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# An analysis of phenomena of consonant substitution and strategies for development for Cantonese EFL elementary learners: A case study

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**Abstract:** The present study focuses on the phenomena of consonant substitution and strategies for remediation or development for Cantonese primary school students in China. 8 students from the graduating classes of Dongguan Haide Bilingual School were randomly selected as participants, of whom the pronunciation samples were collected after finishing the optional course (fun reading) which lasted for 15 weeks. Focusing on segmental features (consonant substitutions), each audio was recorded by computer, followed by analyzing transcriptions, marking pronunciation errors, and categorizing error types. The result presented that the pronunciation of letters th, pronunciation of the initial consonant cluster and the final consonant cluster, pronunciation of the letter l, substitution of voiceless consonant for the corresponding voiced consonant, substitution of phonemes /w/ for /v/ and /r/ and confusion between phonemes /n/ and /m/ were the common types of errors in consonant substitution of learners in primary school on English learning. By analyzing the phenomena of consonant substitution in the English pronunciation of specific primary school students in Guangdong and exploring its developmental strategies, this paper attempts to provide predictable focus and teaching guidance for primary school English teachers, aiming at exploring and innovating English pronunciation teaching methods, stimulating students' learning interest and promoting the development of primary school English language teaching (ELT).

**Keywords:** primary English; consonant substitution; developmental strategies; English pronunciation teaching

## 1. Introduction

In 1967, Lenneberg proposed the critical period hypothesis (CPH) and he contended that before adolescence, students are in a rapid developmental phase mentally and physically, with high brain plasticity, and easier to master the second language, while in adolescence, since the brain plasticity begins to degrade, second language learning becomes more difficult (Hou, 2008). Since CPH was put forward, children's language acquisition has become one of the hottest issues of public concern. In order to investigate whether the "critical period" in speech acquisition exists and its influence on speech acquisition, it is necessary to study the phonetic characteristics of students from of different ages and make a reasonable comparison over a long period. To date, large numbers of domestic and foreign scholars have conducted numerous researches on the phonological phenomenon in the English learning process of teenagers or adults (Ma, 2007).

However, there has been a small quantity of researches research concerning the characteristics in some specific stages of the process of pronunciation learning, and most of them were described by in individual cases. Phonology is not only the

premise and foundation of the English language but also a crucial part of primary school English teaching. In practical teaching, only by ensuring that primary school students learn phonetic knowledge well, can we create conditions for their further learning of English and training their oral communicative competence. Therefore, how to improve the efficiency of primary school English pronunciation teaching is an urgent problem for teachers. The following research questions were developed to investigate the phenomena of consonant replacement of Cantonese EFL (English as a foreign language) learners at primary school in this case and explore the developmental strategies:

- 1) What are the main phenomena of consonant substitution of Cantonese EFL learners at primary school?
- 2) How do the teachers improve primary school English pronunciation teaching in terms of consonant substitution?

## **2. Literature review**

Between 200 and 350 million people in China are currently learning English, making Chinese English the most prevalent form of the language in Asia (Bolton, 2003; Graddol, 2006, 2010). Numerous studies have examined the phonological characteristics of Chinese-accented English at the segmental level in detail (Deterding, 2006); however, Cantonese, one of the Chinese dialects spoken by more than 60 million people, has rarely had its English accent studied in mainland China, let alone had its full set of linguistic features described using authentic data. Guangdong province and Hong Kong are geographically, economically and historically closely connected, and their languages usage is also to some extent alike. Cantonese, English, and Putonghua have been the three languages that coexist in Hong Kong. Other research investigations have examined language attitudes and usage among these languages, and their findings indicate that while Cantonese is still used for daily intra-group intimacy, English is seen as the formal language used for employment and educational purposes (Lai, 2011; Bacon-Shone et al., 2015; Chan, 2019). Thus, in the early 21st century, a group of academics made an effort to look into a phonological inventory of HKE (Hong Kong English).

According to prior research concerning the pronunciation of Hong Kong English (Deterding et al., 2008), in the context of consonant substitution, Cantonese speakers in Hong Kong frequently vocalize dark /l/, confuse /l/ and /n/ in the initial place, replace with other consonants when pronouncing th and eliding sounds in initial and final consonant clusters. Hung (2000) contended that the absence of voiced fricatives (/v/, /z/, /ð/, and /ʒ/) in HKE accounts for the limited consonant inventory. Sewell and Chan (2010) presented an outline of some consonantal characteristics associated with HKE in a corresponding study, such as TH-fronting/-stopping, L-vocalization, conflation of /n/ and /l/, substitution of /r/ and /v/, and initial consonant cluster. This paper's analysis will begin with an examination of these elements before moving on to other issues that might affect Cantonese speakers in the context of the Chinese mainland. The reason is that, unlike Cantonese speakers in Hong Kong who speak Cantonese as their first language and English as their second language, Cantonese speakers in mainland China, who speak Mandarin

(standard Chinese) as their second language and English as their third language, may experience some audible pronunciation issues influenced by Cantonese and Mandarin when learning English (Chen, 2016).

As is common knowledge, Cantonese is one of the seven major dialects of Chinese, while English is a type of Indo-European language (Li, 2000). It is almost impossible for Cantonese learners to master standard English with an accent like a native speaker because these two languages are so unlike. Therefore, learners’ oral performance is extremely influenced by the interference of their mother tongue. Lyster (1997) divided the oral errors of non-native speakers into four main types: grammatical errors, phonetic errors, vocabulary errors, and improper use of the mother tongue. In order to address the pronunciation issues and difficulties that Cantonese speakers face, this study demonstrated that consonant substitution is a distinct segmental pronunciation problem among Cantonese EFL learners at primary schools in the mainland. It also proposed some pedagogical suggestions with the goal of developing learners’ awareness of English pronunciation.

### 3. Method

#### 3.1. Participants

The voice data came from 8 subjects respectively that were sixth-grade Cantonese students of the same primary school (Haide Bilingual School) in Dongguan city who participated in the optional class (fun reading) of the first semester, aged between 11 and 12 (shown in **Table 1**). Ten experienced in-service teachers from different schools, with an average teaching age of more than five years, were invited to the interviews.

**Table 1.** Details of student participants.

Speaker	Age	Medium of instruction	Gender
1	11	CMI	Female
2	11	CMI	Male
3	12	CMI	Male
4	12	CMI	Female
5	11	CMI	Male
6	11	CMI	Female
7	11	CMI	Female
8	12	CMI	Female

#### 3.2. Methodology

##### 3.2.1. Sample processing

In this study, the International Phonetic Alphabet (IPA) was used to transcribe the collected sound data. Then, the following steps were to analyze the data, annotate, and classify the pronunciation errors in terms of the segmental features (consonant replacement), so as to obtain the frequency information of each type of error on consonant replacement. The 40-minute optional class, called fun reading, was arranged every week so that it could increase their interest in English reading

and enhance their language performance through reading picture books, role-playing, problem-solving, and other activities. Through 15 weeks of study, the assessment tasks at the end of the class included group work (performing a play) and reading individually (the content was from one of the picture books of this semester). Eight students reading the picture book “The boy who cried wolf” which is a brief story with less than 250 words, were randomly selected as subjects of this study.

To protect subjects’ private information, recordings from the subjects were processed anonymously, using numbers instead in the following study analysis. The transcription and phonetic annotation of the text data in the recording referred to IPA and the representation of pronunciation errors in the corpus of the Language Development Center of HKU (The Education University of Hong Kong corpus). The errors relating to consonant replacement were annotated and categorized, and then statistical analysis was used to explore the types of English consonant pronunciation replacement errors in this specific language background.

### **3.2.2. Interviews**

Ten in-service teachers as participants accepted the interviews that included two parts: the first part was profile questions regarding the personal information (e.g., years of teaching experience, major, and workplace) and the second part consists of 3 questions: (1) are you aware of the phenomenon of consonant substitution in students’ learning process; (2) what are the main types of consonant substitution that occur frequently in your class; (3) what are your teaching strategies for remediation or development on specific consonant substitution situation, with the aim of investigating the effective pedagogical instructions on the specific situation at which consonant substitution occur during students’ learning process. Conducting interviews for in-service English teachers in primary schools, intended to explore feasible and effective teaching strategies to solve the problem of consonant replacement. The interviews were scheduled online through a Tencent conference, and the audio recording was transformed into text. The following data were gathered through coding, classification, and analysis via the thematic analysis method.

## **4. Results**

### **4.1. Pronunciation of letters TH**

Neither Cantonese nor Chinese have a voiced dental fricative /ð/ or a voiceless dental fricative /θ/, in terms of the place and manner of articulation. Because of this, these two phonemes are frequently swapped out by other sounds from the first language system by native Chinese speakers when pronouncing the letters th as a result (Crannell, 2011).

Surprisingly, as indicated in **Table 2**, all eight of the sample recordings had th mispronounced in them. The voiced consonant dental fricative /ð/ appeared 34 times in the drawing text, however, the participants’ recordings did not contain the proper pronunciation. A voiced alveolar plosive /d/, such as there/der/, them/dem/, that/dt/, they/dei/, etc., was substituted for all /ð/ sounds by 87.5% of the individuals in the replacement mistakes. In one of the subjects’ recordings, the voiceless alveolar plosive /t/ was used three times in place of /ð/ sounds, such as another /ə'nʌtə/, while

the phoneme /d/ was used 31 times in place of the /ð/ sounds. For the voiceless consonant dental fricative /θ/, this phoneme occurred twice in the text, but none of the subjects pronounced both words correctly (with and thought). Three participants substituted voiceless alveolar fricative /s/ for /θ/, while two subjects substituted labial-dental fricative /f/ for /θ/ in the replacement mistakes.

**Table 2.** Frequency and percentage of letters th replacement errors.

Item	Option	Frequency	Percentage (%)	Cumulative percentage (%)
/ð/ → [d]	31.0	1	12.50	12.50
	34.0	7	87.50	100.00
/ð/ → [t]	0.0	7	87.50	87.50
	3.0	1	12.50	100.00
/ð/ → [ð]	0.0	8	100.00	100.00
	0.0	2	25.00	25.00
/θ/ → [s]	1.0	3	37.50	62.50
	2.0	3	37.50	100.00
	0.0	4	50.00	50.00
/θ/ → [f]	1.0	2	25.00	75.00
	2.0	2	25.00	100.00
/θ/ → [θ]	0.0	7	87.50	87.50
	1.0	1	12.50	100.00
Total		8	100.0	100.0

#### 4.2. Initial and final consonant clusters

English words like splash, blackboard, and desks are examples of connected consonants named consonant clusters which are likely to appear at the start, middle, or end of a word. Because each Chinese character is a syllable and only contains a vowel (vowel) and a maximum of two non-adjacent consonants (initial, final), this (consonant clusters) does not occur in Mandarin Chinese. For instance, there are just two consonants (/t, n/) and they are not contiguous in pinyin tan. Cantonese’s syllable structure is substantially simpler than that of English since there are no consonant clusters, according to Stibbard (2004). Elision could be observed during the analysis of the recordings in both the initial and ending consonant clusters. According to **Table 3**, for the final consonant clusters, 87.5% of the participants would pronounce the letter l silently in words like field and wolf, while 25% would pronounce the letter t silently in the word nearest. In contrast, the subjects had a lower frequency of elision for the initial consonant cluster. Only 12.5% of participants mispronounced flock as /fɒk/ and 25% mispronounced cries as /kaiz/.

**Table 3.** Frequency and percentage of elision in consonant clusters.

Item	Option	Frequency	Percentage (%)	Cumulative percentage (%)
/ld/ → [d] field	0.0	1	12.50	12.50
	1.0	7	87.50	100.00

**Table 3.** (Continued).

Item	Option	Frequency	Percentage (%)	Cumulative percentage (%)
/f/ → [f] wolf	0.0	1	12.50	12.50
	1.0	7	87.50	100.00
/st/ → [s] nearest	0.0	6	75.00	75.00
	1.0	2	25.00	100.00
/fl/ → [f] flock	0.0	7	87.50	87.50
	1.0	1	12.50	100.00
/kr/ → [k] cries	0.0	6	75.00	75.00
	1.0	2	25.00	100.00
Total		8	100.0	100.0

### 4.3. L-deletion

L-vocalization, also known as the substitution of a vowel or semivowel for the dark /l/ sound, is a common phenomenon in Hong Kong English (Bolton and Kwok, 1990), with examples including will being spoken as /wɪʊ/. Curiously, though, the data being gathered provided no empirical support. According to Hung (2000), deletion, instead of substitution, occurs more often, particularly when the dark /l/ follows a back vowel like /ɑ:/, /ɔ:/, /u:/, /ɒ/ and /ɒ/. It is evident that 87.5% of the individuals eliminated the sound of dark/l/ in words like wolf /wɒf/ and field /fid/ (as indicated in **Table 2**).

### 4.4. Substitution of voiceless consonants for the corresponding voiced consonants

A distinguishing characteristic of Cantonese English, according to Hung (2000), is that voiced and voiceless consonants appear to be identical to one another. In contrast to English, there are simply three fricatives in Cantonese including labiodental /f/, alveolar /s/, and glottal /h/, and all of them are voiceless, which might be the reason why Cantonese learners pronounce voiceless fricatives /f/, /f/ and /s/ to replace their counterparts /v/, /z/ and /z/ (Chan and Li, 2000).

The result illustrated that replacement occurred when the participants articulated voiced fricatives (in accordance with the manner of articulation). To be more precise, in terms of the place of articulation, the sounds /v/ and /f/ are labiodentals, /z/ and /f/ are palato-alveolars while /z/ and /s/ are alveolars. Instances of replacing voiced consonants were found in recordings of all subjects, such as *was* /wɒs/, *this* /dis/, *villagers* /vilidʒəs/, *because* /bi'kəs/, and of /ɒf/.

### 4.5. Substitution of phoneme /w/ for /v/ and /r/

Mispronunciations of the voiced labiodental fricative /v/ include the voiceless labiodental fricative /f/ and the bilabial approximant /w/, as was previously mentioned, because Cantonese has a significantly smaller number of consonants than English. Additionally, according to a study (Sewell and Chan, 2010), Cantonese consonants lack the palato-alveolar approximant /r/, which is also frequently mispronounced as the bilabial approximant /w/. Despite the fact that they are both

approximates, when producing /r/ sound speaker should make the tongue touch the front part of the palate, while producing /w/ sound speaker should have the lips protruding forward before vibrating the vocal cord.

As can be seen in **Table 4**, the substitution of the phoneme /w/ for /v/ and /r/ is extremely obvious. All eight subjects used the phoneme /w/ instead of /v/ when reading the words village and villagers. One of the participants pronounced very as /'veri/. In the case of /w/ replacing /r/, 62.5% of subjects pronounced very as /'vewi/, 50% pronounced angry as /'æŋgwi/, and 25% pronounced running as /'wʌnɪŋ/.

**Table 4.** Frequency and percentage of substitution of the phoneme /w/ for /v/ and /r/.

Item	Option	Frequency	Percentage (%)	Cumulative percentage (%)
/v/ → [w] village	1.0	8	100.00	100.00
/v/ → [w] villagers	1.0	8	100.00	100.00
/v/ → [w] very	0.0	7	87.50	87.50
	1.0	1	12.50	100.00
/r/ → [w] very	0.0	3	37.50	37.50
	1.0	5	62.50	100.00
/r/ → [w] angry	0.0	4	50.00	50.00
	1.0	4	50.00	100.00
/r/ → [w] running	0.0	6	75.00	75.00
	1.0	2	25.00	100.00
Total		8	100.0	100.0

#### 4.6. Confusion between phonemes /n/ and /m/

In accordance with Deterding (2006), English speakers from China may confuse the sounds /l/ and /n/ in the beginning position, with /n/ most frequently taking the place of /l/ in words like last that may start with the /n/ sound. Considering the findings from this study, there was no confusion between the sounds /l/ and /n/ in the beginning position as all participants pronounced the words laugh, naughty, lied, and lying correctly.

Nevertheless, the instances of confusion between phonemes /n/ and /m/ could be observed in each recording. Mispronunciations of the words time and him were found in all recordings, with subjects replacing /m/ with the phoneme /n/. In addition, two subjects pronounced some and them as /sʌn/ and /den/ respectively. Air can exit the nose when either a bilabial nasal /m/ or alveolar nasal /n/ is produced. According to Roach (1991), the distinction between these two consonants is that /n/ is produced with the tongue approaching the alveolar ridge and the mouth slightly open, whereas /m/ is produced with the mouth closed. The mistakes suggested that the speakers could not have fully understood where or how to enunciate the bilabial nasal /m/.

### 5. Pedagogical strategies for remediation or development of consonant substitution

Following current research, a more realistic goal for ESL or EFL students is to

achieve understandability for English communication rather than sounding like native speakers. (Derwing and Munro, 2005). Even though, as everyone knows, one of the most important aspects of learning a language is mastering word pronunciation. Learners must have a command of the pronunciation norms in order to learn a language. If the pronunciation is incorrect, it will interfere with the learners' ability to hear and communicate normally, which could lead to some misunderstanding.

To enhance students' phonetic awareness and promote the development of their phonological abilities, in this section 10 in-service teachers were invited to have interviews on how to improve primary school English pronunciation teaching in terms of consonant substitution.

### **5.1. Teaching segmental sounds by demonstration method**

Due to the absence of voiced consonants in either Chinese or Cantonese, it is an urgent problem to help learners distinguish the pronunciation of consonants. During these interviews, teaching segmental sounds by demonstration method was mentioned by each in-service teacher. They insisted that learners can distinguish voiced consonants and voiceless consonants by experiencing the vibration of the vocal cords. Teachers can use hands, faces, or real feelings to demonstrate how to produce different sounds in class. For example, place the finger on the throat and verify if the vocal cord vibrates when producing different sounds. When students pronounce /v/, speakers can feel the vibration of vocal cords if their fingers are placed on their throats. If students cover their ears, they also can hear the hum of vibration. It can be an effective and practical way to assist students in telling the difference between voiceless consonants and voiced consonants.

Learning activities can be designed as below:

Teacher and students substitute the consonants with their counterparts in turns with the action of touching the throat:

Teachers say line, line, line, ..., pig, ..., rich...

Students say nine, nine, nine, ..., big, ..., ridge...

### **5.2. Distinguishing sounds by minimal pairs**

English teacher helping learners to identify confusing consonants is a crucial process in mastering the rules of pronunciation. The minimal pairs task, which consists of two sounds that are identical except for one phonological element, was mentioned by 80% of the interviewees as a simple, adaptable, and effective listening exercise. In this task, students can work in groups as required, student A selects a word from the minimal pair and reads aloud, then student B circles the correct answer on the task list, and then they exchange roles to complete the task (as shown in **Table 5**). This exercise can be devised in many forms (such as a teacher playing a recording and setting the task list as a listening exercise) to allow students to practice specific sounds.

**Table 5.** The minimal pairs task in a worksheet.

Please circle the word you hear							
/s/ or /θ/		/k/ or /g/		/w/ or /r/		/f/ or /v/	
Mouse	Mouth	Class	Glass	Wave	Rave	Few	View
Sick	Thick	Cave	Gave	Wait	Rate	Fan	Van

### 5.3. Game-teaching

There is a general consensus among all the in-service teachers that the phonetic alphabet is an effective tool for foreign language learners to master phonetics when it is associated with game teaching. If teachers carry out phonetic alphabet teaching (feasible for senior graders), they can design plenty of interesting learning activities conducive to phonetic alphabet learning. For example, phonetic cards are standard tools in daily teaching, which can help students to read them, and are also a good helper for game teaching. This can not only test the student’s ability to recognize vowels and consonants but also help students become master the pronunciation of consonant clusters, syllables, and even a whole word. For example, in the revision class, students work in groups, and the teacher says, “Put the phonetic CARDS into your box, according to the words you hear”, then the group members find out different phonetic cards (basic level) according to the recording until they can spell the target vocabulary correctly. For advanced-level students, the game can be set up to read the transcriptions shown randomly on the screen and spell the words.

### 5.4. Corpus-assisted teaching

Corpus-assisted teaching integrates new technology, new tools, and new resources into the classroom, which is conducive to improving students’ English learning efficiency. Teachers can instruct individuals and small groups of students on intonation, stress, and sounds through the use of visual displays of speech patterns. Language learners can learn more about their pronunciation by using the corpus, which helps them discover common faults in the same language background context. It can be used in conjunction with a video demonstration or a corpus error analysis to pinpoint segmental issues and provide an accurate pronunciation model. Most importantly, the implementation of student-produced recordings with monolingual groups to provide efficient, tailored pronunciation practice has improved the intake opportunity of authentic materials by means of the corpus (Chen, 2020). However, few teachers, simply 20% of them, have a deep understanding of corpus-assisted teaching, let alone have empirical teaching materials to promote English pronunciation teaching.

## 6. Discussion

This research developed to investigate the phenomena of consonant replacement among Cantonese EFL elementary learners and explore the developmental strategies. These data showed that there were many common features with the Hong Kong English variant in consonant replacement, such as L-vocalization (especially deletion), substitution of /r/ and /v/, and consonant cluster,

but not conflation of /n/ and /l/ in however. The teaching strategies given by the 10 in-serve teachers mentioned in the survey were relatively subjective and lack of clear and evaluable operating guidelines, which might not solve the students' learning difficulties in the actual teaching.

As artificial intelligence (AI) technology is developing rapidly, especially in education, the application of AI is changing the way we learn languages. In the case of ChatGPT, the learning ability and natural language processing technology of this AI teaching tool enable it to generate high-quality learning notes effortlessly (Tseng and Warschauer, 2023). Furthermore, ChatGPT can enhance student learning by interacting with students and providing accurate or associated answers. For instance, teacher can post a question on specific topic on the website then it would provide some teaching methods or procedures to cater for the demand (as shown in **Figure 1**). It also makes it possible to check the recording in class to see if there are any errors in terms of consonant substitution by inputting a voice message in order that learners can observe and correct them by visualizing the phonetic errors. An instruction is available for all the users on the website, and it is designed to help teachers and learners utilize ChatGPT more effectively in the classroom. The main contents of this guide are: Suggested prompts, an explanation of how ChatGPT works and its limitations, the efficacy of AI detectors, and bias (OpenAI, 2023). Instructors may lay a solid basis for their students' immediate learning and subsequent utilization of AI-based tools in educational and professional contexts by showing them how to use these tools in real-world learning events (Tseng and Warschauer, 2023). Nonetheless, English language instructors (ELTs) need to become more proficient in AI literacy since ELT is the field in which AI is used in education the most frequently. For students to comprehend AI's drawbacks and hazards, teachers must also increase their students' literacy in the technology. When choosing which AI models to utilize, experts should exercise caution because not all variations of English may be included in the models, and ethics declarations and explicit data privacy regulations are required for AI in ELT (Crompton and Burke, 2023).

If I want to help Cantonese primary school learner to improve their English pronunciation in terms of consonant substitution, what can I do in class?

GPT-3.5 Turbo

1. Use minimal pairs: Provide the students with pairs of words that differ by only one consonant sound, such as "cat" and "bat", "big" and "pig", "ship" and "sheep". Have the students practice saying both words and identify the difference in the consonant sounds.
2. Tongue twisters: Use tongue twisters that focus on specific consonant sounds, such as "She sells seashells by the seashore" for the "s" sound or "Peter Piper picked a peck of pickled peppers" for the "p" sound. Have the students practice saying the tongue twisters repeatedly to improve their pronunciation.
3. Word substitution game: Provide the students with a list of words and ask them to substitute the initial consonant sound with a different consonant sound. For example, change "cat" to "bat", "dog" to "fog", "run" to "fun". This will help them practice substituting consonant sounds in different words.
4. Peer practice: Pair the students up and have them take turns listening to each other's pronunciation of words with different consonant sounds. They can provide feedback to each other and help each other improve their pronunciation.
5. Phonics activities: Use phonics activities and games to help the students learn the different consonant sounds and how they are represented in written English. This will help them understand the relationship between letters and sounds, which can improve their pronunciation.

**Figure 1.** Instance of using ChatGPT.

## 7. Conclusion

Based on the pronunciation data of 8 primary school English learners in the optional course (fun reading) of Haide Bilingual School in Dongguan City, this paper studies the most common features of consonant substitution. This includes the pronunciation of letters th, the pronunciation of the initial consonant cluster and the final consonant cluster, the pronunciation of the letter l, the substitution of voiceless consonant for the corresponding voiced consonant, the substitution of phonemes /w/ for /v/ and /r/ and confusion between phonemes /n/ and /m/. Meanwhile, the paper explores the English pronunciation teaching strategies for the senior grades of primary school, hoping to help students summarize the pronunciation rules, correctly spell vocabulary, master the spelling rules, and expand vocabulary.

However, this study is limited because it only focuses on consonant substitution at the segmented level of subjects and does not investigate subjects' dialects. Due to the lack of empirical cases and specific operational instructions for the teaching strategies mentioned in this questionnaire, more empirical studies are needed to prove their effectiveness in the future. For the sake of having a preliminary understanding of how to use the corpus to carry out foreign language teaching and research, case discussion, demonstration, and practical operation in the field of corpus linguistics, an introduction on the construction of corpus, the basic operation of corpus analysis, corpus research cases, and corpus frontiers, etc. are needed to be probed into deeply. In order to fully understand the phonological characteristics of students at the present stage, future studies should increase the number of participants in specific groups (such as the same age, dialect, foreign language learning time, gender, etc.) and pay attention to the phonological features of other sounds at the segmented level such as vowels and diphthongs.

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