
The Development of English Phonetics in Multimodal Teaching

A Pilot Study on the Acquisition of Consonant Clusters by English Majors

YANG JINGPEIYI^a

Abstract

As there are no consonant clusters in either the onset or the coda position in MC (Mandarin Chinese) syllables, consonant clusters are therefore a notable difficulty for Chinese students of English. The learners modify the complex syllable structures to make them conform to their present level of phonetic ability. Since there is a tendency for MC syllable structure to avoid consonant clusters, these clusters tend to be simplified in the course of pronunciation by Chinese ESL students. The most frequent syllable simplification is consonant deletion, insertion and replacement. The present study compared differences in Chinese-English consonant clusters and syllables, with language transfer theory as the background, in a multimodal teaching method application. Taking place in English phonetics courses of Southwest Forestry University School of Foreign Languages, it gave an account of one-semester phonetic pilot study by collecting first-hand information. The purpose of this study was to explore how to better stimulate students' interest and autonomy in learning phonetics under the guidance of multimodal theory, cultivate students' competency in mastering phonetics, and to reform the traditional teaching method of phonetics. This study verified that compared with the traditional teaching method, the multimodal teaching method is more helpful to improve students' educational engagement, autonomy, and interest in learning-thus improving their phonetic learning ability.

Keywords: multimodal teaching, consonant clusters, language transfer, English majors, the development of English phonetics

1. Introduction

As an important component of linguistic competence, phonetics is the material basis of oral communication and the starting point of language instruction. "To learn to speak a language you must first master the sounds of the language." The familiar and supportable claim here is that to learn to speak any language, a person only needs to learn 10-90% of its grammar, while 1% of the vocabulary is enough, and yet the level of phonetic knowledge must be nearly 100%, (Gimson & Cruttenden 1994).

The importance of phonetics forces us to reflect on phonetics instruction. The pedagogy of phonetics has always been a complicated problem. Since the advent of language instruction, phonetics teaching has naturally become a part of it. The traditional phonetic teaching method is a teacher-centered and teacher-directed mechanical training of phonemes at the segmental level. Since the

1990s, with the deepening of research on the meaning construction of multimodal discourse, along with the growth of information technology, the traditional phonetic training model has had difficulty meeting the needs of society in the development of student language ability. People have gradually come to realize that the established way of expressing meaning through words should be combined with other idiographic methods such as vision, hearing, gesture, image and action (Yongsheng Zhu, 2008). The teaching of phonetics is inseparable from the cultivation and advancement of linguistic capacity. In language learning, educators should adopt a new multimodal expression form to complete the overall cultivation of students' phonetic capability.

Most consonants in English are voiced pairs, such as /p, b/, /t, d/ and /k, g/, etc. (as shown in Table 2). In contrast, most of the consonants in Mandarin are pure and aspirated consonants, such as p, b, t, d, k, g, j, q, x, zh, sh, z, c, s, etc., while there

^a. Southwest Forestry University, Kunming Yunnan, 650224 Email: 1030722825@qq.com

are only five voiced consonants (as shown in Table 1), r, m, n, l, g. In MC, aspirated and unaspirated sounds can distinguish different meanings, whereas in English, through affecting the length of vowels and assimilation of adjacent consonants, they may distinguish different words entirely. Examples abound, such as: vowel /ʌ/ in /bʌt/ is shorter than that in /bʌd/; and another vowel /ɔ/, which has different sound length in different words: for, fort, fortun. The longest sound is in "for", then comes "fort", and in "fortune", the length is the

shortest. Another is worth mentioning is allophone. For instance, vowel / i / has different sounds in different words. Examples abound, such as: it is aspirated in "kip, but unaspirated in "skip; it is nasal plosive in "certain", but lateral plosive in "like; in "that lip", it is incomplete plosive, but in "that May", it loses the plosive. These phenomena are unique to English. No matter how proficient one's Mandarin is, without knowledge of phonetics and therefore accommodation of these particularities of enunciation, one can't master English pronunciation.

2. Contrast of consonant phonemes between Mandarin Chinese and English

Table 1. Mandarin consonant phonemes

	Bilabial	Labio-dental	Alveolar	Retroflex	Alveopalatal	Velar
Stop	-asp	p	t			k
	+asp	ph	th			kh
Affricate	-asp		ts	tʂ	tc	
	+asp		tsh	tʂʰ	tch	
Nasal		m	n			ŋ
Glide					j	w
Lateral			l			
Fricative	-vd	f	s	ʂ	ç	
	+vd			ʐ		

(asp=aspiration, vd=voiced)

Table 2. English consonant phonemes

	Bilabial	Labio-denta-l	Interdent-al	Alveola-r	Palata-l	Vela-r	Glotta-l
Stop	-vd	p		t		k	
	+vd	b		d		g	
Fricative	-vd	f	θ	s	ʃ		h
	+vd	v	ð	z	ʒ		
Affricative	-vd				tʃ		
	+vd				dʒ		
Nasal		m		n		ŋ	
Liquid	lateral			l			
	retroflex			r			
Glide		w			j		

Some phonemes in the phonetic system of MC are not very different from phonemes found in English. For example, the nasal consonants constitute a natural class in the two speech systems, and can be described by the same distinguishing characteristics. The /m/, /n/, /ŋ/ can be described as [+ consonant, + nasal, -posterior, + labial], [+ consonant, + nasal, -posterior, + gingival]; [+ consonant, + nasal, + posterior, + soft palate], respectively (as shown in Table 2). Students who can pronounce nasal consonants well in MC will be able to pronounce English nasal consonants correctly via the positive transfer effect. But Chinese ESL learners should focus on these and MC pronunciation parts and method by difference approximation of no sound and MC phonemes,

such as: /θ, ð /, / f, v/, /t, d/, etc., No matter students' level of MC proficiency, they will not pronounce English correctly without exercises based on this language's differing phonetic make up. For example, native MC speakers are not prone to good tooth fricatives (dental fricative) /f, v/, jaw gum fricatives (palato - alveolar fricative) /θ, ð / and jaw gum plug (palato - alveolar affricate) /t, d/. It is particularly noteworthy that the following consonants are described differently in Mandarin and English: /s/ and /z/ are alveolar fricative in English; Whereas in MC, the former is dental fricative and the latter is dental affricate. /h/ is a glottal fricative in English; In MC, it is called velar fricative. /r/ in English is represented by the frictionless continuous sound (approximate); In MC,

it is called retroflex fricative, (Fengtong Zhang, 1998).

3. Comparison of MC and English syllables

The earliest forms of "language and writing" were based on syllables, each of which had an independent mark, and syllables were still the easiest form of writing to inscribe. Ordinary people seem to regard syllables as the smallest natural units of speech. The main reason syllables stand out is their role in prosody- a unit that is emitted at a rate close to regular. Each syllable is a "pulse" or beat, and each beat lasts about a sixth of a second. A syllable is the unit that brings together all the sounds that we feel are present "at the same time." The syllable is not only a concept in phonetics, but also an important concept in phonology. There are different definitions of syllables. In terms of its anatomy, a syllable is a phonetic structure made up of one or a series of phonemes. A syllable usually has onset, Nucleus, usually vowel, and coda, -often consonant. The forms of English syllables are more complex than those of Mandarin. (C)(C)(C)V(C)(C)(C) (C); Mandarin Chinese syllables :(C)(G)V(N) (here, G = glide, N = nasals). Mandarin Chinese is a syllable-timed language, which is characterized by equal syllables. Equal syllabification means that each syllable, whether stressed or unstressed, takes up roughly the same amount of time in a sentence, regardless of how quickly or slowly it is spoken. From the above comparison, we can see that the syllabic structure of Mandarin is relatively simple, and it is usually a single consonant sound. Consonant clusters often occur at the beginning and end of English syllables. In other words, there are only single consonant type syllables in Mandarin, and no consonant clusters syllables. The syllables of consonant clusters in English have become a linguistic difficulty for Chinese ESL learners. Such students are accustomed to reading English consonants with vowels in them, pronouncing "little" and "street" as /leitl/ and /streit/, respectively (Xiubai Qin, 1998).

4. Theoretical background

4.1. The influence of language transfer on Chinese ESL learners' acquisition of English consonant clusters

Language transfer is actually the domain of psychological research. It basically means: the influence which knowledge or skills that are learned earlier have on those that are learned later. Odlin (2001) summarizes the definition of language transfer as the effect of commonalities and differences between the target language and any

other language that has been acquired (or not fully acquired). There are two kinds of language transfer: positive transfer and negative transfer. An early linguist, Lado (1957), made a comparative analysis of first and second languages. He believed that the similarities between the mother tongue (L1) and the target language (L2) will promote acquisition and produce positive transfer. Differences will hinder the learning of the target language, resulting in negative transfer. The more similar the two languages are, the easier it is to learn. The less similar, the harder it is to learn.

4.1.2. Difficulties in English consonant clusters Acquisition for Chinese ESL Learners

The English consonant cluster is located within a syllable, at the same stage of tensivity increase or decrease in two or more consonant combinations. ESL students whose native language pronunciation system contains consonant clusters, may very fluently and accurately read those of English without any discomfort or difficulty, while for native MC speaking learners of English, the pronunciation of consonant clusters is often impaired. MC words are basically monosyllabic, and the pronunciation of each Chinese character is composed of an initial and a final. There is no phenomenon where more than two initial consonants are connected to form consonant clusters (Anderson, 1987; Hansen, 2001). Common mistakes made by Chinese ESL learners are deletion, insertion and replacement (that is, vowel insertion or consonant deletion), -often replacing a CVC (C) or CCV structure with a CV structure, or replacing a consonant without changing the syllable structure.

5. Methods

Regarding the development trend in foreign language teaching, we can see that in recent years the state of phonetic teaching and research has moved from emphasizing the imparting of phonetic knowledge to paying equal attention to knowledge and skills. A shift in research focus from "what to teach" to "how to teach"; "What to learn" and "how to learn". More and more focus has been placed on the study of the method, focusing on the cultivation of students' learning ability, as skill cultivation is more important than the simple imparting of knowledge, as well as more meaningful. The overall goal of the curriculum has changed from single subject education to the cultivation of people, moving from stage teaching to life - long education. The instructional strategy therefore also moves from the single mechanical training to the cultivation of students'

comprehensive linguistic and pronunciation ability. The pedagogical strategy has changed from a teacher-centered single method to a student-centered and teacher-guided approach, which relies on multimedia and uses relevant educational software and network media to improve classroom density and educational effect. In this way students can acquire language knowledge in class and after class more vividly and intuitively. However, as the most basic and important ability of language, English phonetics has always been marginalized, phased, mechanized and simplified in language instruction.

The present study compared differences in Chinese-English consonant clusters and syllables, with language transfer theory as the background, in a multimodal teaching method application. Taking place in English phonetics courses of Southwest Forestry University Faculty of Foreign Languages, English major freshmen students (grade 2017 English class 1 and class 2) classroom instruction, by collecting first-hand information, via the method of empirical research. The author teaches the two classes independently, attaches importance to the individual needs of the students, and adopts corresponding teaching methods and means according to the students' varying English levels, pronunciation characteristics and difficulties. Classroom teaching focuses on syllables and consonant clusters. Outside of class, teachers and students utilize a network interactive learning mode, relevant study software and network media, and through the chat app WeChat, direct messages and chatting online. Students answer questions and speak through one-on-one practice, and undertake study materials outside of the diversification of information input. The purpose is to stimulate the scholarly enthusiasm of students through the use of a variety of media and practice. The emphasis is on using English phonetics knowledge actively, transforming from passive knowledge receivers into active knowledge of the users. Phonetics courses for English majors are offered in the first semester of the freshman year according to the curriculum design and student cultivation plan. The textbook is the second edition of English Phonetics Course, published by Higher Education Press.

5.1. Research questions and hypotheses

The purpose of this study was to explore how to better stimulate students' interest and autonomy in learning phonetics under the guidance of multimodal theory, cultivate students' competency in mastering phonetics, and to reform the

traditional teaching method of phonetics. This study verified the following hypothesis: compared with the traditional teaching method, the multimodal teaching method is more helpful to improve students' educational engagement, autonomy, and interest in learning—thus improving their phonetic learning ability.

5.2. Participants

The students selected in this study were freshmen students in the second semester majoring in English from the School of Foreign Languages of Southwest Forestry University in China, majoring in English from Class 1 and Class 2. They are therefore categorized as learners of English as their second language (L2). There was a total of 60 students—30 students from the experimental class and 30 students from the control class. The author is the teacher of the phonetic course of the two classes. The average age of the students in the two classes was 18.71 years old, and they had been studying English for 6 years or more. Before participating in this experiment, none of the subjects had participated in any professional English pronunciation training. In order to compare and study the teaching effect, the author made the following attempts: the traditional teaching method of teacher's classroom demonstration was adopted in the experimental class, such as the input of new phonetic knowledge, the demonstration of knowledge points, and the training of listening, reading and imitation, etc. The control class adopted a multi-mode teaching method, which was different from the traditional teacher's demonstration. Students read afterward and imitated the single input method. The author used the network and other multimedia resources to make PPT, show pictures, play videos and audio, and conduct input and output training in all aspects. At the same time, the students were assigned after-class tasks, conducting online pronunciation training by using a mobile phone APP scoring each other in groups. In addition, the interaction between teachers and students was carried out in the WeChat group, in order to train students to acquire second language pronunciation skills in a live context. Through the guidance of task allocation and multimodal information acquisition channels, the teaching content was constructed around topics or themes favored by students, thus enhancing their learning enthusiasm and learning ability.

5.3. Methodology

This study adopts a combination of quantitative

(phonetic testing) and qualitative (interview) research. In order to carry out this experiment effectively, the researcher firstly predicted and explained the difficulties that native speakers of Mandarin will encounter in the process of consonant cluster acquisition due to the negative transfer of the mother tongue, so that the tested students could fully understand. Subsequently, 10 students in the control class were interviewed qualitatively about the teachers' instruction methods, the use of multimedia and educational materials, etc. The purpose being to obtain feedback information from the students, and make a comprehensive analysis of it, and to apply reasonable suggestions into teaching practice.

The second aspect was the phonetic test. In this study, English consonant cluster acquisition in both the experimental class and control class was tested, and error statistics were calculated to compare consonant cluster acquisition between the groups. The phonetic test's material selected words featuring the consonant cluster of the fricative first sound. The fricative sounds are labial, dental, alveolar and hard palatal alveolar. The material consisted of 16 consonant clusters. Two words were randomly taken from the clusters to make 32 sentences. In order to minimize the influence of logical context on the results of the experiment, words with consonant clusters were placed at the beginning of sentences. At the same time, the order of the 32 sentences was shuffled to prevent the students from noticing the purpose of the experiment in the lab.

In this study, phonetic laboratory recording was adopted. In order to avoid noise interference and the phenomenon of students imitating other students' pronunciation in the recording process, the number of students recording each time was limited to a single subject. Audacity software collected and organized the recordings.

5.4. Experimental design and data analysis

The author selected 60 students from two classes of freshmen majoring in English, including 30 students from the experimental class and 30 students from the control class (29 students later), and conducted a teaching experiment for one semester (from Sep, 2017 to Jan, 2018). Then, the students in the two classes were tested to compare the learning effects of different teaching methods. In order to ensure the reliability and validity of the test, the data obtained from the interview and students' scores were statistically analyzed by two English teachers who were not teaching two classes. The phonetic test recordings were evaluated by the

two teachers in turn. Finally, SPSS17.0 software was used to statistically analyze the data and verify the effect of pronunciation teaching.

The interview adopted the method of ethnography (Van, 1996; Spradley, 1979; 1980), with the aim to utilize grounded theory (Suddaly, 2006; Charmaz, 2011; 2014). The purpose of collecting data and information was to have a deeper and true understanding of the educational situation and students' attitudes toward a multimodal teaching method in the phonetics class. The reason for adopting this method is to avoid being influenced by too many subjective factors of author (Corbin & Strauss 2014). Through rigorous steps in the research process, both author' induction and conclusion are faithfully based on the first-hand information collected from the research participants, rather than the author's own subjective opinions.

The interview questions were composed of 5 closed questions and 5 open questions. The author randomly selected 10 students from the control class for the interview, and tried to understand the following questions from the perspective of students: (1) Compared with the traditional phonetic teaching method, does the multimodal teaching method help to improve students' interest and autonomy in learning? (2) Can the multimodal teaching method effectively improve students' ability to learn pronunciation? (3) What is the attitude of students towards the multimodal teaching method?

Firstly, basic information of interviewees (closed questions) was collected, including age, gender, major, years of English learning, and whether they had received special speech training before the current semester. In the second part, an open question and answer was adopted. The author asked the interviewees about the attitude of the students concerned in this paper towards the multimodal teaching method, and the questions were expanded and modified according to their conversation content.

The interview was recorded on a tape recorder and transcribed. As some of the students interviewed were reluctant to release their personal information, this part of the interview was not recorded and only recorded through notes. Verbatim transcribing or interview transcripts were used as source documents for analysis of grounded theoretical data. In addition, every interview or contact between the author and the research object was also made a key record, with the purpose of helping the author to think about the focus, significance, and value of the interview and

to clarify the research direction.

Next, the author read the interview draft or document file line by line, and made appropriate segmentation of the data. At the end of the segment, the author sorted out several main concept categories from the interview materials, and summarized the numerous data provided by the interviewees. Finally, the previous segmented

data were grouped under the concept categories of the same meaning, and the representative categories selected.

6. Experimental results and data analysis

6.1 consonant clusters speech test results and data analysis

6.1.1. consonant clusters phonetic test results of the control class

Table 3. consonant clusters phonetic test results

Number of consonant clusters Class	correct (%)	error (%)			
		Deletion	Insertion	Replacement	total
960 Experimental class	67.14	14.41	41.99	43.60	32.86
960 Control class	82.17	20.32	40.20	39.48	17.83

Table 3 shows that the group of English consonant pronunciation problems often appear such as consonant insertion between vowels, consonant deletion and consonant replacement with similar alternative sounds from MC. All these errors appeared in the experimental results verified the writer's perception of Chinese ESL learners' consonant usage, which predicted three phonetic difficulties -deletion, insertion and replacement. Meanwhile, in the experimental class, the /s/ +/h/ group was the consonant cluster with the highest error rate, accounting for more than 80%, and the mistakes mainly focused on substitution, that is, 81.25% of the students used /s/ to replace /j/. Compared with the experimental

class, the problems of insertion of vowels between consonants, deletion of some consonants and replacement of similar sounds from MC, were improved to a certain extent in the control class. From the perspective of the error rate of the the /s/ +/h/ group, the proportion decreased to 52%, and the proportion of students who used /s/ to replace /j/, dropped to 49.40%. It can be seen that the proportion of consonant clusters mispronunciation of students in the control class (17.83%) was significantly lower than that of students in the experimental class (32.86%). However, inserting vowels still accounted for the highest proportion among the three major pronunciation difficulties, which was 40.20%.

Table 4. Compares a consonant cluster consisting of two consonant clusters with a consonant cluster consisting of three consonants

Classification of consonant clusters	Number of consonant clusters	The class	correct (%)	error (%)
Two consonants	780	Experimental class	62.13	37.87
		Control class	78.52	21.48
Three consonants	180	Experimental class	41.45	58.55
		Control class	75.13	24.87

Table 4 shows that of the errors, students in both experimental class and control class had higher error rates in three consonant clusters (58.55% and 24.87%), which were higher than those in two consonant clusters (37.87% and 21.48%), which means that the increase of the number of consonants increased the difficulties in pronunciation for Chinese learners of English. This was obviously influenced by the negative language transfer of syllables with single consonant and without consonant clusters found in MC, into English. Learners are used to reading English consonant clusters with a vowel sound, but after a

semester of the educational experiment, compared with the students in the experimental class, the phonetic accuracy on consonant clusters of students in the control class was significantly higher. Compared with the two consonant clusters, the phonetic accuracy on three consonant clusters of the students in the control class had been improved effectively, and the performance on phonetic accuracy was obviously higher than that of the students in the experimental class.

6.2. Students' attitudes towards the application of multimodal teaching method in phonetics class

Through the interview process, the author learned that more than half of the students think that the traditional phonetic teaching approach has problems in instruction, selection of textbooks, and in classroom interaction. However, the multimodal teaching approach can effectively improve the above problems. First of all, the former method is seen as a monotonous and teacher-centered approach. In that way, students passively receive information. In contrast, via the multimodal teaching method, teacher-centered teaching can be converted into a student-centered approach. This then serves as the key to help students improve the ability to acquire knowledge by accessing the Internet and other media access. At the same time, the teaching method can promote students' motivation in interaction, discussion, and reflective practice with teachers and classmates, thus making students the masters of their own learning. In addition, the use of multimedia during class time and the proportion in the teaching have to be organized rigorously. The interview revealed that some of the interviewed students in the experimental class appreciated this teaching method, but the benefit of slide shows as a teaching mode should not be overestimated, as sometimes the slides make the class seem lively to students, but also may distract attention from phonetic knowledge itself to the pictures, videos and other materials. DeluZhang (2009,2010) has proposed that the substance of a mode can be divided into two forms: linguistic media and non-linguistic media, but the most important communication media is still linguistic media composed of sound or characters. Therefore, traditional educational methods, such as appropriate blackboard writing, can be the complement and supporting tool of multimedia teaching. If the large screen is used as a blackboard and frequently switches teaching contents, students will find it difficult to grasp key points, which will affect the consistency of their visual perception, and the advantages of multimodal teaching will be greatly reduced accordingly (Zhen Zhang,2010). In addition, there are problems found in the traditional teaching method such as textbooks with outdated content, less motivation, lack of instant feedback or correction from teachers, and no useful links to online extracurricular study systems. Although these teaching materials provide CDs, because of the lack of teacher's real time guidance, it cannot play an effective role in learning. The majority of students think that the multi-mode teaching method can select materials closer to students' daily life, and give consideration to interest,

knowledge and enlightenment, so that students can have fun, review and use what they have learned. Finally, there are problems of teacher-student online interaction and learning. As it is a new attempt at one teaching and learning, it requires a high level of mutual understanding and cooperation between teachers and students. Moreover, some of the students took the multimodal teaching method as a way to improve output, which emphasizes guidance from teachers. Thus, more qualified and experienced teachers should be engaged with online lecture programmes, such as the application of MOOC or SPOC on campus. However, due to limitations of time and staff, the author didn't devote further study to MOOC or SPOC. Therefore, further research is recommended, and students' feedback should be collected, studied, and applied to teaching practice.

7. Results and Discussion

Through the phonetic teaching practice of the English major of Southwest Forestry University in 2017 for one semester, it is shown that negative transfer of the mother tongue is the main factor forcing errors in pronunciation of consonant clusters, and the multi-mode teaching method is in line with the cognitive law of second language learners. Although the experiment duration was brief, it can be seen from the experimental data that multimodal teaching speeds up the process of students' pronunciation learning, effectively stimulates the enthusiasm of students' pronunciation study, and is conducive to the continuous improvement of their English-speaking ability. Multimodal phonetic teaching uses diversity of training tools to improve phonetic information retention to help students in the process of second language acquisition. Through the diversification of hearing and listening exercises, it reduces the risk of error, and can effectively reduce the Chinese ESL learners' consonant cluster pronunciation difficulties, resulting in more than a 10% advantage of the experimental classes over comparative classes.

The reason why multimodal phonetic teaching accords with the characteristics of second language teaching is that it better reflects the teaching principle of teaching according to "ability". Advanced pedagogical methods, online and offline, classroom and extracurricular multi-dimensional teaching, can make the practice more targeted. Teachers can accurately judge the strengths and weaknesses of students, categorize and summarize mistakes in real time, and help them to modify them at any time, which greatly strengthens the

practical effect of speaking exercises and improves the rate of students' pronunciation.

Through the analysis of the phonetic learning performance of the two classes, it can be seen that the phonetic accuracy of the control class is significantly higher than that of the experimental class, which indicates that the multi-mode phonetic method is better than the traditional phonetic method. In addition, the interview results of students show that most of the interviewed students in the control class prefer this kind of multimodal pedagogical method, experience increased interest in the phonetics class, and the vast majority of students think that the multimodal phonetics pedagogical method is of great help to their English study. This also shows that language is a system project, which contains many interdependent and relatively independent elements. Therefore, in the process of phonetics teaching, attention should be paid to both the system of language and its functionality. We should not merely focus on the teaching of language knowledge while neglecting the cultivation of language skills. To learn and use a language well, pronunciation and intonation is the foundation. Therefore, whether the master of pronunciation is in place, that is, the pronunciation proficiency and performance of learners, will directly affect the effect of language learning, and also directly affect the comprehension and application of language skills of language learners.

8. Importance and Implication

The study was an important and original research program in several aspects. First and foremost, the study was the first to investigate the effects of instructional intervention on the acquisition of English consonant clusters from a multi-modal perspective. Secondly, the contribution to English phonetics being limited to consonant clusters items also has practical implications for Chinese ESL education in terms of both assessment and instruction (Voogt & Roblin 2012, Cope & Kalantzis, 2013). While it was possible to diagnose learners' cultivation and development of phonetic acquisition by their performance on consonant cluster items alone, the performance discrepancy between the comparative class and experiment class and its direction may also serve as a probe to ESL learners' stage of proficiency. Thirdly, the study examined the effects of multi-modal theories, (Kalantzis & Cope 2013) (Griffin & Care 2015) in an instructional setting, thereby yielding unique L2 data with implications for both theory and practice.

9. Limitation and Anticipated Contributions

The study is certainly open for improvement. Because of changes in teaching practices, the positive outcome of a multimodal approach seems promising. However, the teaching of phonetics/pronunciation is more than teaching sounds in isolation. Teaching and studying languages is a holistic undertaking and therefore the teaching programme stresses socio-cultural, attitudinal and other aspects -as well as phonetic knowledge and skills.

In this context, we note some of the anticipated contributions of this type of research: (1) It will lay the groundwork for future study regarding L2 acquisition of phonological development such as those that characterize the acquisition of consonants by multimodal teaching (Zhang, 2012) (Grimshaw & Cardoso, 2018); (2) It will add to the debate on the nature of methodological interventions and how they can affect learning outcomes; (3) It will add to the debate on how perception influences production (L Polka, 2013) ; and finally, (4) It will add to the debate on the representation of pronunciation skills in developing and full-fledged phonologies. (Grimshaw & Cardoso, 2018)

Note

This research is funded by the First MOOC and SPOC Research program of Southwest Forestry University, Kunming, China.

10. Conclusion

The multimodal phonetic teaching method was effective in the pronunciation teaching of English majors in Southwest Forestry University, and its teaching effect is obviously better than the traditional phonetic teaching method. It can stimulate students' interest in learning and consciousness of active educational engagement, so as to improve their ability in pronunciation. This also validates the hypothesis proposed in this study. Therefore, the author believes that the multimodal phonetic teaching method is worth promoting in phonetics classes of English majors in colleges and universities, and hopes that the findings of this study can provide some enlightenment for English language teaching.

References:

- [1] Anderson, J. I. (1987). The markedness differential hypothesis and syllable structure difficulty. G. Ioup and S. Weinberger (Eds.), *Interlanguage phonology: The acquisition of a second language sound system* (pp.279-291).

- Cambridge, MA: Newbury House Publishers.
- [2] Corbin, J. & Strauss, A. (2014). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. [M] Thousand Oaks, CA: Sage Publications.
- [3] Charmaz, K., 2011. *Grounded theory methods in social justice research*. [J] *The Sage Handbook of Qualitative Research*, 4: 359-380.
- [4] Charmaz, K., 2014. *Constructing grounded theory*. [M] Thousand Oaks, CA: Sage.
- [5] Delu Zhang, 2009. A Theoretical Framework of Multimodal Discourse Analysis. *China Foreign Languages*. 1 : 24-30.
- [6] Delu Zhang, Lu Wang (2010). The Coordination of Multimodal Discourse Modes and its Embodiment in Foreign Language Teaching. *Journal of Foreign Language*. 2: 97-102.
- [7] Delu Zhang, 2012. Exploration of cultivating learning ability by multimodal teaching. *Foreign Language Research*. 2:9-14.
- [8] Fengtong Zhang (1998). *English phonetics and phonology*. Chengdu: Sichuan University Press.
- [9] Gimson, A.C. & Alan Cruttenden. *An Introduction to the Pronunciation of English*. 5th ed. [M] London: Edward Arnold, 1994.
- [10] Griffin, Patrick & Care, Esther (2015). *Assessment and Teaching of 21st Century skills*. Berlin: Springer.
- [11] Hansen, J. G. (2001). Linguistic constraints on the acquisition of English syllable codas by native speakers of Mandarin Chinese. *Applied Linguistics*, 22, 338-365.
- [12] Jennica Grimshaw & Walcir Cardoso (2018). Activate space rats! Fluency development in a mobile game-assisted environment. *Language Learning & Teaching* 22(3): 159-175.
- [13] Kalantzis, Mary & Cope, Bill (2013) New Media, New Learning and New Assessments. *E-learning and Digital Media*. 10(4): 328
- [14] Lado, R., 1957. *Linguistics Across Cultures: Applied Linguistics for Language Teachers*. [M] The U.S.: The University of Michigan Press
- [15] L Polka, S Rvachew, K Mattock. ,2013. Experiential influences on speech perception and speech production in infancy. Blackwell Publishing Ltd
- [16] Odlin, T. (2001). *Language transfer-Cross influence in language learning*. Shanghai: Shanghai Foreign Language Education Press.
- [17] Spradley, J. (1979). *The Ethnographic Interview*. New York: Holt, Rinehart and Winston.
- [18] Spradley, J. (1980). *Participant Observation*. New York: Holt, Rinehart and Winston.
- [19] Suddaby, R., 2006. From the editors: What grounded theory is not. [J] *Academy of Management Journal*, 49:633-642.
- [20] Van Maanen, J., 1996. Ethnography. [M] In: A. Kuper and J. Kuper (Eds.) *The Social Science Encyclopedia* (2nd ed.). 263-265. London: Routledge.
- [21] Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competencies: Implications for national curriculum policies. *Journal of Curriculum Studies*, 44(3), 299-321
- [22] Xiubai Qin (1998). *A General Introduction to English*. Wuhan: Central China Normal University Press.
- [23] Yongsheng Zhu (2008). *Comprehensive English Course for Higher Vocational Colleges*. Higher Education Press.
- [24] Zhen Zhang (2010). Research on the correlation between multimodal Demonstration Teaching and Students' Learning Performance. *China Foreign Languages*. 3:54-58