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Comparison on the Sound Systems between Sichuan Dialect and English (Part One)

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This paper analyzes the differences of the sound systems between Sichuan Dialect and English from the following two aspects: phonemes and sound combinations (We will discuss the other aspects of their sound systems in another paper). We are convinced that if language teachers have some knowledge of the transfer theory and if they know clearly the similarities and differences of mother tongue and English, it would be much easier for them to know the language focuses and difficulties for the learners and their teaching would be more effective.

Keywords: Sichuan Dialect; English; Comparison; Phoneme; Sound Combination; Language Transfer

Introduction

What kind of influence would mother tongue has on foreign language acquisition has long been the concern of linguists and language teachers. According to the contrast analysis hypothesis which was put forward in the 1950s (Fries, G. & Lado, R.), mother tongue habits would influence foreign language acquisition. It is positive transfer if the learner's native language helps in learning the second language, otherwise, the negative transfer (Wang Chuming, 1990). Despite the conflicting views on the significance of language transfer in historical linguistics, there is a widespread acceptance of the idea that native language influence could greatly influence second language acquisition (Terence Odlin, 2001), especially when learning the pronunciation. The differences of two languages are usually the difficult points for learners (Rod Ellis, 1994).

Most learners in China begin to learn English from the first year in middle school, so they miss the best time for learning the second language, which is from 6 to 12. The sound system, grammatical system and syntax have already rooted in their knowledge long before they get contact with the second language. Some linguists believe that language acquisition is a process of getting into habits, not that of learning. If learners drill repeatedly in listening, speaking, reading and writing, they would gradually master the second language. But the result goes against the prediction of the theorists. The Chinese students in fact spend a lot of time in learning English before entering colleges. They are excellent in listening and reading comprehension, but very poor in oral English, especially in Sichuan dialect area. Due to the negative transfer of mother tongue, students' poor pronunciation seriously influences their spoken English. In this paper, we will compare the sound systems of Sichuan dialect and English so as to find out the similarities and differences of them. We are convinced that if language teachers have some knowledge of the transfer theory and if they know clearly the similarities and differences of mother tongue and English, it would be much easier for them to know the teaching focuses and difficulties for the learners and their teaching would be more effective.

Mandarin is the common language of the Han people, while Sichuan dialect is a sub-dialect in the southwest area of modern Chinese north dialect. However, Sichuan dialect differs to some extent from modern Chinese in their pronunciation, vocabulary and grammar. Sichuan dialect usually refers to the official dialect used by the natives in Sichuan Province, Chongqing Municipality and nearby areas. According to the classification in Language Atlas of China (1988/1990), Sichuan dialect belongs to the south-west official dialect. Besides the official dialect in Sichuan and Chongqing, there are some other non official dialects, such as, "Tu-gong-dung-va", another name for "Hak-ka-va", and "Old Hu-Guang Words" of "Xiang Dialect" (Cui Rongchang, 1996), but the speakers in these areas can easily communicate with each other in Sichuan Dialect. Sichuan dialect is characteristically "foreign exclusive". In its system, the sounds, vocabulary and grammar are mostly in agreement, and the inhabitants have little difficulty in communication, but Sichuan dialect has a large population of speakers in a large range of areas, there remains some discrepancies. In the three years between 1956 and 1958, Sichuan University, South-west Normal University and Sichuan Normal University joined their effort to have made a key-point investigation on the 150 places representative of Sichuan dialect. In 1960, the working team of dialect investigation of Sichuan University published **The Sound System of Sichuan Dialect** (1960) (Hereafter called: **The Sound System**), in which the researchers listed the brief sound systems of 150 dialect representative places. The time of investigation is not very far from present and at the same time,

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and in the recent few decades, Sichuan dialect is relatively steady, especially its sound system, so in this paper we take **The Sound System** as the standard and clear up the consonant table, vowel table and the regular combination patterns so as to make a comparison with English sound system.

English belongs to Indo-European language family and Chinese belongs to Sino-Tibetan language family, so they differ greatly from each other in their pronunciation, vocabulary and grammar. In the following, we will describe the phonetic features, the similarities and the differences of the two languages from several aspects.

Comparison on the Phonemes

There are complete different ways for the two languages to distinguish meanings, and the analysis of their phonemes reflects their distinctive features of the different nationalities. As far as English syllables are concerned, linguists classify the vowels and consonants according to the nature and property of their articulation, on which they summarize the vowel phonemes and consonant phonemes. Linguist D. Jones lists 44 phonemes, among which 24 are consonants and 20 are vowels in his English Pronunciation Dictionary (D. Jones, 2006). They are as followed:

Consonants: / p,b,t,d,k,g; f,v,s,z,ʃ,ʒ,θ,ð,h,r; tʃ,dʒ; m,n,ŋ,l; j,w / (Some textbooks include/ ts,dz, tr,dr /)

Vowels: / iː, i,e,æ; əː, ə, ʌ; uː, u,ɔː, ɔ,ɑː ai, ei,ɔi,əu,au, iə,ɛə,uə /

Syllables in Chinese consist maximally of an initial consonant, a glide, a vowel, a final, and tone. Not every syllable that is possible according to this rule actually exists in Mandarin, as there are rules prohibiting certain phonemes from appearing with others, and in practice there are only a few hundred distinct syllables (San Duanmu, 2007).

In **The Sound System (1960)**, linguists generalized 23 "Initial" (声母 shēngmǔ), in another words, 23 consonants in total. If we consider the representative places as different "sets" in math, then, the 23 consonants are the "union" of Sichuan dialect. See the following formula:

{Consonants in Chengdu dialect} ∪ {Consonants in Chongqing dialect} ∪ {Consonants in Zigong Dialect} ∪ {Consonants in Leshan dialect} ……= [p,pʻ, t,tʻ, k,kʻ, ts,tsʻ,

tʂ,tʂʻ, tɕ,tɕʻ, m,n,n̥,ŋ; f,s, ʂ,ɕ, χ, z,ʐ].

In Sichuan dialect area, except for Guanxian, Congning, Xinfan, Pixian, Xindu and Xichong which have the same number of consonants with those generalized in **The Sound System (1960)**, the others representative places all have less than 23 consonants, and most of them have 19 or 20 consonants.

If we find out the "intersection" of all the representative places, we can get the consonants exiting in every place in Sichuan dialect area. There are 16 consonants:

{Consonants in Chengdu dialect} ∩ {Consonants in Chongqing dialect} ∩ {Consonants in Zigong dialect} ∩ {Consonants in Leshan dialect } ……= { p,pʻ, t,tʻ, k,kʻ; ts,tsʻ, tɕ, tɕʻ ;m,n,,ŋ; s, ɕ, χ}.

The other 7 consonants [f, z, tʂ, tʂʻ, ʂ, ʐ, n̥] only exist in some places in Sichuan.

Vowel phonemes are generalized from the 42 finals listed in **The Sound System**. There are 10 single vowels in the "union": [a,æ,ɔ,o,e,ɻ,i,u,y,ɚ].

Among the 10 single vowels, 6 of them, [a,o, ɻ, i,u,ə], exist in the dialect of every places and the other 4, [æ,e, ɔ,y], only exist in some places (see **The Sound System, 1960**).

There are 14 diphthongs and 5 triphthongs:
Diphthongs:
[ia,ua,iæ,uæ,yæ,yo,ie,ue,ye,yu,ai,ei,au,əu]
Trip thongs: [iai, uai, uei, iao, iəu]

The following seven diphthongs and one triphthong, [iæ,uæ,yæ,ie,ue,ye,yu, iai], only exist in some places.

There are 13 nasal finals in Sichuan dialect.

Tables 1 and **2** show the comparisons on the consonants and vowels of Sichuan dialect and English.

From **Tables 1** and **2**, we can clearly see the differences of the phonemes in Sichuan dialect and English. We summarize their differences as follow:

(1) The manners and the places of articulation for some of the consonants are different in the two languages. For example, in Sichuan Dialect, there are two sets of blade affricates: [ts,tsʻ ,tʂ, tʂʻ] and one set of palatal [tɕ,tɕʻ,ɕ,n̥], but in English, there is a set of post-alveolar fricative [ʃ,ʒ, tʃ,dʒ] and two dentals [θ,ð].

(2) In English, there are 8 counterparts of voiceless and voiced consonants, they are: [p,b], [t,d], [k,g], [s,z], [ʃ,ʒ],

Table 1.
Comparison on the consonants.

Sichuan dialect	p	pʻ		t	tʻ		k	kʻ		ts	tsʻ	tʂ	tʂʻ	tɕ	tɕʻ				m	n	n̥	ŋ	
English	p		b	t		d	k		g							tʃ	dʒ		m	n		ŋ	l

Sichuan dialect	f			s	z	ʂ	ʐ	ɕ			x			
English	f	v	θ	ð	s	z			ʃ	ʒ		h	j	w

Table 2.
Comparison on the vowels.

Sichuan dialect	ɻ		i	e	æ	a	y		ɔ		o	u				ɚ	ai	ei	au	əu	
English		iː	i	e	æ			ɑː	ɔ	ɔː		u	uː	ʌ	ə	əː	ai	ei	au	əu	ɛə

Sichuan dialect		ia	iæ	ie		ua	uæ	ue		yæ	yo	ye	yu	iai	iao	iəu	uai	uei
English	ɔi				iə			uə										

counterparts of aspirated and unaspirated consonants, they are: [p,pʻ], [t,tʻ], [k,kʻ], [ts,tsʻ], [tɕ,tɕʻ]. In English, when a consonant is pronounced, whether the vocal cord is vibrated or not (voiced or voiceless) distinguishes the meaning of words. For example, *put* and *but* are different not only in pronunciation but also in meaning, because phoneme [p] is voiceless and [b] is voiced, even if the other phonemes in these two words are completely the same. In Sichuan dialect, voiced or voiceless is not a distinctive feature, but whether a consonant is aspirated or not is very important for distinguishing word meaning. For example, when we pronounce the word "波 bō", whether we vibrate our vocal cord or not, the meaning of the word "波" does not change, but if the consonant "b" is aspirated, "波 bō" changes into "坡 pō", another word with different meaning. In English, whether a consonant is aspirated or not does not distinguish meaning. For example, in such words as *sky*, *student* and *sport*, phonemes "k, t, p" should be voiceless and unaspirated according English pronunciation rules, but even if one pronounces them as [spʻɔːt] or [sʻkai] or [ˈstʻjuːdent], the others would not misunderstand him. In Sichuan dialect, most consonants are voiceless, and there are only six voiced: [m,n,n̠,ŋ,z, z̠].

(3) There are more single vowels in English than those in Sichuan dialect. In English, there are twelve single vowels and in Sichuan dialect only ten. The length of articulation and the degree of tense of the speech organ are the distinctive features in English. For example, *bit* [bit] and *beat* [biːt] are two different words, but in Sichuan dialect, in word "妈 mā", the length of the vowel would not change the meaning of word, while the tone pitch does. Example: *mā* (妈), *má* (麻), *mǎ* (马), *mà* (骂).

(4) There are more diphthongs and triphthongs in Sichuan dialect than in English. There are nineteen diphthongs and triphthongs in Sichuan dialect, and in English there are only eight diphthongs and no triphthong in the real sense.

Comparison on Their Sound Combinations

Each language has its rules to form its sound combination and each language has its ways to constitute syllables. Comparatively speaking, syllable patterns in English are more complicated than those in Chinese. In English, a word may have several syllables and the position of each phoneme is free. Of course, English does not exploit, in the word and the syllable, all the possible combinations of its phonemes. For instance, long vowels and diphthongs do not precede final [ŋ]; [e, æ, ʌ,] do not occur finally; the types of consonant cluster permitted are subject to constraints. Initially, [ŋ] does not occur; no combinations are possible with [tʃ, dʒ, ð, z]; [r, j, w] can occur in clusters only as the non-initial element; such initial sequences as [fs, mh, stl, spw] are unknown, etc. Finally, only [l] may occur before non-syllabic [m, n]; [h, r, j, w] do not occur in the type of phonemic analysis here used; terminal sequences such as [kf, ʃp, lð, ʒbd] are unknown (A. C. Gimson, 1972: p. 239).

1. The rules for the sound combination in English

A. C. Gimson (1972) lists 10 patterns of word initial and final phoneme sequences: (V: Vowel; C: Consonant)

(1) V: There are ten vowels in English which can constitute monosyllabic words: [iː] E, [ə] a, [ɑː] are, [ɔː] or, [əː] err, [ei] A, [ai] I, [əu] owe, [iə] ear, [ɛə] air.

(2) Initial V: All vowels occur initially, with the exception of [u] and [uə].

(3) Initial CV-: [ŋ] does not occur initially. [ʒ] occurs only before [i] and [iː] in some foreign words. The other consonants generally occur before all vowels, though marked deficiencies are evident before [uə,u, ɔi].

(4) Initial CCV-: This pattern is very common in English: p + l/r/j; t + r/j/w; k+ l/r/j/w; b + l/r/j; d + r/j/w; g + l/r/j,w; m/n/l + j; f + l/r/j; v + j; + r/j/w; s + l/j/w/p/t/k/m/n/f; ʃ + r; h + j.

(5) Initial CCCV-: s+ p+l/r/j; s + t + r/j; s + k + l/r/j/w

(6) Final – V: All vowels except [e, æ, ʌ, ɔ] occur finally.

(7) Final – VC: Only r,h, j, w do not occur finally.

(8) Final – VCC (Omitted. See p.248)

(9) Final – VCCC (Omitted. See p.252)

(10) Final – VCCC (Omitted. See p. 255)

From the 10 patterns listed above, we can see clearly that the sound combinations in English are very complicated and the consonants clusters are very common.

2. The rules for the sound combination in Sichuan dialect

The syllable patterns in Chinese are much simpler than those in English. The syllable patterns are usually fixed, and the positions for phonemes are simple and regular. If we do not consider the supra-segmental features, then, there are only four positions for phonemes. We can simplify it as the following formula:

Syllable in Chinese = C (M) + V (E)

(C: Consonant; M: Head Vowel (or glide); V: Vowel; E: Tail)

In this pattern, M and E can be missing. As far as phonemes are concerned, C can also be missing. But strictly speaking, there is no zero initial in Chinese, in another word, vowels never appear at the beginning of a syllable. Even when a sound like a vowel appears at the beginning, there is a consonant or a semi-vowel goes before it, such as, [ʔ, j, w, ɥ, ʋ]. That is why the position for "Initial (声母 shēngmǔ)" is indispensible in Chinese.

The Chinese syllable pattern "C(M)V(E)" is very steady and most of the dialects in China follow the rule. There is no exception for Sichuan dialect. The general rule for the Chinese syllable pattern is as followed:

C: All the consonants; zero consonants.

M: i, u, y; zero head vowel.

V: All the single vowels.

E: i, u; n,ŋ; zero tail vowel.

Based on the general rule, we can summarize the patterns of word initial and final phoneme sequences of Chinese:

V; MV; VE; MVE; CV; CMV; CVE, etc.

Sichuan dialect, as one of the most important dialects in China, follows the general rule of the sound combination of Chinese, but differences exist. In this paper, we focus on the analysis of nasal finals and compound vowels in order to show the distinctive features of Sichuan dialect from those in English.

(1) The patterns of nasal finals and vowel + nasal final combination in Sichuan dialect.

Only some single vowels in Sichuan dialect can combine with nasal consonants [n,ŋ], see **Table 3**:

From **Table 3**, we can see that there are totally six combinations: [an,ən,in,yn,aŋ,oŋ].

Table 4 shows the possibilities of the combination of "head vowel + nasal final":

There are seven combinations: [ian, iaŋ; uan, uən, uaŋ; yan, yoŋ].

(2) The patterns of compound vowels (diphthongs and triph-

Table 3.
The possibilities of "vowel + nasal" combination.

a	o	ə	i	y	Vowel / Nasals final
+	−	+	+	+	n
+	+	−	−	−	ŋ

Table 4.
The possibilities of "head vowel + nasal final" combination.

Head vowel / Nasal final	an	ən	in	yn	aŋ	oŋ
i	+	−	−	−	+	−
u	+	+	−	−	+	−
y	+	−	−	−	−	+

Table 5.
Diphthongs beginning with glides [i, u, y] in Sichuan dialect.

glide / vowel	a	æ	o	e	u
i	+	+	−	+	−
u	+	+	−	+	−
y	−	+	+	+	+

Table 6.
Diphthongs ending in [i, u] in Sichuan dialect.

a	e	ə	vowel / tail
+	+	−	i
+	−	+	u

Table 7.
Triphthongs in Sichuan dialect.

glide / diphthong	ai	ei	au	əu
i	+	−	+	+
u	+	+	−	−

thongs).

In **The Sound System**, linguists generalize 42 finals (韵母) and they distribute unevenly in the different parts (see Part II: Comparison on the phonemes). There are 19 compound vowels, among which, 10 of them are diphthongs beginning with glides *i, u, y*: [ia, iæ,ie, ua,uæ,ue, yæ,yo,ye,yu]; 4 of them are diphthongs ending in *i* and *u*:[ai, ei, au, əu] and 5 of them are triphthongs: [iɛi, iau, iəu, uai, uei]. **Tables 5-7** show the possibilities of their combination.

From the analysis above, we summarize the differences of the sound combination of the two languages as follow:

(1) The patterns of sound combination in English are much more complicated than those in Sichuan dialect. In addition, the positions for the phonemes in English are mostly free, while in Sichuan dialect, the positions are usually steady and simple.

(2) It is very common to see consonant clusters in English and most of the consonant clusters can appear at the beginning, in the middle or at the end of a syllable. Most of the consonants except for [ŋ] can appear at the beginning of a syllable, and most consonants except for [r,h,j,w] can appear at the end of a syllable. In Sichuan dialect, there is no consonant cluster. Consonants only appear at the beginning or at the end of a syllable, but never in the middle. Only two consonants [n,ŋ] can appear at the end.

(3) Most consonants in English can freely combine with vowels, except for [ʒ,ð,z,] with some vowels. But in Sichuan dialect, the rules for consonant and vowel combinations are much more restricted and many consonants cannot be combined with some vowels. For example, [s,z,z,ç,f,g,k,kʻ,ts,tsʻ,tʂ,t ʂʻ,χ,ŋ] never goes together with vowel [i].

(4) There is no triphthong in the real sense in English. Five diphthongs [ei, ai, ɔi, au, əu] can be followed by [ə]. Some linguists consider the compound vowels as triphthongs, but in fact, they are not phonemes as the diphthongs. [ə] belongs to the next syllable (Xu Tianfu et al., 1985). They are completely different from the triphthongs in Sichuan dialect.

Conclusion

In this paper, we analyze the differences of the phonemes and sound combinations of English and Sichuan dialect. It is self-evident that the two sound systems differ greatly, and their differences will certainly bring a lot of difficulties to the students in Sichuan dialect area when they are learning English pronunciation. If language teachers in dialect areas pay attention to the differences between English and their dialects, it would be much easier for them to find the language focuses and difficult points. We suggest that teachers introduce some basic knowledge about phonetics to students and make them know how to correct their pronunciation self-consciously and spend more time drilling on them.

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