Learning non-native speech contrasts: What laboratory training studies have told us

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Human speech perception and production become language-specific in the course of a person's development without difficulty. However, it is not always easy for them to develop a phonetic system of foreign language after once establishing one's L1 (first language) phonetic system. Cross language studies have shown that certain phonetic contrasts are extremely difficult to learn for speakers of some specific languages. However, training studies have demonstrated that laboratory training can improve the ability of adults to perceive and produce such difficult contrasts. For a typical example, studies that examined the perception and production of English /r/-/l/ by native speakers of Japanese are introduced in this paper. In 1990’s, collaborative team between Indiana University and ATR reported that when native speakers of Japanese were trained on /r/-/l/ minimal pairs using an identification task with natural tokens, accuracy in perception significantly improved from pretest to post-test, and the training effects generalized to novel talkers and novel words [*]. After this paper, a series of training studies were conducted and additional results have been obtained: First, the training using a single talker sometimes failed, suggesting the importance of the stimulus set having high variability. Second, the training in the perception domain transferred to the improvement in production, implying that adults develop novel phonetic categories under close communication between the perception domain and the production domain. Third, trainees retained their perception and production ability as much as six months after the conclusion of the training, proving that the laboratory training produced long-term modifications in both domains. Fourth, perception training using target words embedded in semantically contextual career sentence had smaller effect than the training using isolated words as stimuli, suggesting that learners depend on lexical cue rather than acoustic cue if both cues were provided in the training. Depriving non-acoustic cue may crucial in speech perception training. Finally, it was also found that failure in phoneme acquisition could affect lexical learning. Taken together, the importance of phoneme acquisition in learning new language was shown. Thus, implications for the effective foreign language learning method will be discussed in the context of theories of perceptual learning and development of phonological categories. [Part of this research was supported by JSPS #23242032 ]