation State of Jianghuai Mandarin and English by Students

According to practical tape-recording, the proficiency of JHM by students are classified into four classes. Level A refers to that student's speech of JHM is almost the same as Chines Putonghua; Level B means that only a few sounds are mispronounced; Level C presents that the speech of JHM by students is evidently different from Chinese Putonghua; and Level D shows that most selected sounds are mispronounced, and features of JHM is obvious.

According to data statistics, over 72% of student's speech falls on levels B, C and D, which means that most their speech sound of JHM is different from Chinese Putonghua. Besides, it is an interesting phenomenon that nearly 30% of students' speech of JHM is almost the same as Chinese Putonghua. The relationship between speech level of JHM and the accuracy of English speech is necessary to investigate.

For the part of English proficiency, Level A is the best performance of English pronunciation by students; Level B shows that students' English pronunciation is good while some errors are found; Level C presents that there are many errors in English pronunciation by students while it is acceptable; and Level D means English pronunciation by students is relatively poor, and impedes

daily communication. Data statistics shows that more than half of students perform good, but there are still potential of improvement for the rest of students.

In order to find the closer relationship between gender, education background, major, level of JHM speech and level of accuracy of English pronunciation, the data are processed by SPSS17.0, and the analysis methods of independent-samples T test and ANOVA, simple linearity regression and correlation analysis are used in this paper.

According to the Independent-Samples T Test for gender, the level of JHM speech and English pronunciation, the information below can be gotten. Since significance in Levene test is not qualified (sig. =0.099 and 0.660, sig. > 0.05), the sig. (two-sided) is concerned. According to the figure, sig. (two-side) = 0.045, and 0.045<0.05 in T test between gender and level of JHM, and sig. (two-side) = 0.125, and 0.125>0.05 in T test between gender and level of English pronunciation, it can be speculated that level of JHM is related to the gender while level of English pronunciation, in other words, the accuracy of English pronunciation is not significantly related to gender.

According to the Independent-Samples T Test for education background, and the level of JHM speech and English pronunciation, the information below can be gotten. Since significance in Levene test is not qualified (sig. =0.689 and 2.187, sig. > 0.05), the sig. (two-sided) is concerned. According to the figure, sig. (two-sided) = 0.000, and 0.000<0.05 in T test between gender and level of JHM, and sig. (two-sided) = 0.003 and 0.033<0.05 in T test between gender and level of English pronunciation, it can be speculated that both level of JHM and level of English pronunciation are related to the education background.

According to the test of homogeneity of variance for students with different majors, the difference of English pronunciation ability is known. The test results show that sig. = 0.048<0.05, so Post Hoc is operated. The mean difference value between group 1(English major students) and group 3 (high school students) is 0.450 and sig. =0.028<0.05; the mean difference value between group1and group 2 (non-English major students) is 1.350 and sig. =0.000<0.05; the mean difference value between group 2 and group 3 is 0.900 and sig =0.000<0.05. Those figures illustrate that the significant differences do exist between the three groups. Besides, since 1.350>0.900>0.450, the accuracy of English pronunciation by group 1 is the best, and group 3 is better than group 2.

In simple linear regression for English pronunciation level, English pronunciation level is the dependent variable, while gender, education background, major and JHM level are the predictive variables. Since t value is 0.963, -6.089***, 8.037*** and 4.690*** respectively, it is clear that latter three predictive variables can forceful explain English pronunciation level. In other words, except the gender, education background, major and JHM are closely related to English pronunciation level.

7 Pronunciation of Selected Sounds in Chinese Paragraph and English Word List

The selected sounds for Chines paragraph and English word list are presented in the Excels. Raters are to note mispronunciation in Chinese paragraph by students compared with the pronunciation of Chinese Putonghua, and note mispronunciation in English word list by students compared with RP. Since the comparison between similar sounds from two languages is required to be made, the following pairs of sound are chosen: zh-/ch-/sh- and /ʃ/, zh-/ch-/sh- and /tʃ/, zh-/ch-/sh- and /dr/, h and /h/, f and /f/, n and /n/, l and /l/, w and /w/, w and /v/, -ng and /ŋ/.

The following information is disclosed by the results of simple linear regression for ten pairs of selected sounds. Since results of the pairs: zh-/ch-/sh- and /ʃ/, n and /n/, l and /l/, w and /w/, -ng and /ŋ/ are 4.734***, 9,699***, 6.474***, 4.144***, and 4.614*** respectively, it is evident that the sound zh-/ch-/sh-, l, w and –ng performed by students in JHM area can explain the performance of the sound /ʃ/, /n/, /w/and /ŋ/intensely. That’s to say, such sounds in Chinese paragraph pronounced by students obviously influence the performance of correspondent English sounds. The reason of such phenomenon is deserve to be explored, and it will be presented in discussion part. Besides, there are some other pairs of sounds in the regression showing no significant relation, which is also

the enigma waiting to be answered.

8 Pronunciation of English Dialogue and Paragraph

English dialogue and paragraph designed in the research aim to test the students' accuracy of pronunciation in supra-segment. In English dialogue, intonation ability is tested, while in English paragraph, linking skill is examined.

According to the results of simple linear regression for intonation, it can be found that the only significance occurs between JHM level and rising-falling tone (t=2.274*), so it can be speculated that the performance of English rising-falling tone has extremely close relation with JHM in this research.

According to the results of simple linear regression for linking, the value related to three linking points is 2.370*, 2.050* and 2.096* respectively, which indicates JHM level poses great influence on such three linking points. Though JHM level don't show strong significance to the rest of two linking points, it doesn't states that there is no relation between them.

9 Results of Questionnaire

As mentioned before, student's actual production of English pronunciation is recorded and noted through the tape-recording, while the questionnaire done after tape-recording aims to research student's awareness of HJM and English pronunciation. What's more, the student's perception of English pronunciation is also tested in this part.

The first five questions are related to pronunciation awareness in questionnaire and the data of their answers are quantized into number. Then simple regression is to done between the quantized data with English pronunciation level to explore whether student's awareness influence the accuracy of English pronunciation or not.

The t value for these questions is 1.009, 0.0925, 0.895, -1.225, and 1.376 respectively. It is clear that it present no significance between awareness and English pronunciation level, which is out of expectation. However, the awareness of students who perform well in English pronunciation still shows no significance in latter analysis. Possible reason for this phenomenon is to explain in discussion part.

The perception of English pronunciation is tested from perspectives of English segment and supra-segment. English segment refers to vowels and consonants. In order to test student's production and perception of segment part, two pairs of consonants are tested here. They are /w/-/v/ and /n/-/l/

Question 6 and question 7 in the questionnaire are related to the selected sounds /w/-/v/ and /n/-/l/ in tape-recording. Thus combining the answers with the question, students' actual performance (actual production of English segment) can show that whether consistency between production and perception exists or not.

T value in simple linear regression for testing the perception of English segment is -0.843, 1.256, 0.542 and -0.133 respectively, thus it shows no significance between production and perception. To make the results more reliable, correlation analysis is to be done for them.

According to the correlation analysis for question 6 and /n/-/l/, correlation coefficient for question 6 between /n/ and /l/ is 0.163 and 0.070, which means the correlation is positive. While sig. (two-sided) is 0.214 and 0.594. Comparing with 0.01, it is clear that the correlation is not significant, which is the same results as the simple linear regression above.

According to the correlation analysis for question 7 and /w/-/v/, correlation coefficient for question 7 between /w/ and /v/ is 0.071 and -0.017, which means that the correlation is positive. While sig. (two-sided) is 0.590 and 0.894. Comparing with 0.01, it is clear that the correlation is not significant.

The results are the same through both simple linear regression and correlation analysis. Therefore,

it can be concluded that student's production and perception of English segment is not consistent.

Linking and intonation are pivotal elements in English supra-segment. Except being tested in tape-recording, here is also perception investigation for them.

The answers of question 8 and question 9 given by the students are processed primarily. To get reasonable results of production and perception of linking and intonation, simple linear regression is conducted.

T value of the simple linear regression is -1.262 and 0.040 respectively, thus it shows no significance between perception and production in supra-segment. To make results more reliable, correlation analysis is also to be done for linking and intonation.

According to the results, correlation coefficient for linking mean and question 8 is -0.163, which means that the correlation is positive. While sig. (two-sided) is 0.012. Comparing with 0.01, it is clear that the correlation is not significant. The correlation coefficient for intonation mean and question9 is 0.121, which means that the correlation is positive. While sig. (two-sided) is 0.035. Comparing with 0.01, it is clear that the correlation is not significant.

The results are the same through two methods of analysis. Therefore, it can be concluded that student's production and perception of English supra-segment is not consistent

10 Discussion

There are many interesting phenomenons found in the investigation. Since the length of the thesis is limited, only parts of them are discussed as following:

First of all, here are findings of some JHM sounds in the tape-recording of Chinese paragraph, and they are:

(1) Some students in the investigation mispronounce initials [zh-, ch-, sh-] as [z-, c-, s-], since there is no retroflexed sounds in sound speech of JHM.

(2) [h, f] and [n, l] are the two pairs of sounds often confusing people in JHM area. Actually, in some areas, people may only pronounce [h] as [f] and [n] as [l], and they would not mispronounce them inversely. However, it is found that students in JHM area who would mispronounce the two pair of sounds more seriously, because they would not only mispronounce [h] as [f], but also [f] as [h], and so as the sound [n] and [l].

(3) According to raters' notes, compared with other sounds, [w, uo, uo, e, -ng] are mispronounced more frequently by all three groups of student (high school students, noun-English major students, English major students). In Jianghuai Mandarin area, there is no initial sound [w], while there is a local sound which is similar to English sound /v/, so people use /v/ to replace the sound [w]. For instance, they pronounce Chinese 文 [wen] as [ven]. Besides they pronounce Chinese character 都 [dou] as [du], and 多 [duo] as [du].

(4) It is found that most students mispronounce the Chinese character 儿 [er] as [a], since there is no back-nasal sounds in sound speech of JHM, most students mispronounce [-ng] as [n]. For example, they articulate Chinese character 能 [neng] as [nen].

(5) In fact, most students' sound speech of Chinese paragraph in research is similar to standard Chinese Putonghua. Among them, high school students' performance is featured with least JHM accent.

Secondly, evidences of negative transfer occurring in English pronunciation are mainly implied by selected sound points in English word list, and the findings are:

(1) The results of English word list illustrates there is significant relation between [zh-, ch-, sh-] and /ʃ/, negative transfer of Jianghuai Mandarin is responsible for it, because there is no back-nasal sound in Jianghuai Mandarin. Usually, the sounds /ʃ/, /tʃ/ and /dr/ in English are replaced by [xi], [ts'], and [zui] in JHM area.

(2) As the description mentioned before, [h] and [f] often confuse students in JJHM area, so there is an expectation that students must mispronounce /h/ and /f/. However, result of simple linear regression shows no significance for [h], [f], /h/ and /f/. Since it is found that the sound /h/ in

English always follows vowels, such as the words in the test (half, perhaps, behavior), while in Jianghuai Mandarin, the mispronunciation only occurs when the sound [h] follows finals. For example, people often pronounce the Chinese character 回 [hui] as [fui], but they never pronounce Chinese character 喝 [he] as [fe].

(3) Result of simple linear regression shows great significance for [n], [l], /n/ and /l/, which is another exact evidence proving the negative transfer of JHM occurring in students' acquisition of English pronunciation.

(4) Result of simple linear regression shows great significance for [w], /v/, [-ng] and /ŋ/, while there is no significance for [w] and /v/. Actually, the reason causing such phenomenon is mentioned above. In JHM area, there is no initial sound [w], while a local sound is similar to English sound /v/, so people replace [w] with /v/.Thus, the error rate of /v/ is relatively lower than /w/.

(5) As for intonation, only the result of rising-falling shows great significance. The correspondent sample sentence is "would you like tea or coffee", which is similar to the speech pattern in JHM, thus students' performance of rising-falling tone is better than tones. There are three points showing significance in linking part. Correspondent samples are "when I", "the sight of" and "the only place for it". One common place for three samples is that only one linking point in each sample, while the rest of samples have more than one. It may imply that the easier sample is, the better performance they do, and there is no relationship between JHM level and linking performance.

Lastly, awareness, production and perception for English pronunciation are mainly researched in questionnaire part, and the findings are:

(1) All simple linear regressions for awareness in this part don't show any significance, which is out of expectation. Possible reasons may be that tape-recording part relatively presents actual state of students sound speech both of JHM and English and the results are not judged in objective way, while questionnaire are totally dependent on the choice ,by participants themselves, which is extremely subjective. In other words, participants may not do the questionnaire seriously.

(2) Through the results of simple linear regression and correlation analysis, no great significance is found. It reflects from the other side that production and perception of English pronunciation by students in JHM area is not consistent. In other words, student's accuracy of English pronunciation may be influenced by this kind of inconsistency.

11 Summary

In summary, by means of tape-recording and questionnaire, this thesis explores the accuracy of English pronunciation by students in JHM area. With the help of GoldWave and SPSS17.0, detailed data calculation and reasonable analysis are made and questions for this thesis are answered.

It is found that only a few students' speech features with great characters of JHM, while most of their performance is similar to Chinese Putonghua, especially the performance by high school students. Student's proficiency or accuracy of English pronunciation is relatively good, because more than two thirds of students commit only a few mistakes in their pronunciation, but there is still a long way for some students to perform better. According to the discussion, negative transfer does occur in students' English pronunciation. And the reason for this phenomenon and the sounds being easy to be mispronounced are discussed in the thesis. Another conclusion is that there is no consistency between production and perception for students' English pronunciation. It means that students need to figure out whether their pronunciation is accurate or not firstly, otherwise they might only repeat mistakes of English pronunciation through unquestioning practice. Besides, it is found that the differences of the participants' gender do not pose obvious effects on accuracy of their English pronunciation. While the major and education background distinctions make differences in it. According to the research, English majors' English pronunciation perform best followed by high school students and non-English majors, which indicates that students who want to improve their pronunciation need to immerse themselves in English environment just like an English major does.

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