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Perception and Production of English Consonants by Senior High School Students

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Abstract

For Chinese students coming from different areas, they often encounter different English learning challenges in speaking and listening due to the influence from hometown accents. In comparison with Mandarin, the learners from Nanchang struggle with the pronunciation of /ɹ/ and /l/, /n/ and /ŋ/ sounds. Therefore, it is explored in this study whether Nanchang students face the same difficulties in listening and speaking when it comes to /ɹ/ and /l/, /n/ and /ŋ/. A total of 30 Nanchang senior three high school students participated in the perceiving and producing tests (comparing the English consonant minimal pairs: /ɹ/ and /l/, /n/ and /ŋ/), and they were invited to take interview about their personal attitudes and experiences about the learning of English consonants. It was revealed that there was no significant difference between producing and perceiving /ɹ/ and /l/, despite a significant difference in the performance on /n/-/ŋ/. Moreover, the perception of students about the English consonants shows a positive correlation with the production of the consonants. According to the interview, the lack of standard English learning resources was a major barrier to English study for students. The pedagogical implication is that the teachers in Nanchang area were suggested to provide pre-class speaking training, investigate the difficulty in English pronunciations for students, and teach pronunciation by playing the standard English video, which would be beneficial for senior high school EFL learners to improve the perception and production of English consonants.

Keywords: perception of English consonants, production of English consonants, Chinese Nanchang dialects

1. Introduction

In China, there are different levels of training on English reading, listening and writing because of the exam-oriented learning model in the 9-year primary compulsory education and senior high school study. However, compared to these English skills, English speaking attracts less attention from both learners and teachers (Yang, J., 2006). Apart from the lack of focus on the learning of English speaking, Zhang and Yin (2009) summarizes the differences in phonology and phenetics systems between English and Chinese, indicating the difficulties facing Chinese EFL learners in English pronunciation. Moreover, the profound influence of the Confucianism makes Chinese students inclined to keep silent and avoid communication during the English class, which leads to the low English-speaking proficiency (Liu, M., & Jackson, J., 2009). The exam-oriented English learning is another important reason for the low level of English-speaking proficiency among senior high school students. To pass the College Entrance Examination which involves reading, listening, and writing, both instructors and senior high school students pay less attention to English speaking, as indicated by Han, Yu and Zhang (2012). Therefore, such general environment of English learning discourages some disadvantaged senior high school students from paying adequate attention to English speaking, which leads to their poor performance in this respect.

Currently, there are plenty of studies focusing on the English linguistic perception and production of Chinese English learners under the influence of their native language. In China, there are different dialects in different areas, which means learners may face different learning challenges, despite the need for Chinese learners to learn Mandarin and take Chinese courses in the school. For example, Lai (2010) investigated English learners in Taiwan, revealing that the students encountered challenges in perceiving and speaking the tense-lax English vowels perceived as similar to their L1 vowels. Han, Yu, and Zhang (2012) explored the correlation between

learning Mandarin and English pronunciation among the students in Hebei province, indicating that those students who could speak Mandarin better perform better in English speaking. However, there were few studies analyzing the perception and production of English pronunciation among Nanchang dialect speakers. Therefore, this study fills the gap by exploring whether the Nanchang dialect affects the English production and perception of English consonants /ɹ/-/l/ and /n/-/ŋ/ for students.

2. Literature Review

For second language learners, their native language plays a vital role in understanding the working mechanism of the second language. As argued by Romero and Manjarres (2017), second language learning can be influenced by the habits of how to speak native language. More specifically, Romero and Manjarres (2017) carried out error and contrastive analysis to discover that native language exerted influence on English sentence structure, phonology, and lexis for students. For example, the Sandi Arabi learners habitually mixed up /p/ and /b/ sounds while producing and perceiving the two sounds in English. This is because there is only /b/ sound in their native language. The result of Lai's (2010) research also supports that the pronunciation of learners' first language influence their learning of English pronunciation, for example, the Mandarin EFL learners tend to use [ow] in Mandarin instead of [ɔ] in American for English speaking. Furthermore, it was also difficult for Chinese learners to produce the dental fricatives /θ/ and /ð/ in English, due to the lack of these two sounds in Mandarin (2017). Such examples demonstrate the strong influence of first language pronunciation on the learning of second language. Also, there is an argument that the students from different areas face different challenges in English learning because of the influence from their native languages.

For Chinese students, English learning is usually subject to influence from their dialect and Mandarin. According to the summary of Zhang and Yin (2009), Mandarin speakers could produce similar sounds to native American English speakers when it comes to the vowels like /i/ /e/ /u/ /o/ /ɑ/ /ɪ/ /ɛ/ /ɔ/ /ʌ/. Furthermore, Chang et al. (2011) discovered that the heritage speakers can outperform native Mandarin speakers in perceiving and producing back vowels and voiceless plosives. That is to say, learning more speech sounds is conducive to understanding a language. In addition to the Mandarin, dialects can also make difference to how English pronunciation would be perceived and produced. A classic example of this is that the students from Yunnan province struggle to distinguish between /æ/ and /e/ sounds (Zhang, F., & Yin, P., 2009). In comparison with the Yunnan province, those students coming from Sichuan province tend to mix up /s/ and /z/ when speaking the two sounds (Qin, Q. X., 2014). By indicating the difficulty in distinguishing between /e/ and /ɑɪ/ for those students from Hebei province, Han, Yu and Zhang (2012) argued that the Mandarin often leads to a positive transfer for English pronunciation while dialects tend to result in a negative transfer.

As for the learning of English pronunciation, perceiving the sounds plays an important role in making learners understand the sound, and producing the sounds is beneficial for learners to practice. As suggested by Chan (2014), despite the ease of Cantonese speakers to perceive some English consonants (eg. /v/ and /f/), they still struggle to speak well in these sounds. Moreover, Taiwanese EFL learners could perform better in producing /æ/ and /ɛ/ than in perceiving /æ/ and /ɛ/, as indicated by Ying (2013). Therefore, to understand how perception relates to production provides a way to give students suggestions in practice listening or speaking while learning English.

3. Methodology

3.1 Participants

There were 30 students from Nanchang No.1 senior high school recruited as the participants in the perception (listening) and production (speaking) tests. The students were all grade 3 in senior high school whose first languages were Nanchang dialect. They started to learn English at around the age of 9 (Grade 3 in primary school). According to the textbooks used across senior high schools in Nanchang, the students have learned both GA and RP English. Despite the requirement set out by the government for students to learn and use Mandarin in the class, they still used Nanchang dialect for communication with their friends and family after class.

3.2 Instrument

As a form of listening test, the perception test contains multiple English consonants minimal pairs. The production test required students to read some minimal pairs, which is conducive to assessing the learners for their production of the English consonants.

Depending on the linguistic features of Nanchang dialect, there were 2 consonants pairs concluded in the production and perception tests: /ɹ/ and /l/ and /n/ and /ŋ/. For each stimulus in the tests, it was comprised of 20 monosyllabic words. Furthermore, the words containing the consonants (/ɹ/ and /l/, /n/ and /ŋ/) were presented in

the form of minimal pairs. However, the minimal pairs emphasized only one different phonological element, for example, lice /laɪs/ and rice /ɹaɪs/ were the minimal pairs used in both tests.

Although the items used in the production and perception tests are identical, the scores in each test were calculated differently. The two tests contained 20 items, with two monosyllabic words included in each item, which means the tests involved 40 words in total. During the perception test, the participants can get one point for choosing the correct vocabulary displayed in the video. Therefore, the total score of the listening test was 20. As for the production test, the participants were required to read all the 40 English words. The participants can get 0.5 point for reading the word in the accurate pronunciation. Therefore, the total score of the speaking test was 20 points as well.

Following these two tests, a semi-structured interview was conducted to question the 30 students about their attitudes and experiences in respect of English learning in school, which is purposed to find out about the pedagogical improvements in the teaching of English speaking. Conducted in Chinese, the interviews lasted around 20 minutes for each student. After the interview, the speeches were transcribed in English for thematic analysis.

3.3 Stimuli Preparation

During the tests, the items of the contrasts in /ɹ/ and /l/ occupied the initial and middle positions of the words, respectively (e.g. blight - bright). Another pair of target sounds, /n/ and /ŋ/, appeared in the final position of the words.

3.4 Procedures

This research consisted of three steps: a perception test, a production test and an interview. In the perception test, all of the 30 participants were required to choose the word heard from the video after receiving the response sheets with the minimal pairs. During the production test, the students were required to read all the vocabulary individually, and all of the production tests were recorded. Finally, they were required to take the interviews.

3.5 Data Analysis

For the two tests, paired sample t-test was performed to analyze whether students had difficulties in listening to and or reading the two consonants pairs (/ɹ/ and /l/, /n/ and /ŋ/). Furthermore, JASP was applied to indicate the p value. If the p value falls below 0.01 in the paired t-test, the two groups of data are considered to be significantly different. On the contrary, if the p value reaches above 0.01, there are no differences between the data. Furthermore, JASP was also relied on to calculate the correlation between the perception and production of students. Finally, thematic analysis was conducted to analyze the data gathered from the interview.

4. Results

4.1 Results of Perception Test and Production Test of /ɹ/ and /l/

In order to analyze whether the participants encountered difficulties in listening to and speaking /ɹ/ and /l/ sounds, descriptives and paired t test were carried out using the data, the results of which are shown in Table 1. Part A represents the perception test's scores of /ɹ/ and /l/, and Part 1 represents the production test's scores of the consonants pair. As shown in Table 1, there is no difference between students' listening and speaking in the sounds /ɹ/ and /l/ ($t\ 29 = -0.065$, $p = 0.949$). That is to say, the students can speak the two sounds if they can perceive the /ɹ/ and /l/. Moreover, students performed well in both listening and speaking tests, as evidenced by the mean scores.

Table 1. Performance on the perception and production of /ɹ/ and /l/

Categories	N	Mean	SD	df	t	Sig
Part A	30	8.9	1.044	29	- .065	.949
Part 1	30	8.883	1.269	29		

4.2 Results of Perception Test and Production Test of /n/ and /ŋ/

According to Table 2, the mean score of the Part B (perception test) is higher than that of Part 2 (production test), which suggests that students could listen to the differences between the two sounds, and it is more difficult to speak the two sounds for students. Furthermore, there is a significant difference observed between the two tests ($t\ 29 = 3.910$, $p < 0.001$), which implies that the perception of the sounds /n/ and /ŋ/ makes no difference to the

production of the two sounds. The students may not speak out the sounds if they can listen to the differences of the two sounds. Furthermore, students perform better in listening test than in the speaking test, as reflected in the mean scores.

Table 2. Performance on the perception and production of /n/ and /ŋ/

Categories	N	Mean	SD	df	t	Sig
Part B	30	5.233	1.406	29	3.910	< .001*
Part 2	30	4.116	.928	29		

Note. *p< .001

4.3 Relationship Between the Production and Perception

The correlation analysis was carried out to explore the correlation between the perception and production of the English consonants among students in Nanchang. As shown in Table 3, the perception has a positive correlation with the production ($r = 0.403$, $p < 0.05$), which means perceiving the English sounds well is beneficial for students in terms of English pronunciation.

Table 3. Correlation Matrix Summary of /ɹ/ and /l/, /n/ and /ŋ/ in Terms of Perception and Production

Categories	N	Mean	SD	df	r	p
/ɹ/ and /l/, /n/ and /ŋ/ Perception	30	20.33	3.553	29	.403	.027*
/ɹ/ and /l/, /n/ and /ŋ/ Production	30	18.93	3.074	29		

Note. *p< .05

4.4 Interview

A semi-structured interview was conducted to find out about the attitudes of students and the factors they thought could have effect on their learning of English pronunciation during the high school.

Importance of English-speaking learning: 27 students expressed their desire to learn RP or GA and considered learning English pronunciation as significant. 5 out of these 27 students practiced their Spoken English by reading after watching the English video, such as BBC. On the contrary, 3 students considered learning English speaking as unnecessary. The students believed that the College Entrance Examination was not a test on their speaking, and they lacked interest in English, which meant they would not find English-related work. Therefore, they held negative attitudes toward the learning of English speaking.

Influences from Mother tongue: 17 students took the view that Nanchang dialect did exert influence on their way of perceiving and speaking English, especially the /n/ and /ŋ/ in the tests, because there is no /n/ sound in Nanchang dialect. Additionally, they believed that their accents were influenced by Nanchang dialect for English speaking, and they lacked confidence in this regard.

Teachers' nonstandard English pronunciation teaching: Some students revealed that their English teacher could not speak GA or RP, so what they had learned was the English pronunciation with the accent. Except for learning from the class, 9 students expressed their lack of awareness of any English-speaking learning resources. Therefore, the pronunciation of instructors was the main learning resource of English-speaking for these students.

5. Discussion

When compared to the mean scores of /n/-/ŋ/ and /ɹ/-/l/ tests, students perceived and produced /ɹ/-/l/ better than the performance in /n/-/ŋ/ pairs, according to the results. That is to say, to better learn the English pronunciation requires the senior high school students in Nanchang to pay more attention to the differences of /the sounds n/-/ŋ/. Furthermore, students performed better in perceiving /n/-/ŋ/than in producing the two sounds, and they were inclined to choose /ŋ/ over /n/ in the perception test, which is consistent with the research of Guo, Xiong

and Wu (2015). It was explained in the research that it was common for Nanchang students to mix up /n/ and /ŋ/ sounds while learning English, because there is no alveolar nasal /n/ sound but velar nasal /ŋ/ in Nanchang dialect. As pointed out by Romero and Manjarres (2017), the first language of students serves as a reference tool for them to learn a foreign language or understand how the language operates. For learners, their way of perceiving and producing the /n/ sound in English learning was influenced by the lack of /n/ in Nanchang dialect from their childhood.

The tests' scores of perceiving and producing /ɹ/-/l/ pair were both higher compared to /n/-/ŋ/ tests. Moreover, the mean score of /ɹ/-/l/ perception test was higher than the score of production test. That is to say, students are able to identify the differences between /ɹ/ and /l/ while reading and listening to the two sounds, despite /ɹ/ being replaced with /l/ in Nanchang dialect (Guo, L., Xiong, C., & Wu, L., 2015). The result was similar to the findings in the research of Aghadiuno (2021), which signals that it is easier to distinguish the consonants in the initial of the words than the final consonants.

According to the correlation analysis of students' perception and production of English consonants, there is a positive relationship between English listening and their English-speaking, which is consistent with the research of Akcil, Saeed and Bostanci's (2022) and Zhang, Dai and Ardasheva (2020), who suggested that students should improve English listening and speaking through the integration of language skills teaching rather than by adopting teacher-, skill-, and test-oriented teaching methodologies.

As revealed by the interview data, despite the desire of some students to improve their Spoken-English due to their career expectation and interests, the main challenges facing students remained the influence of native language and inaccurate pronunciation teaching by instructors. The result is similar to the findings in Qin's (2014) research, where the effects of Sichuan dialect on English phonetics learning were explored. In Qin's (2014) research, most of the students had desire for RP or GA, but the influence of Sichuan dialect accent made them lack confidence in English-speaking at the time of speaking.

6. Conclusion

This study is aimed to reveal the relationship between the perception and production of English consonants among the senior high school students in Nanchang (/ɹ/-/l/ and /n/-/ŋ/). A total of 30 students completed a listening test, a speaking test and a semi-structured interview. In general, the Nanchang dialect increased the difficulty for them to distinguish the consonants during speaking and listening.

The pedagogical implications can be inferred from the perspective of instructors and schools. Firstly, teachers should introduce world Englishes to students, which is beneficial for students to boost their confidence in speaking English with accents. Furthermore, teachers can attempt the design of more students-oriented activities for students to practice listening and speaking during their communication with others. Additionally, teachers can provide some targeted training on the specific English consonants after knowing the English pronunciation by students with weak performance in perception and production. Moreover, it is essential for senior high schools to provide some pre-class training on English phonetics for teachers, which is beneficial for them to have a better understanding and practices before teaching a class.

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