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Positive Transfer of Chinese Pinyin on English Phonetic Learning

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Abstract

In the process of learning English for the first time, Chinese students will transfer some pronunciation habits in Chinese Pinyin to English pronunciation. This is an inevitable phenomenon and a process that English beginners cannot avoid. Although Chinese and English belong to different language families, the common physiological structure of the human vocal organs suggests that many pronunciations are also similar. Interviews and questionnaires showed that a considerable number of students in primary schools used Chinese Pinyin to read English words and their interest and confidence in learning English is largely decided by their correctness of English pronunciation. By comparing English and Chinese in terms of vowels and initials, consonants and finals, and syllables between English and Chinese, this paper analyzes the positive impact of Chinese Pinyin on English phonetic learning from the perspective of positive transfer, and establishes English beginners' confidence in learning English phonetics.

Keywords: Positive Transfer, Chinese Pinyin, English Phonetic Learning, Vowels and consonants, Initials and Finals, Syllables

Introduction

Chinese students start learning Chinese characters from Chinese Pinyin. According to Zhang (2020), Chinese parents take an active role in teaching their children how to read and write Chinese. In the preschool education stage, most Chinese public or private kindergartens teach Pinyin of Chinese characters in order to have a good starting point for students to recognize Chinese characters after entering primary school. During the family education stage of preschool education, parents will also instill knowledge of Chinese Pinyin. As Jianlong Ren (2017) illustrated in his paper, from parents and children reading cartoon stories with Pinyin together, to children being able to read them independently, it is very important for children to master Chinese Pinyin. Children feel pronunciation through visual material. Cartoon are the perfect learning material. Due to the vast territory of China and the unbalanced

development of economic and educational levels among regions, the gap of the start time of English learning in different regions is even greater than that of the start time of Chinese Pinyin. Preschool kindergarten education or preschool family education in first-tier cities has been designed to read English cartoon stories and learn sight words. In ordinary second-tier cities, English is taught from the first grade of primary school, usually from the third grade of primary school. In areas below the counties, especially in remote areas with relatively backward economy, English can only start from the first grade of junior high school at the latest.

Article 2 of the Law of the People's Republic of China on the Standard Language and Characters of the People's Republic of China stipulates: "The standard spoken and written language of the country is Putonghua and standardized Chinese characters." Article 3 stipulates: "The state promotes Putonghua and promotes standardized Chinese characters." The Law stipulates that Putonghua is the common language of the country. The standard pronunciation of Mandarin Chinese is Beijing dialect and northern dialect is the basic dialect. Beijing phonetic is also the standard Chinese Pinyin. Xiaomei (2015) believes that Chinese Pinyin is the phonetic system of Chinese. Pinyin includes initials and finals, of which there are 23 initials (b, p, m, f, d, t, n, l, g, k, h, j, q, x, zh, ch, sh, r, z, c, s, y, w) and 24 finals (a, o, e, i, u, ü, ai, ei, ui, ao, ou, iu, ie, üe, er, an, en, in, un, ün, ang, eng, ing, ong). Each Chinese character can be pronounced, and the pronunciation can be marked by adding the initials to the finals, the initials to the finals or the finals. The Pinyin of each Chinese character also has five tones: level, rise, fall-rise, fall and soft. The International Phonetic Alphabet (IPA) is a set of phonetic notation systems pronounced in English by linguists. As a standard symbol for uniformly indicating sounds in all languages, most of the symbols are taken or derived from the Roman alphabet. Some of the others are from the Greek alphabet, and some obviously have nothing to do with any other alphabetic standard. In the International Phonetic Alphabet of English, there are 20 vowels, [i:], [i], [ɔ:], [ɔ], [u:], [u], [ə:], [ə], [ɑ:], [ʌ], [e], [æ], [ei], [ai], [ɔi], [ɛə], [uə], [iə], [au], [əu], and 28 consonants [p], [b], [t], [d], [k], [g], [f], [v], [s], [z], [θ], [ð], [tr] , [dr], [ts], [dz], [m], [n], [ŋ], [h], [l], [r], [j], [w], [tʃ], [dʒ], [ʃ], [ʒ].

Language transfer theory is an inescapable topic for language learners, especially second language learners. In the 1960s, behaviorists Watson and Skinner believed that human learning behavior is essentially a habit-forming behavior, and language acquisition, including second language acquisition, is also a process of developing language behavior. He Shanfen (1987), an early scholar, stated that Chinese students will be influenced by their native languages including Mandarin and regional dialects in the process of learning English. This interference level is proportional to the age of the person. That is to say, the younger the age, the less interference factors, and the easier it is to acquire standard and authentic pronunciation. And as language learners get older, it becomes harder to change their speech habits. This coincides with the theory of Watson and Skinner. The mother tongue has two effects on second language acquisition, positive transfer and negative transfer. Positive transfer means that the acquisition theory and practical behavior of the mother tongue contribute to the acquisition and mastery of the second language, while negative transfer means that the language learner is consciously or unconsciously interfered or hindered by the mother tongue in the process of second language learning. Regarding the influence of Chinese Pinyin on English phonetic learning, domestic scholars mainly focus on the negative transfer effect. Nevertheless, as language learning especially second language learning is a tedious and

painstaking process for a student, knowing the negative transfer only serves as a negative effect for language learning. On the background of existing positive transfer of Chinese Pinyin on English pronunciation learning, how to systematically analyze and specify the aspects of common points between Chinese Pinyin and English phonetics is the main motivation for this paper. So far so that, the purpose of this paper is to compare the similarities between English phonetics and Chinese Pinyin, to help Chinese students acquire standard English pronunciation and to develop confidence in language learning.

Literature Review

The traditional language learning theory holds that the interference of the mother tongue is the main obstacle to foreign language learning, and language learners will subconsciously replace the theory and method of the target language with that of the mother tongue. However, Zhang Wenjing (2017) pointed out that the errors in second language acquisition cannot be completely attributed to the negative transfer of the mother tongue. It is related to the talent of linguistic learners, the communicative competence of the native language, and the learning environment of language learners. Too much emphasis on the negative transfer effect of the mother tongue will only produce boredom and frustration for language learners. Domestic scholar Wei Rufen pointed out in 2009 that human vocal organs are structurally the same from a physiological point of view, although the sounds used in each language, the use of vocal parts, or the degree of coordination between vocal parts are different. There are many consonants in English that are the same or similar to Chinese writing or pronunciation, and some vowels have many similarities even if they are not exactly the same as Chinese Pinyin. If Chinese teachers can make use of these commonalities, the effect of pronunciation teaching can be multiplied with half the effort.

According to Allan James, from the perspective of second language acquisition, the mother tongue has a greater impact on the second language pronunciation than other aspects. And pronunciation can also affect reading ability. Wang (2015) pointed out that in non-English-speaking countries phonics is a way to improve their reading efficiency. Meanwhile, Min (2007) pointed out that pronunciation acquisition is a physiological adaptation and change, which is largely related to factors such as natural selection and innate language talent. Compared with changes in language cognition such as grammar, the original phonetic system should be changed or adjusted to the needs of new phonetic system, which is not an easy task for an individual. A French surgeon, neuropathologist, and anthropologist Pierre Paul Broca discovered the “Broca’s area” in the mid-19th century, which is responsible for the processing and discourse of language information in the brain. “Broca’s area” develops rapidly at 2-4 years old and matures at 10-12 years old. Before the “Broca’s area” matures, it is a critical period for the acquisition of standard and authentic English speech. During this period, the education and guidance of the positive transfer of Chinese Pinyin is not only conducive to the formation and accumulation of second language learning for children, but more importantly, it is more conducive to efficient for children to use the pronunciation habits of their mother tongue to guide the acquisition of the target language and correct pronunciation errors in the target language. Just as Zang (2014) claimed that for the young children their knowledge of phonics will influence their later Chinese Pinyin learning. Non-standard pronunciation could impair their learning efficiency when they enter the higher grade. However, in mainland China, Cao (2017) did a research which showed that some English teachers and researchers have not well informed about the significance of Phonic.

Microscopically decomposing pronunciation, Bloomfield (1933) called the phonemes distinguished according to the sound quality as segmental phonemes, including vowels, consonants, and syllables consisting of vowels plus consonants or consonants plus consonants. The supersegmental phoneme refers to other factors in pronunciation besides the sound quality, such as the cadence of the sentence, the light and heavy reading of the word, etc., including stress, length, rhythm, tone, intonation and juncture.

Searching from CNKI, the largest citation library in China, and inputting "English-Chinese phonetics", a total of 207 documents were retrieved. A total of 5 documents were searched out for "English-Chinese phonetics, commonality", and there were only 3 documents for "English-Chinese phonetics, positive transfer", while searching "English and Chinese phonetics, contrast", there are 94 documents. For second language learners, the best period for mastering English phonetic knowledge is preschool or lower grades of primary school. During this period, students' self-confidence is easy to cultivate, and their self-esteem is easy to be lowered. If they can cultivate students' interest in learning English pronunciation through positive transfer, and guide students to correctly master standard and authentic English pronunciation through the similarities of positive transfer, correct non-standard or even mispronunciation, establish confidence in the early stage of language learning, and get rid of the boredom caused by language learning, this method is far more meaningful to language learning than the accumulation of grammar knowledge and the cultivation of language ability.

Methodology

There are two research objectives in this paper. First, through interviews and questionnaires, the paper aims to find out whether Chinese primary school students have used Chinese Pinyin or characters when learning English, especially English phonetics, and what is the percentage. The second is to systematically analyze in which aspects the initials and finals of Chinese Pinyin are similar to the vowels and consonants of English phonetics, and in which aspects the syllables of Chinese and English are similar.

In this paper, two fourth-grade students and two sixth-grade students were interviewed first to find out if they have used Chinese Pinyin or Chinese characters to mark English pronunciation in the process of English learning. The opening questions in the interviews are about their learning English years and their interest. The main questions are: *Have you ever used Chinese Pinyin or characters to mark English words or phrases' pronunciation? If so, how often?* The responses are given in detail in Findings and Results. Subsequently, a total of 110 students were selected from three schools in Xianyang City(Xianyang Qianghua School, Experimental Primary School, Gaoxin Primary School) and one school in Xi'an city(Fengxi Primary School in Xixian New District), and were surveyed by questionnaires. 108 valid questionnaires were returned, of which 56 in Grade Four, 28 in Grade Five, and 24 in Grade Six. The questionnaire aimed to learn about English pronunciation learning in primary schools, involving 13 multiple choices and 1 question-answer. It was mainly about whether students think their pronunciation is standard, whether they think non-standard English pronunciation will affect their interest in English learning, and the frequency of use of Chinese characters or Pinyin to mark the pronunciation of English words.The statistical results of important information are as follows.

Finding and Results

For the interview, the results showed that all the four students ever used Chinese Pinyin or Chinese characters to pronounce English words more or less, although the two grade-six students abandon this method. Their answers are presented in Table 1.

Table 1
Responses of The Interview

Respondents	Marking Pronunciation Ways(ever)	Marking Pronunciation Ways(now)	Frequency
Student A in Grade Four	Pinyin and Characters	Pinyin and Characters	often
Student B in Grade Four	Characters	Characters	sometimes
Student A in Grade Six	Pinyin	phonetic symbol(IPA)	sometimes
Student B in Grade Six	Pinyin	phonetic symbol(IPA)	occasionally

The main questions and the answers in the questionnaire are revealed in Table 2.

Table 2
Statistical Table of Questionaires

Questions	Agree	Neutral	Not agree
Do you think your English pronunciation is standard?	23.15%	25.00%	51.85%
Do you think that nonstandard English pronunciation can influence the interest in learning English?	78.70%	18.52%	2.78%
Do you often use Chinese Pinyin or characters to mark the pronunciation of English words?	20.37%	37.96%	41.67%

Statistics show that more than 50% of students think that their English pronunciation is not standard enough. What is even more surprising is that nearly 80% of students believe that non-standard pronunciation will affect their interest in English learning, although some of these students think their pronunciation is very standard. In addition, only 41.67% of the students do not often use Pinyin or Chinese characters to mark the pronunciation of English words, which means that more than half of the students use this method frequently or occasionally. The questionnaire reflects that the use of Chinese characters or Pinyin to help read the pronunciation of English words is an issue that cannot be ignored by primary school students when they learn English phonetics. In view of this, this paper adopts qualitative analysis and comparative analysis methods to analyze the similarities between Chinese Pinyin and English phonetics from three aspects: vowels, consonants and syllables of phonemes, and finds the common points for English phonetic beginners. It will also try to find out the subtle differences between Chinese Pinyin and English pronunciation and correct the

misunderstanding of English pronunciation caused by Chinese Pinyin factors, scientifically improve the correctness of English pronunciation, enhance the confidence of beginners in English learning, and try to trains its pronunciation to achieve authentic fluency before the Broca's area matures. Finally, this paper hopes to provide scientific and practical pronunciation teaching practice methods and theories for English teachers, especially those in China's compulsory education stage.

Discussions on the influence of Chinese Pinyin on the positive transfer of English phonetic learning

The interviews suggest that using Chinese Pinyin or Characters is a common phenomenon among pupils to acquire English pronunciation. The results of the questionnaire show that more than half of the students think that standard English pronunciation is important, and that non-standard English pronunciation will affect the interest in English learning. This is consistent with (Jialong, 2017). If students are able to have a good pronunciation, their confidence will be enhanced and their enthusiasm to learn English will be increased. But only about 20% of students often use Pinyin or Chinese characters to mark the pronunciation of English words, which indicates that students have not realized the importance of Pinyin in the positive transfer of English pronunciation. Positive transfer does not occur in the process of English phonetic learning. But there are indeed some simple positive transfers recognized by Chinese linguistic scholars. For example, He Shanfen (2002) found out by comparison that some of the unit sounds in English and Chinese belong to the same kind of sound, and the pronunciations are very similar. [i:] in English and i in Chinese are both high-front vowels, pronounced when the front of the tongue is the highest and the gums are very narrow. However, Chinese students are required not to tighten their mouths too tightly when pronouncing the vowels such as [i:], [i], [u:], [u], and pronounce them as i and u in Chinese. When pronouncing [ɔ:], [ɔ], [æ], it is necessary to avoid the round mouth shape. Chinese monophthongs do not require the mouth shape to be round enough.

In addition, Li Chengming(2013) pointed out that for some pronunciations that are unique in English, such as [θ], [ð], no equivalent phonetic symbols can be found in Chinese. In the process of learning English pronunciation, beginners tend to find similar sounds, such as s and z, from Pinyin. Chinese students are particularly prone to pronounce thanks[θæŋk] as [sænk], which is equivalent to the word *sank*. This is a common phenomenon of most Chinese students. In the teaching process, teachers can encourage and guide students in this common practice, praise students for their ability to find similarities and common points, and at the same time point out that when making the [θ] sound, the tip of the tongue should be placed between the upper and lower teeth, with both sides of the tongue close to the teeth on both sides of the upper row, letting the air flow out from the gap between the tip of the tongue and the teeth, and teachers should demonstrate the correct pronunciation. Positive transfer cannot be simply understood as the similarities and positive effects of Chinese Pinyin and English phonetics. Some English pronunciation problems caused by pronunciation habits in Chinese can be easily corrected by comparison, which is also regarded as the positive transfer of Pinyin on English pronunciation acquisition. In a nutshell, the systematic positive transfer can be analyzed from the following two aspects.

A. Vowels and consonants, initials and finals

Vowels in English are the sounds formed by the airflow vibrating the vocal cords without being obstructed in the oral cavity, and consonants are the sounds formed by the obstruction of the airflow path in the vocal cavity. The single vowels and diphthongs in English correspond to the single finals and combined vowels in Chinese respectively. There are 11 vowels in the International Phonetic Alphabet which are similar in pronunciation to the finals in Pinyin, and 21 consonants which are similar in pronunciation to the initials of Pinyin. See Figure 1 and Figure 2.

Vowels	Finals	Similarities
[i:]	i	prelingual, high tongue
[e]	e	[e] and e are the pre-lingual sounds, the tongue is in the middle,but e is half-high, higher than [e]
[ə:]	er	pre-lingual, high tongue, [ə:] is longer than er
[u:]	u	tongue at the back of the mouth, round lips, [u:] is longer than u
[ɔ:]	o	tongue at the back of the mouth, the lips are round. the tongue of [ɔ:] is half low and half open, but the tongue of o is half high and half closed
[ɑ:]	a	the tongue both sounds is low. The tongue of [ɑ:] is at the back of the mouth and the lips are spread, while the tongue of a the front, and the lips are round
[ei]	ei	front sound, close mouth,slippage of [ei] is slower than ei
[ai]	ai	front sound, close mouth,slippage of [ai] is slower than ai
[əu]	ou	front sound, close mouth,slippage of [əu] is slower than ou
[au]	ao	front sound, close mouth,slippage of[au]is slower than ao

Figure 1

Consonant	Pinyin	Similarities
[p]	p	plosive, bilabial, unvoiced, unaspirated. p is close to [pɔ:]
[b]	b	plosive, bilabial, unvoiced, aspirated. b is close to [bɔ:]
[t]	t	plosive, alto on the tip of the tongue, unvoiced, unaspirated
[d]	d	plosive, alto on the tip of the tongue, unvoiced, aspirated
[m]	m	nasal, bilabial, voiced
[n]	n	nasal, bilabial, tongue in the middle
[k]	k	plosive, velar sound, unvoiced, aspirated
[g]	g	plosive, velar sound, unvoiced, unaspirated
[l]	l	lateral, alto on the tip of the tongue, voiced
[f]	f	fricative, labiodental, unvoiced
[s]	s	[s] fricative, alveolar, unvoiced ; s fricative, dental, unvoiced
[h]	h	[h] fricative, glottal, unvoiced ; h fricative, velar sound, unvoiced
[w]	w	[w] semivowel, velar sound, voiced ; w is close to[u]
[j]	y	[j] semivowel, Palatal, voiced ; y affricative, Palatal-alveolar, unaspirated
[ʃ]	x	[ʃ] fricative, voiced, Palatal-alveolar. It is close to xi in Pinyin
[tʃ]	q	affricative, unvoiced, aspirated, Palatal-alveolar ; [tʃ] is pronounced at the back of the resistance part with large resistance surface
[dʒ]	j	affricative, voiced, unaspirated, Palatal-alveolar ; [dʒ] is pronounced at the back of the resistance part with large resistance surface
[ts]	c	[ts] affricative, alveolar ; c dental, affricative, unvoiced, aspirated
[dz]	z	[dz] affricative, alveolar ; z dental, affricative, unvoiced, unaspirated
[ŋ]	ng	velar sound, nasal, voiced

Figure 2

B. Syllables

According to He Shanfen (2002), from the perspective of pronunciation and phonetics, syllables in any language can be understood as the result of a cycle of muscle tension and relaxation in the vocal organs. Chinese syllables are usually Pinyin syllables composed of initials and finals, and there are also pinyin syllables composed of two finals, as well as syllables with a single final. A syllable in English is divided into three parts, the onset, the centre and the coda. The onset is equivalent to the consonant before the core of the syllable, similar to the initials in Chinese syllables. The center of the syllable is equivalent to the rhyme part of the Chinese syllable, and the coda is the consonant part after the syllable, which is equivalent to the rhyme tail of the Chinese syllable. Although the rhythm and characteristics of muscle tension and relaxation are different in Chinese characters and words, but in the teaching process, the initials and finals of Chinese syllables can be compared with English syllables, and the pronunciation rules of Chinese syllables can be transferred to the pronunciation of English words to find commonalities among them in order to improve the accuracy of English word pronunciation.

The phonemes of syllables can be divided into two categories according to their functions and pronunciation characteristics, one is vowel (V) and the other is consonant (C). According to the characteristics of Chinese syllables and English syllables, the following seven aspects are common in English and Chinese syllables. See Figure 3.

common points	words	characters
V	or [ɔ:]	啊 a(level tone)
VV	oh [əu]	哎 ai(falling tone)
CV	pea [pi:]	闭 bi（falling tone）
CVV	buy [bai]	买 mai（falling-rising tone）
VC	on [ɔn]	安 an（level tone）
VVC	aim [eim]	婉 wan（level tone）
CVC	bus[bʌs]	饭 fan（falling tone）

Figure 3

The most prominent influence of Chinese Pinyin on English phonetic from mother tongue transfer is mainly reflected in the following aspects. First of all, there are no consonant groups in Chinese syllables, and vowels are always separated between consonants. When Chinese students encounter consonants in English, they are accustomed to adding a vowel between consonants. For example class [kla:s] is read as [kəla:s]. Secondly, the pronunciation rules of Chinese syllables ending in vowels are also easily applied to the pronunciation of English words. For example, come[kʌm] is easily pronounced as [kʌmu:] by Chinese students. Finally, there is no nasal plosion in Chinese, such as [tn], [dn], etc. Chinese people will also add a vowel [ə] in the middle according to their own pronunciation habits, pronouncing [tn] and [dn] as [tən] and [dən]. Although this difference is regarded as an adverse effect of Chinese Pinyin on English pronunciation, the “positive transfer” effect brought about by the similarities between the two languages cannot be ignored, especially the subtle differences found by “positive transfer”, which is crucial for correcting mispronunciations.

Conclusion

In the process of learning English for the first time, Chinese students will transfer some pronunciation habits in Pinyin to English pronunciation. This is an inevitable phenomenon and a practice that English beginners cannot avoid. Although Chinese and English belong to different language families, the common physiological structure of the human vocal organs suggests that many pronunciations are also similar. By comparing English and Chinese in terms of vowels and initials, consonants and finals, and syllables between English and Chinese, this paper analyzes the positive impact of Pinyin on English phonetic learning from the perspective of positive transfer, and establishes English beginners’ confidence in learning English phonetics. At the same time, due to factors such as students’ different language talents and various growing environments, not every student can acquire standard and authentic English pronunciation. This is an objective fact. Some nuances in Chinese Pinyin and English phonetics can be ignored under certain conditions and should not be taken too seriously.

But this paper also has some shortcomings. On the one hand, Pinyin is the standard pronunciation of Putonghua. This paper doesn't consider the influence of local dialects on the English pronunciation acquisition, although China is a country with a large number of dialects. In addition, although Putonghua is widely used on China, dialect accents exist more or less in Putonghua-speaking especially from residents in southern part of China, which affects the formation of standard English pronunciation. On the other hand, this paper takes the theoretical and qualitative research method, and follow-up researches should be conducted to carry out experiments through the experiment group and the control group. The theory should be put into practice, and be applied to phonetic teaching in primary schools to see if the teaching method adopting the positive transfer can improve the pronunciation accuracy of primary school students.

Primary school is a key stage in developing students' language sense and pronunciation correctness. Since learning motivation and enthusiasm of young children are more easily affected by self-confidence, teachers can effectively motivate students' enthusiasm for learning English by informing them of the positive transfer of Chinese Pinyin on English phonetic learning. This is not only conducive to improving students' English output ability, especially speaking ability, but also helpful to English teaching in compulsory education and even higher education in China. From this aspect, this research can play an important guiding role in the learning of English for students in the young age group.

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