Tone-induced split in stop category mapping by Korean learners of Mandarin Chinese

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The present study reports a novel case where a simple one-to-one category mapping may develop into a systematic one-to-two mapping over the course of second language acquisition. We examined the split in category mapping of the Mandarin unaspirated stops conditioned by tone by Korean-speaking learners of Mandarin Chinese (e.g. Mandarin /ta\textsuperscript{35}/ to Korean lenis [ta] vs. Mandarin /ta\textsuperscript{55}/ to Korean fortis [t’a]). Korean L2 learners and naïve listeners participated in identification tasks in which \(f_0\) contours of Mandarin words containing unaspirated stops with short-lag VOTs were digitally manipulated. In word-initial position, learners showed a near-categorical perception from lenis to fortis as \(f_0\) increased, while most stimuli were identified as fortis by naïve listeners. The effect of \(f_0\) was much smaller in word-medial position, but the group difference remained the same, confirming the two groups’ differential use of phonetic cues for stop identification. Taken together, a substantial reorganization of perceptual cues, namely the promotion of \(f_0\) concurrent with significant underweighting of VOT cues, seems to have taken place during L2 acquisition. The findings were discussed with reference to PAM-L2 whereby the knowledge of the L2 phonological system along with particular phonetic properties of the L2 sounds may have driven a perceptual regrouping of the L2 stop categories.

Keywords: VOT, \(f_0\), stop category mapping, PAM-L2, perceptual reorganization

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