The Influence of L2 on L1 in Tone Perception: A Case Study of L2 English- L1 Mandarin Speakers

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Abstract: Tones are categorized as super segmental elements which can distinguish meaning in some languages such as Chinese, Vietnamese. While in some other non-tonal languages such as English, French, tones are utilized to express the emotions of the speaker or to form interrogative sentences.Many researches have probed into the effect of L1 on L2 perception and production extensively in many aspects. However, the effect of L2 on L1 is still less known and not be studied broadly and thoroughly. Tone judging tasks are adopted as the main method to explore the influences of L2 on L1. The conclusion is that immersion English environment will slightly weaken Mandarin speakers' original tone perception sensitivity as L1 words retriving speed becomes slow.

Keywords: Tone Perception; Tone Judging Task; Effect Of L2 On L1; Chinese; English

1. Introduction

Tones are categorized as super segmental elements which can distinguish meaning. Mandarin Chinese is a tonal language which contains four different tones: Level tone (T1), rising tone (T2), dipping tone (T3), and falling tone (T4).Besides those relatively stable tones, there is a neutral tone in Mandarin as well, which is shorter and lighter. And it always appears after other tones, and will not occur in isolation. Tones are very crucial for Mandarin in distinguishing meaning. For example, ma1 (mother), ma2 (numb), ma3 (horse), ma4 (abuse), one syllable with exactly the same consonant and vowel but with different tones can refer to totally different things. Thus, distinguishing tones are very important in comprehending and utilizing Mandarin.

However, English is categorized as a non- tonal language. Tone in English is utilized at sentence level to express the emotion of the speaker or to form interrogative sentences. Therefore, for every single word in English, lexical pitch is irrelevant, so word identification ability of English speaker would be hindered by attending to the sentence function to some extent. Thus, Quam & Cree said, optimal lexical-pitch-processing strategies for the two languages are in contrary position.[1]

Considering the innate huge difference between Mandarin and English no matter in orthography, phonetics, grammar and syntax, the cross-linguistic influence between Mandarin and Chinese is worth to be further analyzed. And this study will focus on the tone influence between Mandarin and English specifically to shed a light in this field.

2. Literature Review

Many researches have probed into the effect of L1 on L2 perception and production extensively in many aspects like pronunciation, and grammar. However, the effect of L2 on L1 is still less known and not be studied broadly and thoroughly. The paper I can found about the backward transfer from L2 on L1 is in small scale. Three articles about the influence of L2 on L1 in three different aspects, namely vowel, stress, and word retrieval, will be analyzed.

According to Kartushina, Hervais-Adelman, Frauenfelder, & Golestani, in their study, they select 24 native French speakers, and asked them to The Danish/ɔ/ sound which is similar to French vowel /o/ and The Russian/ɨ/ sound which is dissimilar to the French vowel.[2] The similarities are judged by the native French speaker through categorization tasks. And they were trained to pronounce both Danish and Russian vowels after three short training sessions that lasted only for three days in total. During the beginning and the ending of the training, they performed vowel repetition task separately. And all the utterances are analyzed in terms of the acoustic frequency. The result shows that after meagerly three sessions, the way they produce French vowel is altered by the learning of new vowel, and they produced the French /o/ more like the dissimilar Russian /ɨ/. It suggested that only three hour of articulatory training with two different vowels from other languages, the original vowel producing by native French speaker altered. This strong evidence of phonetic shift demonstrated the influence of L2 on L1 un-

der some circumstance. Meanwhile, this shift is not a result of L1 attrition like not using French for a long time, but from the direct impact of those two newly acquired vowels. However, the author didn't and couldn't control what other vowels those native French speaker encounter in their spare time. Thus, the alternation may not entirely due to the newly trained vowels. But this finding worth to be noticed and further investigation is needed. And this kind of phenomena can be regarded as a negative transfer from newly acquired L2 to L1.

Other parts inside one single word like word stress can affected as well. According to Chakraborty, he examined the 20 Bengali- English bilinguals.[3] The independent variable in this study is the time of acquiring L2 English. Half of them are early bilinguals, and the other half are late. Bengali language only allows iambic stress pattern (weak, strong), whereas English allows both iambic and trochaic pattern (strong, weak). Through elicitation tasks, bilinguals from both cohorts are asked to produce words in Bengali with both trochaic pattern and iambic pattern like marble and bible (trochaic); buffer and baboon (iambic). Those words are corresponding in meaning. And native Bengali monolinguals are asked to judge the native likeness of their utterances. The results show that those early bilinguals actually performed better than those late bilinguals according to the judgment of native speakers. It overthrow the assumption made by the author that the late bilinguals should performed better in producing Bengali words because their exposure to English which allows trochaic stress pattern is less than those of the early ones. It suggested that L2 do can have a significant influence in the stress of people's original L1. And the extend of influence is related to the exposure time and the acquisition time to the L2. However, the author didn't compare the native likeness of the early bilinguals with the real monolinguals. Whether those early bilinguals can be native-like or just approaching native is unknown. Besides, the categorization in selecting early and late bilinguals is vague and not clearly divided.

Baus, Costa, and Carreiras also found that a short immersion in L2 environment can result reaction latency in speaker's L1. In that study, 50 German students with basic Spanish knowledge went to Spain for an academic communication which last for six mouths.[4] They were asked to picture naming task and semantic fluency task two times separately at the beginning of the journey and the end of the journey. The materials of picture naming task are selected according to the frequency and cognate status of the word both in German and Spanish. The results show that after a six mouth immersion in Spain, the German students performed worse in the second test.[5] And there is significant response latency for them to recall the German words in low frequency and have cognate root with Spain compared to the reaction time they have in the first test. Thus, the L2 really have a hindering effect for them to retrieve their L1 words.[6]

Researches above demonstrated different aspects in which L2 can have an impact on L1. The results of them reveal that L2 does change the some features of L1. And the immersion time of L2 and the acquisition time of L2 also play important parts in bring both negative and positive transfer from L2 to L1. However, those studies didn't focus on the tone. This study may devote a little effort in figuring out the influence in tones.

3. Methodology

3.1 Research question

a) Considering English is a non-tonal language and Mandarin is a tonal language, whether immersion English environment by doing everything in English will weaken Mandarin speakers' original tone perception sensitivity?

b)Which tone will be affected most?

3.2 Sampling

Thirty Chinese university senior undergraduates with Mandarin as their L1 and similar English proficiency (IELTS:6.5 which can be regarded as having a good command of English)as their L2 will be selected. 10 of them will continue studying in mainland universities in Beijing with using mandarin in every single day. 10 of the them will start to pursue their master degrees in The Chinese University of Hong Kong where they will have to speak, write, read English in academic related activities like attending lectures and writing papers whereas they will use and hear Mandarin or Cantonese in daily life. In Hong Kong, they will be under the influence of the mixture of tonal languages (Mandarin, Cantonese) and non-tonal languages (English). Other ten will go to Britain to commence their postgraduates' career, with everything in English.

Ideally, there will be five males and five females in each group with similar ages.

3.3 Tasks

3.3.1 tone judging task

Eight sets of Chinese words with variation only in tones will be selected. One set will consist of four words with same syllable but different tones. For example, (妈 ma1), (麻 ma2),(马 ma3), (骂 ma4). Four sets of words will be selected randomly by computer each time. Participants are required to judge which tone is the one pronounced by the computer, and to click the corresponding bottom in the screen. They will be 16 trials in total for one participant to make sure him cover all the words selected. The sequence of all the 16 words for one round will be arbitrary as well through the random selection by computer.

3.4 Procedure

This tone judgment task will be repeated twice at the beginning of the master program and the end of it with eight mouths interval. Because participants who will continue study in Hong Kong and Britain will spent the next eight mouths in the environment mentioned above continually.

3.5 Analysis

Participants' answer and reaction time will be record simultaneously by the computer when they finished the task twice. Their accuracy rate and the reaction time at the beginning and end will be compared to see the tendency and influence of L2 to L1 in tone perception.

4. Conclusion

After analyzing the data collected, we can reach to the conclusion that immersion English environment by doing everything in English will slightly weaken Mandarin speakers' original tone perception sensitivity, as L1 words retriving speed becomes slows. Because there are constantly exposed to the mixture of tonal languages during their daily life. Thus, there are often confused about certain sounds, which will slightly slower their reaction speed and tone perception.

5. Significance

This study digs out the backward transfer from L2 to L1 in tone perception, which have not been widely discussed and extensively analyzed. It could enrich the evidence of cross-linguistic influences from L2 on L1. This study also can offer tips for scholars who endeavor to focus more on the influence of L2 non-tonal language on L1 tonal language in tone perception. It can also raise native mandarin speakers' awareness about the tone accuracy which may be influenced by other newly acquired languages, and to shed a light on researches that concentrate on backward transfer of L2 on L1 in the future.

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