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The impact of different L1 and L2 learning experience in the acquisition of L1 phonological processes

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ABSTRACT

Previous studies on the effect of L2 experience on L1 acquisition mostly focused on the segmental level without taking into consideration phonological processes. In particular, whether learners' different L1 and L2 learning experience affects their acquisition of L1 phonological processes has not been much explored. This study investigated the impact of different L1 Korean-L2 English learning experience in the acquisition of L1 phonological processes (t-palatalization and h-merger) among three groups of Korean children (mean age: 9): 20 Korean monolingual, 21 Returnee and 19 ESL children. In production the children read orthographically presented stimuli embedded in sentences. In perception both standard (target-appropriate) and spelling-based non-standard variant (target-inappropriate) pronunciations of target words were aurally presented in sentential contexts and the children judged the target appropriateness. The results of the production and perception tests indicated the effect of different L1 and L2 learning experience in the acquisition of L1 phonological processes due to the monolingual and Returnee children significantly outperforming the ESL children either in production or in perception. However, the Returnees outperformed the monolingual children on h-merger in perception, which may partly be accounted for by the Returnees' bilingual benefits and re-exposure to their L1. An asymmetry between t-palatalization and h-merger was also found as all the children performed significantly better on h-merger than on t-palatalization. The asymmetry between the two phonological processes was accounted for in terms of variation and the intrinsic nature of the phonological processes.

1. Introduction

Recently, much attention has been given to the influence of L2 experience on L1 acquisition (Chang, 2012, 2014; de Leeuw et al., 2010; Lee-Ellis, 2012) addressing not only the incomplete acquisition of L1 due to L2 experience but also benefits of L2 experience in L1 acquisition. However, previous studies on the impact of L2 experience on L1 acquisition mainly focused on the acquisition of segments without examining L1 phonological processes. Moreover, not many studies have investigated the acquisition of L1 among children with different L1 and L2 learning experience. Further, given that it is still controversial if the

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use of L1 can have an impact on L2 production but not on L1 production (Guion et al., 2000; MacKay and Flege, 2004), the effect of different L1 and L2 experience on children's L1 acquisition deserves thorough investigation. The current study purports to investigate the acquisition of L1 phonological processes targeting young Korean children with different L1 and L2 experience in order to fill a gap in L1 phonological acquisition research and to shed light on the controversy as to the extent to which L1 and L2 learning experience has an impact on L1 acquisition.

1.1. L1 attrition

A considerable body of research on L2 phonological acquisition has documented that a learner's L1 has a great impact on the sound perception and production in an L2 (Best, 1995; Flege, 1995; Flege et al., 1997; Major, 1992, 2001; Zampini, 2008). For instance, L2 learners' production of L2 stops showed different VOT values from those of L2 native speakers (Lisker and Abramson, 1964; Nathan et al., 1987). Recently, however, the influence of an L2 on an L1 dubbed 'reverse' or 'backward transfer' has drawn much attention (Cook, 2003; Major, 2001). For instance, advanced L2 learners are known to show deviation from L1 canonical forms, which is connected with L1 attrition in L2 settings. According to Pallier et al. (2003) and Ventureyra et al. (2004), young Korean children adopted by French-speaking families did not display perceptual sensitivity to Korean voiceless consonants even after re-exposure to Korean, similar to native French speakers. Further, data from neuroimaging indicated that the Korean adoptees treated Korean as an unfamiliar language to them. de Leeuw et al. (2010) investigated overall foreign accent in L1 speech produced by native Germans who emigrated either to Canada or to the Netherlands. The Germans had lived in Canada or the Netherlands for more than 30 years (average 37 years) at the time of study. de Leeuw et al. observed that the immigrants were more likely to be perceived as having a foreign accent in their L1 speech (i.e., German) than German monolingual controls by German monolingual listeners. In particular, some of the immigrants were perceived as being non-native speakers of German. de Leeuw et al. further found that foreign accent in L1 can be better predicted by contact with L1 in communicative settings like correspondences with family members or friends in Germany where code-mixing between the L1 and L2 is less likely to occur rather than age of arrival (AOA) or length of residence (LOR).

The influence of L2 on L1 phonology can show effects of cross-language assimilation. Caramazza et al. (1973) examined adult French–English bilinguals' perception of French and English voiceless stop consonants using a synthesized VOT continuum. Caramazza et al. reported that the bilinguals' VOT values for English stop boundaries were shorter than English monolinguals' VOT values but their VOTs for French stop boundaries were slightly longer than French monolinguals' VOTs. Similar findings were obtained for the production of the first language. For example, Flege (1987) investigated the VOTs of French /t/ and English /t/ produced by French–English bilinguals and English–French bilinguals, respectively, and reported that the VOT values of their L1 were intermediate to L1 and L2. Major (1992, 2001) also found that English–Portuguese bilinguals' production of L1 English stops showed intermediate VOT values for L1 and L2. Likewise, Mayr et al. (2012) reported that a Dutch–English bilingual twin demonstrated assimilatory patterns of L2 (English) influence on L1 (Dutch) production.

However, the influence of L2 on L1 phonology can also demonstrate effects of contrast enhancement (Mayr et al., 2012). For instance, Flege and Eefting (1987) observed that the VOT values of Dutch /t/ produced by Dutch speakers with more experience in English were shorter, thus more deviant from English VOT norms compared to those produced by Dutch speakers with less experience in English. Mack (1990) reported that a French–English bilingual child produced French and English voiceless stops with much longer VOT values compared to monolingual French and English speakers, thus maintaining his cross-language contrast. Similar results were observed by Guion (2003) who examined L1 Quichua-L2 Spanish bilinguals' L1 vowel productions. The bilinguals differed in terms of age of L2 acquisition: simultaneous bilinguals, early bilinguals, mid bilinguals, and late bilinguals. According to Guion, bilinguals who acquired their L2 Spanish vowels tended to produce their L1 vowels higher compared to those who had not acquired L2 vowels (some mid bilinguals and late bilinguals). The vowel raising resulted in greater dispersion between the L1 Quichua and L2 Spanish vowels, thus enhancing the height contrast between the L1 and L2 vowels.[2] Further, Yusa et al. (2010) found that the VOTs of Japanese voiceless stops produced by Japanese children with much exposure to English were significantly shorter than those produced by monolingual Japanese children. This suggests that the experienced Japanese children enhanced the phonetic contrast between Japanese and English by altering their L1 VOT values. According to the postulations of the SLM (Flege, 1995), the findings of the studies can be ascribable to keeping L1 and L2 categories maximally distinct (Mayr et al., 2012).

1.2. Benefits of L2 experience

Recently, much research has begun to investigate linguistic behavior of a particular population group of L2 speakers, called "heritage speakers", as early experience of their L1 (heritage language) can have positive effects on L2 learning even though their L1 is noticeably less fluent than their dominant L2 (Chang, 2014; Lee-Ellis, 2012). Chang and Mishler (2012) reported that L1 Korean–L2 English listeners outperformed native English listeners in perceiving unreleased English stops. Moreover, early L1 experience can manifest advantages for L1 speech as well. Oh et al. (2002, 2009) investigated the effect of Korean heritage language speakers' experience in Korean on their perception and production of Korean. They found that individuals who

[2] We thank an anonymous reviewer for pointing out this.