TRAINING MANDARIN AND CANTONESE SPEAKERS TO IDENTIFY ENGLISH VOWEL CONTRASTS: LONG-TERM RETENTION AND EFFECTS ON PRODUCTION

by

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ABSTRACT

This thesis investigated the effects of perceptual training under laboratory conditions on the perception and production of English L2 vowel contrasts. Sixteen adult native Mandarin and Cantonese speakers residing in Canada were trained to identify English /i/-/I/, /u/-/u/, and /e/-/æ/ contrasts over an extended period of time. At pretest, the participants identified synthesized heed/hid, who'd/hood, and had/head continua, as well as naturally-produced minimal pairs contrasting the three vowel pairs. They also provided production data by reading a list of words containing the target vowel contrasts. Analyses revealed that the participants who had perceptual problems relied on duration cues for the /i/-/I/ but not for the /u/-/u/, and /e/-/æ/ contrasts. It appeared that these speakers did not have clear two-category distinctions for the latter two pairs.

Training (identification tasks with immediate feedback) began with synthesized tokens from the endpoints of continua, followed by fading sessions using spectrally less extreme tokens. The later stages of training exposed the trainees to the highly variable natural tokens produced by multiple native English speakers. The training appeared to effectively focus the trainees’ attention on spectral cues for all three vowel contrasts. Their identification scores for natural tokens increased significantly from pretest to post-test. Perceptual learning was generalized to new talkers and was retained three months after training was completed.

The effect of training on production was assessed through an intelligibility test in which the participants’ productions were identified by native English speakers and through acoustic measurements of vowel durations. Overall, the trainees’ production scores did not increase significantly from pretest to post-test. Furthermore, the training did not have a significant effect on the trainees’ productions in terms of vowel duration differences between the tense and lax vowels of the three pairs.

These findings suggest that, in some cases at least, training only in perception may not be sufficient for significant improvement in production. Future studies may explore simultaneous production and perceptual training for better results. The outcome of this work has relevance to theoretical issues in cross-linguistic speech perception, L2 speech learning, and the relationship between L2 speech perception and production.
For Yong, Jerry, and my parents
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