

Analysis of the Production of Word-final Pronunciation by First-year English Majors: A Case Study of a University in Chongqing, China

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Abstract

The thesis aims to study the production of the word-final pronunciation made by Chinese foreign language learners, taking the freshmen majoring in English in a university in Chongqing as samples. Based on the theory of language transfer, the author studies the word-final pronunciations including three vowels (/eɪ/, /ə/, /ɪ/) and six consonants (/t/, /s/, /d/, /n/, /m/, /ŋ/) pronounced by 231 freshmen majoring in English of a university in Chongqing and compares them with RP (Received Pronunciation) to calculate the accuracy of every phonetic symbols. Through the analysis on the accuracies, the author finds that most subjects can pronounce correctly the 20 selective words. But no word achieves 100% accuracy and most subjects make mistakes on the words ending with /ə/ and /m/. After analyzing the errors, the author classifies the them into three categories: deletion, epenthesis and substitution. Based on the findings, the author concludes the main causes of the problems and gives some suggestions to solve them, which to some extent can be helpful for Chinese phonetics researches and China's English teaching.

Keywords: word-final pronunciation; vowels and consonants; accuracy; errors

INTRODUCTION

English phonetics comprises segmental phonemes (vowels and consonants) and suprasegmental features (tone, stress, intonation) (Hu Zhuangling, 2017). Correct pronunciation is fundamental for English learners and lays a strong foundation for future learning, boosting their confidence. Mastering segmental phonemes is crucial for building a solid framework. Monosyllable correctness impacts intelligibility, with word positions influencing pronunciation accuracy.

Chinese college students all have Chinese accent in their English. Although it sounds difficult, it is understandable on the whole (Zhang Lingli, 2014). However, incorrect monosyllabic or strong foreign accent may still lead to communicative failure. Strong accent sometimes has an adverse effect on the intelligibility of speech (XUE Xiaojiao et al., 2019). Due to the negative transfer of the mother tongue, Chinese English learners have many unique pronunciation characteristics.

This study analyzes the vowels and consonants production of freshmen majoring in English in a university in Chongqing, China, through which we can see some problems existing in Chinese English learners' English pronunciation, which can provide help for the following phonetics studies, and at the same time, it can also provide some support for English Phonetics Teaching in China.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

Language transfer

Odlin (1989) explained language transfer as the influence resulting from the similarities and differences between the target language and any other language that has been previously acquired (and perhaps imperfectly acquired). If the language rules of a learner's mother tongue are the same or similar to those of the second language he or she wants to learn, the language rules of his mother tongue will play a positive role in the learning of the target language, which is called positive transfer; if the language rules of the learner's mother tongue are quite different from those of the target pronunciation, the language rules of the mother tongue will play a negative role in the learning of the second language, which is called negative transfer.

English vowels and consonants study

Vowels, as described by Crystal (1997), are acoustic phenomena resulting from the relatively unobstructed egress of air through the oral or nasal cavities. Conversely, consonants are characterized by the closure or constriction of the vocal cords, which produces audible friction as air attempts to pass through them (Hu, 2016). In this scholarly investigation, vowel articulation is a primary area of interest. Specifically, the front vowels /i:/ and /eɪ/, which demonstrate nearly exact phonemic correspondence with Mandarin Chinese, have been identified as the most effortlessly produced by native Mandarin speakers (Xiao Muren, 2018). However, Jiang Yuyu's (2010) research reveals that Chinese English language learners encounter difficulties in mastering English phonetic realizations that are either absent in or similar to their native language. Notably, there exists a dearth of scholarly exploration focusing on the articulation of word-final vowels within these investigations.

In contrast to vowels, consonants encompass a more intricate array of articulatory patterns, thereby predisposing second language learners to a higher incidence of phonetic errors. Wang Haiyan's seminal work has illuminated that errors in the pronunciation of word-initial consonant clusters by Chinese English learners can be categorized into three distinct types: addition, deletion, or substitution (Wang Haiyan, 2010; Zheng Zhanguo, 2013).

METHODOLOGY

Research questions

(1). What are the general levels and characteristics of the production of word-final pronunciation by Chinese EFL learners?

(2). What are the errors in the production of word-final pronunciation by Chinese EFL learners?

(3). What are factors may cause the errors of the production of word-final pronunciation by Chinese EFL learners?

3.2 Subject

The researcher selected 231 first-year English majors from a university in Chongqing as participants. Among them, 26 were male (11.2%) and 205 were female (88.7%).

Research method

This study selected 231 participants to analyze the endings of 20 words ending with Received Pronunciation phonemes from *A Handbook of English Pronunciation Exercises for First-year College Students*. We used accuracy rate to indicate the accuracy of the endings, and invited a rater who had received rigorous IPA training to judge the accuracy of the endings. The words are as follows:

Table 1. The Selective Words and Their Final Phonetic Symbols

Type	Phonetic Symbol	Word
Vowel	/eɪ/	holiday
	/ə/	computer, idea, prefer, newspaper
	/ɪ/	university, biography
Voiceless Consonant	/t/	difficult, inspect, educate, import, expect
	/s/	mathematics
Voiced Consonant	/d/	conclude
Nasal Consonant	/n/	machine, chairman, creation, politician
	/m/	patriotism
	/ŋ/	interesting

Data collection

Record the number of correct pronunciations of the experimental words by 231 subjects, and obtain accuracy as follows:

Table 2. Accuracy of Word-final Pronunciation

phoneme	words	accuracy/%
/eɪ/	holiday	93.5%
	computer	99.6%
/ə/	idea	28.1%
	prefer	90%
	newspaper	97.4%
/ɪ/	university	94.8%
	biography	81.8%
/s/	mathematics	84.8%
/t/	difficult	93.5%
	inspect	88.7%

	educate	83.5%
	import	82.2%
	expect	93.5%
/d/	conclude	89.6%
/m/	patriotism	58.9%
	machine	92.2%
/n/	chairman	95.2%
	creation	87.4%
	politician	86.5%
/ŋ/	interesting	95.2%

ANALYSIS OF THE ACCURACY

Vowels

From table 2, it can be seen the accuracy of the word holiday's final diphthong /eɪ/ is 93.5%. The result is in accord with the research conducted by Ma Lin (2005) "Chinese adult students' pronunciation of American English vowels /ey/ is basically equal to or close to that of Native American English speakers.", though American English is slightly different from that of Received Pronunciation. This may attribute to the high similarity between English /eɪ/ and Chinese /eɪ/, so, most subjects do well in it. But those who made mistakes had the same problems—they substituted /eɪ/ with /e/.

When it comes to the vowel /ə/, the result gets very different. Though the 4 words have the same final pronunciation, the accuracy of computer (99.6%), prefer (90%) and newspaper (97.4%) is much higher than that of idea (28.1%). The low accuracy may result from the misrecognition of the phonetic symbols of idea. The author allows the subjects to pronounce the vowel /ə(r)/ if they encounter it. The three words happen to end with /ə(r)/ if they are pronounced as American English. So, these subjects took it for granted that idea also ended with /ə(r)/. However, no matter in British English or American English, idea does end with /ə/.

Both the words university (94.8%) and biography (81.8%) terminate with the vowel /ɪ/, yet their pronunciation accuracies diverge. During the recording process, the author observed that subjects who erred on the pronunciation of biography encountered consistent issues—they mistakenly articulated the final vowel /ɪ/ as /e/ or /eɪ/. This observation signifies that phonetic substitution occurred.

Voiceless consonant

From Table 2, it is evident that the accuracy of the final pronunciation of the word mathematics with the consonant /s/ is 84.8%. Although this consonant bears resemblance to the Chinese consonant /s/, a key difference lies in the position of the tongue. In Chinese, the tongue adopts a position closer to the palate, whereas in English, it rests in the middle of the mouth. Notably, the author observed that all subjects who committed errors were able to pronounce the syllable preceding /s/. This observation suggests that, to some extent, these subjects possessed familiarity with the word, yet lacked proficiency in its phonetic symbols.

As to the words end with /t/, the accuracy among the five words fluctuates variously. The words difficult and expect are both 93.5%, which means most subjects can master this word in the word-final pronunciation. However, another three words are 82.2%, 83.5%, 88.7% respectively. There are in total of 105 subjects who made mistakes in the three words. According to the author's record, 20 of them did not know the words so they mispronounced them. The rest of the subjects also made the same mistakes. They tended to pronounce /t/ like Chinese phonetic alphabet /t/ + /che/, so, substitution and epenthesis occur.

Voiced consonant

In table 2, it is evident that the accuracy of the word *conclude* with its final pronunciation of /d/ stands at 89.6%. A majority of the participants were able to pronounce the word correctly. However, among those who made errors, the author identified two primary reasons. The first reason was devoicing, which occurred when the participants pronounced the word, resulting in the incorrect pronunciation of [kən'klu:d] as [kən'klu:t]. The second reason was epenthesis, where participants pronounced the /d/ sound as /dz/.

Nazal consonant

In table 2, it is revealed that the accuracy of the word *patriotism* in its final pronunciation of /m/ stands at a mere 58.9%, falling short of the pass line. This indicates that a significant proportion of the participants lack proficiency in pronouncing this word correctly. The author's analysis revealed that, excluding those who were unfamiliar with the word, approximately 40 participants made a consistent error by adding an unnecessary /r/ sound at the end of the word, resulting in the mispronunciation of the word as /m(r)/. This error can again be attributed to epenthesis.

Furthermore, notable discrepancies were observed in the accuracy rates of the final pronunciations ending with /ɪ/ among the four words. Specifically, the accuracy rates of *machine* (92.2%) and *chairman* (95.2%) were closely comparable, highlighting a good level of mastery among participants for these two words. Similarly, the accuracy rates for *creation* (87.4%) and *politician* (86.5%) were also alike in terms of their final syllables and overall accuracy. Consequently, participants who committed errors in pronouncing these two words encountered identical challenges, mispronouncing them as /ʃɪ/ instead of the correct pronunciation of /ʃn/. Evidently, this error is a result of substitution.

Lastly, with regard to the final word ending with /ŋ/, only a minimal number of participants made errors in pronouncing this word. Those who did make mistakes exhibited comparable difficulties in pronouncing /n/, mistakenly pronouncing /ŋ/ as /n/. This error, once again, can be attributed to substitution.

RESULT AND DISCUSSION

General level

Based on the previous experiment, it is evident that the pronunciation of word-finals by Chinese EFL learners aligns with the findings of earlier studies. Overall, the accuracy

levels of the final pronunciations for the twenty words exhibit a positive trend, with the majority of the accuracy rates ranging between 80% and 95%. This indicates that the majority of the participants are able to correctly pronounce the word-finals.

Common features of errors

The author has found 2 main types of problems after experiment and research:

(1) Bad habits in pronunciation

This problem can be reflected in deletion and epenthesis. As we analyzed above, when the subjects read the words with /t/, /d/, /m/, they tended to add /che/ (Chinese Pinyin), /z/ and /r/ respectively at the end of the words.

(2) Substitution in some similar phonemes

This happens to the articulation of minimal pairs because most of them are phonemes with similar articulation. In chapter 4, we can find that many subjects can't distinguish /n/ from /ŋ/, /ɪ/ from /e/ and /eɪ/.

Main causes of errors

(1) Weak knowledge foundation

This issue recurs the most frequently. Upon reviewing the records, the author discovered that the majority of participants were able to accurately pronounce the initial syllables of the chosen words, yet they exhibited uncertainty towards the final syllables. This revelation underscores their limited familiarity with these words, as they had not encountered them in the past, ultimately impeding their progress. Furthermore, another shortcoming lies in their lack of phonological knowledge, which leads to random instances of epenthesis and substitution. Hence, it is imperative for EFL learners to deepen their understanding of phonetic and phonological knowledge to better equip themselves for future linguistic studies.

(2) Negative Transfer of Mother Tongue

It is widely recognized that the negative transfer of the mother tongue exerts a profound influence on the acquisition of a second language. The research findings reveal that the native language plays a pivotal role in causing deviations in the pronunciation of word-finals. The subjects under study have been impacted, to varying degrees, by both Standard Chinese and local dialects. Notably, a significant proportion of Chongqing subjects encountered difficulties in distinguishing between /n/ and /ŋ/, which aligns with Sun Xu's (2020) research findings that "Chongqing dialects exhibit characteristics of not differentiating between nasal and lateral phonemes, as well as front nasal and back nasal phonemes". Thus, it is evident that L1 has substantial influence on the L2 acquisition.

(3) Lack of Practicing and Training

The experiment served as a pre-test for incoming freshmen, thereby all participants did not undergo a systematic training in English pronunciation. This indicates that their prior English education in middle school did not place sufficient emphasis on the cultivation of

accurate pronunciation. Consequently, their existing pronunciation issues and errors were not identified and rectified, which subsequently became impediments in their language development. Furthermore, a majority of the participants did not devote adequate time to practicing pronunciation, contributing to their proficiency in oral English being comparatively weak.

Suggestions to the errors

According to the errors and problems found in study, as well as the causes for them we have discussed above, the author suggests several corresponding solutions to them.

(1) To enhance the English proficiency of students, it is imperative for schools to cultivate a cadre of high-quality teachers and effect a paradigm shift in teaching philosophy. Currently, many secondary schools disproportionately prioritize examination performance over the cultivation of fundamental language skills. However, as previously alluded to, language is a tool for communication, not merely an exercise in filling blanks. Consequently, it behooves English educators to integrate pronunciation instruction alongside other grammatical focal points. This necessitates modern English teachers to themselves master standard pronunciation if they aspire to instruct others effectively. Therefore, teachers should undergo professional and systematic pronunciation training to equip them with the necessary expertise. Through such enhancements in pedagogical approach, students can be better positioned to grasp the intricacies of English pronunciation and, by extension, bolster their overall oral proficiency.

(2) EFL learners should devote more time to practicing pronunciation and expanding their phonological knowledge. They can, for instance, dedicate themselves to understanding the placement and technique of articulation. Furthermore, a thorough familiarity with phonological rules is essential to prevent errors such as epenthesis and substitution.

CONCLUSION

This research focuses on the production of word-final pronunciations in English. Based on the analysis and findings from the study, the author discusses the recordings of 231 subjects and identifies several issues and errors. Subsequently, the author offers a set of recommendations for English learning and teaching practices. However, it is noteworthy that this research is not without its limitations, as the author acknowledges three key shortcomings: insufficient testing of word-final pronunciations, regional variations in pronunciation, and the author's own limitations in capacity. Notwithstanding these constraints, it is anticipated that this study will serve as a valuable reference point for future research, paving the way for more extensive and comprehensive investigations in this area.

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