China English Accent or Errors?

Fang Lyu, Yan Yuan, Yang Cao, and Yi Zhang[*]

School of Foreign Studies, Northwestern Polytechnical University, Xi'an, Shaanxi, China
Email: lvfang@nwpu.edu.cn (F.L.); yuanyan@nwpu.edu.cn (Y.Y.); caoyang@nwpu.edu.cn (Y.C.); yizhang@nwpu.edu.cn (Y.Z.)
[*]Corresponding author

Abstract—**This paper reports a pilot study upon segmental and super-segmental deviations of 40 Chinese English as a Foreign Language (EFL) learners' sentence imitation task. The researchers annotated all substitute phonemes and tones for each observed phoneme and tone in the imitation task to describe some phonetic features of the norm of China English Accent (CEA), and probe for the dividing line between CEA and errors. Some carriers of CEA have been observed on the base of the data analysis to describe parts of the norm of CEA upon which a tentative dividing line was drawn between CEA and errors. Some pedagogical reflections were made to cast upon English teaching. Teacher's stance towards CEA was discussed.**

Keywords—**China English accent, error, norm, deviation, English as a Foreign Language (EFL)**

I. Introduction

During the past few decades, English as a foreign language has obtained great amount of learners in China. Being a language from a different language family, English is spoken in China with unique phonetic features of L1 (Chinese language)—a popular phenomenon found among English as a Foreign Language (EFL) learners from many other countries, giving rise to EFL teachers' concern for phonetic errors.

But there has been a turn of concern from error detecting and correcting into depicting China English since Kachru [1] categorized English speaking regions into the Inner Circle (where English is used as native language, such as British English and American English), the Outer Circle (where English is used as second language, such as Singapore English) and the Expanding Circle (where English is spoken as a foreign language, such as China English).

While Chinese EFL learners are getting more and more confident in speaking China English with their own accents, as EFL teachers, we are more engaged in striving for a pedagogical balance between accepting our EFL learners' China English with their accents and correcting their errors. Are there indicators that would distinguish Chinese English Accent (CEA) from errors? A dividing line between acceptable CEA and errors matters to EFL teachers.

II. Literature Review

China English (CE) was first defined as the English used in the Chinese context with the core of Received English and characteristics of Chinese language [2]. Later researchers described the term on phonetic, lexical, syntactic, discourse and other relative levels [3–6]. China English Accent (CEA) first appeared in 2014 and was defined as the accent of English carrying characteristics of Chinese language [7].

Researchers found segmental characteristics of CEA that monophthongs /ɪ/, /e/, /æ/ and diphthongs /eɪ/, /əʊ/, and /a ɪ /

are the top three in their phonetic categories that are pronounced in a way different from the native speaker's [8, 9]. Consonants /t/, /d/, /z/, / ð /, /n/, /l/, /v/ are most frequently mispronounced and college students tend to replace consonants /ð/, /z/ and /v/ with /d/, /s/ and /w/ [10]. Yan and Cai [11] found from students' reading that insertion of phonemes most frequently occurred, followed by deletion and replacement.

On super-segmental level, researchers achieved findings in word stress [12], sentence stress and rhythm [13], pause [14, 15], and intonation [16]. Chinese learners use less continuous rising tone with not high enough pitch, or less obvious pitch contour, or both [14]. Chinese learners have a good grasp of rising and falling tones but with a tendency of overusing the falling tone. The basic intonation contour of Chinese learners is different from that of native speakers [13].

However, there is research neither upon a phoneme's and tone's various substitutes in Chinese EFL learners' speech, nor upon the dividing line between CEA and errors on segmental and super-segmental levels.

Pronunciation errors refer to deviations from a norm based on a particular variety of speech [17]. Efforts to determine pronunciation errors have been paid ever since there were language education. Prator and Robinett [18] believe that the cumulative frequency of phonetic deviations results in loss of intelligibility. However, they provide very little information about what frequency nor what types of deviations should be taken as errors.

Functional load is a predictor of error which encompasses semantic contrasts and measures the number of minimal pair contrasts distinguished in a language (Brown, 1988) [19]. Unfortunately, functional load only makes sense in reference to particular phonemic contrasts [17].

III. Research Questions and the Research Design

A. Research Questions

When teaching pronunciation and intonation, we noticed that EFL learners read aloud the same sentence with more than one deviating pronunciations upon each word, which indicates that there are some errors rather than China accent only.

Among all the deviations, those most frequently occurred substitutes that are caused by L1 transfer can be regarded as CEA. We want to mark those that can be regarded as carriers of CEA from those made because of improper instruction or poor imitation practice. To distinguish errors from CEA, we need to depict a phonetic norm of CEA by annotating all EFL learners' deviating pronunciations and intonations in a given speech. When the most frequently occurring substitute(s) of a phoneme or a tone that are caused by L1 transfer could be

regarded as a carrier(s) to represent CEA, is it safe to say other less frequently occurring substitutes should be taken as errors to correct?

Thus, the research questions are:

A. What composes the spectrum of substitutes of each observed phoneme and tone?

B. What are CEA carriers contributing the CEA norm on segmental level and super-segmental level?

B. The Subjects

We have 69 questionnaire subjects, out of whom 40 were chosen as imitation subjects. All subjects have answered the Questionnaire upon Phonetic Learning of the English Language. They are non-English majors, 56 males and 13 females, aging from 19 to 20. According to the questionnaire, 53.6% of them have learned English for 7–10 years, 34.8% for 13 years. Only about one quarter of them have been systematically taught phonetic knowledge. All of the 69 questionnaire subjects have done the imitation task, but only 40 were chosen as imitation subjects because their imitation recordings fulfilled the task requirements, complete and clear enough to be annotated.

C. The Design and Method of the Research

An imitation task was assigned after a 2-hour phonetic lesson to imitate an American's pronunciation and intonation of a sentence in the coursebook, "Brazil has more fresh water available to its people than any other country." Subjects were required to record their imitation of the sentence in an mp3 file, with either their cellphones or PCs. No recording room was allocated for this task.

The imitation task instead of a free conversation task was designed to control other variables influencing our subjects' pronunciation and intonation. When imitating, a subject will try to utter the sound closest to the native speaker's. Although this design may eliminate the exposure of plenty possible accents and errors, it excludes errors or mistakes made because some words are strange to our subjects.

On segmental level, when a large percent of our subjects imitate a phoneme (named as "observed phoneme" in this study) into another one (named as "substitute phoneme"), this "substitute phoneme" may either carry the feature of CEA or sound an error. On super-segmental level, if a large percent of our subjects fail to imitate the native speaker's tone but employ a different tone instead without causing misunderstanding, that tendency of the choice of substitute tone should be regarded as a CEA indicator.

Therefore, we will annotate all substitute phonemes/tones of an observed phoneme/tone, calculate and compare the frequency of the occurrence of these substitute phonemes/tones. An occurrence frequency bigger than 50% would indicate significant tendency.

IV. DATA COLLECTION AND ANALYSES

A. Substitute Phonemes

1) Data collection

We collected 69 imitation recordings but selected 40 of them to transcribe because of the recording quality. All subjects' utterance of each observed phoneme was annotated, recorded and counted. For the sake of consistency and convenience of annotation, we borrowed the International Phonetic Alphabet system employed by Kinsten E-dictionary.

Observation targets were narrowed down to 10 most commonly "mispronounced" phoneme, some of which were observed twice or even thrice in different words, for example, /l/ in words "Brazil", "available" and "people". Substitute phonemes of each observed phoneme were marked as "SP1-SP5" which stands for "substitute phoneme 1-substitute phoneme 5" according to their occurrence frequency in Table 1.

The imitation accuracy of the observed phoneme and frequency of each substitute phoneme were calculated. Take "Brazil" for example, 5% of our subjects uttered the observed phoneme /l/ accurately, 45% uttered as /ju/, 25% uttered as /əʊ/, 20% uttered as /ɔ/, and 5% uttered as /u/.

Table 1. Frequency of observed and substitute phonemes

Observed phonemes		SP 1		SP 2		SP 3		SP 4		SP 5	
Brazil **/l/**	**5%**	/ju/	45%	/əʊ/	25%	/ɔ/,	20%	/u/	5%		
has **/æ/**	97.5%	/ʌi/	2.5%								
more /ɔ:/	87.5%	/ʌu/	7.5%	/əʊ/	2.5%	/ʌr/	2.5%				
fresh **/e/**	70%	/eɪ/	10%	/ɪ/	10%	/ʌɪ/	7.5%	/ue/	2.5%		
water **/ɑ/**	52.5%	/ə/	47.5%								
available **/v/**	42.5%	/w/	57.5%								
available **/l/**	**0%**	/ou/	45%	əʊ/	37.5%	/ɔ/	7.5%	/əʊr/	5%	/ʊ/	5%
for **/ɔ/**	100%										
its **/ts/**	100%										
people **/l/**	**2.5%**	/əʊ/	85%	/əʊr/	7.5%	/ɔ/	2.5%	/əʊə/	2.5%		
than /ð/	40%	/z/	57.5%	/l/	2.5%						
any /e/	97.5%	/ʌɪ/	2.5%								
other /ð/	**17.5%**	/z/	75%	/l/	2.5%	/r/	2.5%	/n/	10%		
country /ɪ/	**17.5%**	/eɪ/	82.5%								

2) Data analysis

Among 10 observed phonemes in the 13 target words, 8 have substitute phonemes, 2 are accurately uttered.

Of these 8 observed phonemes, 3 have very low imitation accuracy. They are /l/ at the end of words "available" (0%), "people" (2.5%) and "Brazil" (5%), /ð/ (17.5% when in the middle of the word, 40% at the end of the word) and /ɪ/ (17.5%). While /ɪ/ has only one substitute phoneme /ei/, /l/

has 8 and /ð/ has 4.

Also, some observed phonemes have only one substitute phoneme, for example, /ʌi/ for /æ/and /e/ in "has" and "any", /w/ for /v/ in "available", /ə/ for /ɔ/ in "water". Those substitutes can be found in Chinese, which indicates a L1 transfer.

These observed phonemes that have only one substitute phoneme or very low imitation accuracy are strong in indicating the CEA. Thus we name them "strong CEA indicators". Among an indicators' substitute phonemes, we named the most frequently used one or two as "strong CEA carrier(s)".

Meanwhile, some observed phonemes share the same substitute phonemes, for example, both /æ/ (in "has") and /e/ (in "any") are substituted with /ʌi/, the exact phoneme that sounds very closely to a Chinese word "爱" (love), where L1 transfer occurred again.

Last but not least, /ð/ has been substituted with /l/, /r/ and /n/, not /d/ as reported by Cheng [13], the cause for which is expected to be discovered in future research.

B. Substitute tones

1) Data collection

We employed a simplified annotation system to annotate the rising tone (↗), falling tone (↘), rising-falling tone (↗ ↘), falling-rising tone (↘ ↗), and level tone (→) of each word, with the reference of the annotation system developed by RESCCL (Read English Speech Corpus of Chinese Learners) [20].

With this annotation system, we annotated both the American reader's and every subjects' tone word by word in the imitation sentence. The frequency of substitute tones upon each word was calculated. Each word in the sentence, followed by the American speaker's tone is listed vertically under the column "words" (see Table 2, where A stands for accuracy, ST1-3 stands for substitute tone 1–3, O stands for omission). Table 2 tells the subjects' imitation accuracy of tone, and the substitute tones arranged as substitute tone 1, substitute tone 2 and substitute tone 3 according to their occurrence frequency.

Table 2. Tone imitation accuracy & substitute tone frequency

Words	A	ST 1	ST 2	ST 3	O
Brazil ↘↗	50%	↘, ↗↘ 20%	↗ 7.5%	→2.5%	
has ↘	92.5%	→ 7.5%			
more ↗	60%	→ 37.5%			
fresh ↘	10%	↗ 60%	→ 30%		
water →	12.5%	↘ 52.5%	→ 35%		
available ↘↗	0%	↘ 62.5%	↗ 27.5%	→ 5%	
for →	80%	↘ 10%	↗ 7.5%		2.5%
its ↘↗	0%	↘, → 42.5%	↗ 7.5%		7.5%
people ↘	50%	↗ 30%	→ 12.5%	↘↗ 5%	2.5%
than →	62.5%	↘ 32.5%	↗ 5%		
any ↗	40%	↘ 40%			
other ↘↗	0%	→47.5%	↗ 40%	↘ 12.5%	
country ↘	100%				

Take "Brazil" for example, 50% of our subjects imitated the tone on that word accurately. But 20% of subjects uttered falling tone, another 20% uttered rising-falling tone, 7.5% uttered rising tone, and 2.5% uttered level tone.

2) Data analysis

Firstly, the tone with the highest imitation accuracy is the

falling tone (↘) at the end of the sentence (100%), followed by another falling tone upon "has" (92.5%) and a level tone (→) upon "for" (80%) and "than" (62.5%). The tone with the lowest imitation accuracy is the falling-rising tone upon "available", "its", and "other" (0%), but "Brazil" is an exception (50%).

Secondly, among the five tones, falling tone (↘) and level tone (→) are the most popular substitute tones. In the 13-word sentence, our subjects failed to exactly imitate the tone of 12 words, among which 7 words got a falling tone (58.3%), and 4 words got a level tone (33.3%) as a substitute.

V. FINDINGS AND DISCUSSIONS

Though it is too early to depict a clear picture of the norm of CEA with data in this study, we have already found some pieces to fit into the jigsaw.

First, on segmental level, for observed phonemes that have only one substitute phoneme, we found some CEA carriers. When caused by L1 transfer, the only one substitute of any observed phoneme could be regarded as a "strong CEA carrier". In this study, /ʌi/ (for /æ/ in "has" and /e/ in "any"), /ə/ (for /ɑ/ in "water"), /w/ (for /v/ in "available"), and /ei/ (for /ɪ/ in "country"), which are obviously closest equivalence in Chinese language for the counterparts in English, are "strong CEA carriers". They steadily represent part of CEA features.

Pedagogically, it is easy to detect these observed phonemes in communication and speeches, but hard to achieve progress in teaching and training because of the notorious negative L1 transfer. Consistent and correct input and practice would better prevent the negative transfer.

Secondly, for observed phonemes that have only one substitute phoneme, we found both CEA indicators and errors. Among all substitute phonemes of an observed phoneme, the most frequently uttered substitute phoneme caused by L1 transfer indicates CEA while other substitute phonemes indicate errors only, especially when the pronunciation causes misunderstandings. These observed phonemes are most poorly mastered by Chinese learners and should catch more attention from EFL teachers as well as learners.

The possible causes for the fact are: poor input, less practice, and lack of detection and correction as was reported in a follow-up interview by one of the subjects who didn't have any chance to hear native speakers' speech, and very rarely spoke in English. His teacher of English read with very strong Chinese accent.

Thirdly, on super-segmental level, overused falling tones and level tones are carriers of CEA. Falling tones and level tones are best used. Falling-rising tone is the least grasped. Chinese learners are more subject to replacing falling-rising tones with falling tone or level tone which are very popular in Chinese language. Although there is falling-rising tone upon individual words in Chinese language, positive L1 transfer did not occur as expected in this study, the reason of which deserves further study.

Last but not least, it is impossible to draw a clear-cut dividing line between accents and errors before we see a complete norm of CEA, especially when varieties of English are getting wider acceptance. But findings above can help us reach a tentative conclusion that a dividing line between CEA and errors should be drawn upon the description of a

complete norm of CEA. Deviations apart from the norm can be treated as errors especially for EFL teachers.

VI. Conclusion

Although CEA is more and more widely accepted by the world, EFL teachers should realize that their learners are speaking CEA AND errors. Pedagogically, EFL teachers should intensify the accurate input at the beginning of English education to avoid later errors. While encouraging learners' confidence with their CEA, EFL teachers should also improve EFL learners' accent at proper time. What's of more significance is EFL teachers should spare no effort to detect and correct errors to improve the overall English proficiency of Chinese EFL learners.

Because of the limited size of our corpus, the authors of this study encourage more duplicate research on this topic with a bigger corpus on a larger scale. Follow-up interviews will further contribute to a more complete description of CEA norm.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Fang Lyu and Yi Zhang designed and conducted the research; Yan Yuan and Yang Cao collected and analyzed the data; Fang Lyu wrote the paper; all authors had approved the final version.

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