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Challenges in Pronouncing English /r/ for Chinese Learners

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Abstract: Chinese English learners face challenges in pronouncing English /r/ sound. This study explores how regional dialects influence the acquisition of this sound. A literature review is utilised to investigate the perception and production of the English /r/ among Mandarin, Cantonese, and Shanghainese speakers. The participants are all Chinese undergraduate students. In this research, data was collected through various ways, including surveys, pronunciation tests, listening exercises, and interviews. The paper finds that those speakers have different pronunciation performances in /r/. Since there is a similar retroflex approximant in Mandarin, they do better in both perceiving and articulating the /r/ sound. On the other hand, Cantonese and Shanghainese speakers have more difficulties and usually substitute /r/ with /l/ or /ʋ/ sounds. The findings emphasises the impact of regional dialects on English pronunciation and help teachers come up with more effective English pronunciation teaching strategies in the future.

Keywords: English /r/ sound, Chinese dialects, phonetic challenges, L2 pronunciation.

1. Introduction

English has been chosen as a second language for Chinese people for a long time and the pronunciation phenomenon has attracted increasing attention, especially some shared challenges in pronouncing. The /r/ sound in English is an essential phonetic feature since it changes significantly across various dialects and it also changes in different regions of China, causing rhotic as well as non-rhotic accents [1]. In most of North America, Scotland, and Ireland, the /r/ sound is found in rhotic, pronounced in all positions within a word. On the other hand, non-rhotic accents are common in most of England, Australia, New Zealand, and South Africa, dropping the /r/ sound when appearing at the end of a syllable or before a consonant. This distinction influences the way English learners perceive the /r/ sound. This pilot study analysis focuses on how regional dialects of Chinese English learners affect them to perceive and produce the /r/ sound in English. In the phonetic systems, Mandarin, Cantonese, Shanghainese, and other dialects are different and some dialects lack the sound like /r/ in English, making the learners potentially misperceive and have difficulties in learning this sound [2]. By analysing the impact of Chinese dialects on learners' pronouncing /r/, this study aims to provide a comprehensive understanding of phonological challenges faced by Chinese English learners, particularly in mastering /r/ sound, thus leading to more effective English teaching.

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2. Literature Review

Wells classifies English accents into rhotic and non-rhotic categories, a distinction that is evident when comparing Received Pronunciation (RP) with General American (GA) [3]. In rhotic accents, speakers articulate the /r/ sound in words such as “car” and “first”, whereas non-rhotic speakers often omit the /r/ in these contexts, leading to noticeable differences in pronunciation. In other words, for rhotic speakers, /r/ is pronounced in all places but people with non-rhotic accents only articulate the /r/ when it is a “linking and intrusive r” in a phrase or prosodic unit that is followed by a vowel sound [4]. When the sound /r/ is dropped from the syllable coda before a consonant or prosodic pause, the accent is said to be non-rhotic. Historically, this shift towards non-rhoticity began in the 16th century and became a symbol of “polite” British speech by the 19th century [5]. John Walker also noted that the non-rhotic tendencies of Londoners, where the /r/ was pronounced weakly or omitted completely. The non-rhotic pattern became more prevalent and turned to the standard in British English. The character /r/ is a fricative in Chinese. A phenomenon known as “érhuà” refers to adding a /r/ at the end of some words, if not, /r/ only occurs before a syllable [1]. Moreover, the majority of northern Chinese accents are represented in Chinese by the term “érhuà”, although the southern region of China typically does not employ this ability [1]. That is to say, despite the fact that they both speak Mandarin, the northern and southern regions of China are typically more rhotic due to their respective accents.

Regional dialects have an impact on the perception and production of phonemes [6], and the /r/ sound has diverse variations in different languages. There are considerable variations in the phonemic inventories in Chinese dialects, which influences the way people produce certain sounds in English. Numerous researchers have pointed out the challenges Chinese learners of English face with the /r/ sound, often linking these difficulties to the influence of regional dialects. In northern China, where Mandarin is prevalent, there’s a retroflex approximant /ɻ/ sound that bears some resemblance to the English /r/. However, the articulation of /ɻ/ and /r/ is different so those Chinese English learners may feel challenged in producing and perceiving /r/ accurately in English. According to O’Neal, Mandarin English learners usually substitute the English /r/ with the Mandarin /ɻ/, causing miscommunication [7]. In the south of China, some dialects such as Cantonese, may lack this retroflex approximant /ɻ/ sound or the /r/ may be produced differently [8], resulting in more challenges for learning /r/ in English. Some Cantonese speakers may replace the /r/ with the /l/ sound [9], particularly in syllable-final positions due to the lack of the equivalent /r/ sound in the dialect, making it more difficult for them to speak and listen in English. Moreover, tonal and syllable structural differences in Chinese dialects further influence the /r/ learning process. This is because the syllable structure in Chinese dialects tends to end in a vowel rather than in a consonant like /r/. Therefore, some Chinese English learners are more likely to omit the /r/ sound in word-final positions.

3. Methodology

3.1. Participants

When recruiting participants, a few factors have been taken into account, such as dialect groups, age, educational background, and English proficiency. Three representative dialect groups are selected to ensure the diversity of Chinese dialect speakers, including Mandarin, Cantonese, and Shanghainese. The participants are undergraduate students at Chinese universities, aged around 18-20. They all have passed the College English Test Band 4 (CET-4). There are six participants in total, with two in each dialect group, aiming to capture the regional dialectal influences on the perception and production of the /r/ sound in English. The Mandarin group represents the northern dialects, and the speakers have the retroflex approximant /ɻ/, as mentioned in the section of the literature review. The Cantonese

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group represents the southern dialects, which may lack the /r/ sound or replace /r/ with /l/. The Shanghainese group represents the Wu dialect, which is unique due to its phonetic characteristics.

Table 1: Basic information of participants

Dialect Group	Participants	Age	English Proficiency
Mandarin	Kitty	19	Intermediate
	Penny	20	Intermediate
Cantonese	Gary	18	Intermediate
	Winnie	19	Intermediate
Shanghainese	Tina	19	Intermediate
	Nick	20	Intermediate

3.2. Data Collection

In order to assess the participants' ability to perceive and produce the /r/ sound, the data collection process involves the following tasks.

First of all, a survey is used to gather some basic information about the participants to know more about their English learning experience and difficulties with English pronunciation, particularly about the sound of /r/.

The second task is pronunciation tests in which participants need to read a list of 20 English words with /r/ in different positions, including beginning, middle, and end, such as "red", "carrot", and "doctor". The test is conducted in a quiet room and their reading is recorded by smartphones.

Another task is a listening exercise, assessing the perception of the English /r/ sound. The listening exercise contains pairs of words, one word with /r/ and one without, such as "right" and "light". Participants are asked to tick the word with the /r/ sound to show if they can distinguish the /r/ from similar phonemes.

Then, follow-up interviews are done to develop a deeper understanding of their English learning about the /r/ sound. Questions are asked to focus on their awareness of the /r/ pronunciation challenges, exposure to English environments, and improving strategies.

Table 2: Assessment tasks

Task	Purpose	Example	Data Collection
Survey	Collect data of the participants	Basic information; English learning experience with /r/	Paper or digital questionnaire
Pronunciation tests	Assess production accuracy	"red", "carrot", "doctor"	Recordings
Listening exercises	Assess perception accuracy	"right" and "light"	Handouts
Interviews	Delve into pronunciation challenges	Pronunciation strategies used by the participants	Recordings

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3.3. Data Analysis

Both quantitative and qualitative data analysis are used in this study. Firstly, in task 2, pronunciation tests, the reading of the participants is phonetically transcribed by using the International Phonetic Alphabet (IPA) to record the articulation of the /r/ sound. The results are kept in the format as follows.

Table 3: Performance of pronunciation

Group	Participants	Word	Pronunciation
Mandarin	Kitty	Red	/ɻed/
	Penny		/red/
Cantonese	Gary		/led/
	Winnie		/wed/
Shanghainese	Tina		Not clear
	Nick		/ʋed/

The transcribed data is analysed to identify patterns in the production of the English /r/ sound. For each group, the accuracy of /r/ articulation is calculated as a correct percentage of /r/ pronunciation out of the total number of about 20 words. The results of the listening tests are analysed to examine the percentage of correct identifications of the English /r/ sound.

The production and perception of the English /r/ are compared across the three dialect groups to find out differences. It has shown that the Mandarin group performs better in both pronunciation and listening tasks due to the /ɻ/ sound in the dialect while Cantonese and Shanghainese participants face difficulties in the two tests due to the lack of similar sound.

The interviews are transcribed and analysed to identify common challenges and strategies from the participants. This provides additional context for understanding the challenges that Chinese English learners encounter when learning the /r/ sound.

The above methods help analyse how Chinese regional dialects influence the perception and production of the /r/ sound in English.

4. Findings

4.1. Perception of /r/

English learners from different dialect backgrounds perceive the English /r/ sound differently. Based on the collected data, Group 1, Mandarin speakers can distinguish the /r/ sound better than other groups from Guangdong and Shanghai.

Group 1, the Mandarin group has a high accuracy rate in identifying the English /r/ sound, with 86%. This result can be attributed to the similar retroflex approximant /ɻ/ in Mandarin. The two participants in group 1 have no difficulty in distinguishing /r/ from other sounds such as /l/ or /w/. They are aware of the rhotic /r/.

In group 2, the Cantonese participants show a lower correctness in the listening tasks and the accuracy rate is only 63%. Cantonese people usually pronounce the /l/ and /w/ sounds instead of the /r/ sound. Hence, English learners find it difficult to distinguish in English listening. The two participants in this group feel confused about differentiating between /r/ and other sounds, particularly in minimal pairs.

Shanghainese English learners have an even lower accuracy rate with 59% correctness. Shanghainese belongs to the Wu dialect, and there is no equivalent sound to the English /r/ sound. Therefore, in the listening tests, the two participants felt frustrated about distinguishing /r/.

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The findings indicate that the dialects of the participants influence their ability to perceive the English /r/ sound.

Table 4: Accuracy in perceiving /r/

Group	Dialect	Accuracy in perceiving /r/
1	Mandarin	86%
2	Cantonese	63%
3	Shanghainese	59%

4.2. Production of /r/

In the pronunciation tests, the production of /r/ is assessed. It shows that the correct rate is related to the participants' regional dialects.

Group 1 still has the best performance, with an 83% accuracy rate in articulating the /r/ sound. Their pronunciation is extremely close to the English rhotic /r/, especially do a good job when the /r/ sound appears at the beginning of the word, such as "red", "right", and "return". Nevertheless, the two participants make mistakes when the /r/ sound is in the middle or the end of the words, such as "car" and "doctor". Some of their pronunciation sounds like Erhuayin (also called erization). Some of the /r/ is replaced by the /ɻ/ or other similar sounds in Mandarin.

Cantonese participants have less satisfied performance in reading the wordlists with the /r/ sound. Their accuracy rate is 62%. The most common error shared by the two members is to pronounce /l/ instead of /r/. The phenomenon is even more obvious when the /r/ sound appears in the initial and middle of the words. They have challenges in distinguishing minimal pairs. In Cantonese, there is no /r/ sound so when speaking English /r/ sound, learners tend to produce other similar sounds they think.

According to the recordings of group 3, Shanghai participants have the most difficulties in articulating the /r/ sound in English. The accuracy rate is only 53%. Because of the Wu dialect, the production of the English /r/ is substituted with /ʋ/ or other non-rhotic sounds. For example, one participant pronounced "red" as "ved". It shows the challenges in producing the /r/ in English.

The listening tests help identify the production accuracy in different regional dialect groups in China. Their dialects have an impact on their articulation of the English /r/.

Table 5: Accuracy in producing /r/

Group	Dialect	Accuracy in producing /r/
1	Mandarin	83%
2	Cantonese	62%
3	Shanghainese	53%

4.3. Comparison

The above results of how Chinese English learners perceive and produce the /r/ sound in English show significant differences with native English speakers, especially for those from rhotic and non-rhotic regions. American native English speakers, who are from rhotic parts, pronounce the /r/ sound no matter where it appears in the words. In contrast, in non-rhotic regions, such as in Britain, native English speakers are more likely to drop the /r/ sound in the post-vocalic positions. For example, they say "car" with the pronunciation /kɑ:/.

Chinese people who speak Mandarin produce the /r/ sound in patterns like rhotic accents. When the /r/ is at the beginning of a word, they tend to be more accurate but lack the consistent rhoticity of

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English native speakers. On the other hand, Cantonese and Shanghainese speakers usually drop or replace the /r/ sound in a way like non-rhotic accents.

English native speakers have a high accuracy rate of the /r/ sound perception regardless of their regions of rhoticity or non-rhoticity. However, in China, English learners have challenges in perceiving the English /r/ sound. People who speak Cantonese and Shanghainese may meet more difficulties due to the impact form the native dialects.

The comparison emphasises the influence of Chinese regional dialects on the perception and production of the English /r/ sound. Mandarin speakers, who come from the north of China, show closer alignment with the rhotic accents of English native speakers while Cantonese and Shanghainese English learners have to make more efforts with the English /r/ sound since the sound is absent in their dialects.

4.4. Discussion

As the result analysis above, English learners' dialect languages have an impact on the learning process of English. The phonologic features of the dialects can either facilitate or hinder the perception and production of certain English sounds. As observed in this pilot study, Cantonese and Shanghainese English learners replace the English /r/ sound with their familiar sounds from the native dialects.

The findings may have implications for English teachers in China, especially for those who teach in southern regions that speak Cantonese and Shanghainese. English educators should be aware of the specific phonological challenges that their students might meet due to their native dialectal language systems. For example, teachers are advised to design more exercises for the students to practise the distinguishment of the /r/ sound. More minimal pair exercises, listening, and speaking tasks might be helpful for the learners to differentiate the /r/ sound from other sounds thus producing it more accurately.

5. Conclusion

In conclusion, this pilot study analysis demonstrates that Chinese regional dialects influence the perception and production of the English /r/ sound among English learners. Mandarin speakers perform better in both pronouncing and listening tasks due to the similar sound in Mandarin while Cantonese and Shanghainese English learners bear more challenges because of the lack of the similar sound in their dialects.

There are a range of limitations of this study. The first one is about the sample size. There are only three dialect groups and six participants, which cannot represent the phenomenon of the /r/ sound perception and production of Chinese English learners. Secondly, the word lists and listening questions of the tasks cannot collect adequate data nor capture the complexities of /r/ in English.

In the future, the sample size should be expanded and more dialect groups with more participants should be included. English teachers in China can also focus more on strategies to enhance students' English pronunciation.

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