

Investigating the perception-production link in L2 speech acquisition: The influence of auditory training on pronunciation

The aim of the study was to investigate whether auditory training modifies pronunciation in L2. Research suggests that some transfer of perceptual learning to production might be possible (Bradlow et al., 1997; Hazan et al., 2005). The experiment was motivated by the hypothesis that foreign accent in L2 speech has perceptual bases and that perception and production domains are inextricably linked (Liberman and Mattingly, 1985; Flege, 1995).

The participants were adult native speakers of Polish acquiring English. The study compared the pretest and post-test perception and production performance of subjects in the experimental and the control group. The experiment focused on final obstruent (de)voicing. Pretest and post-test included minimal pair identification using natural tokens and a sentence reading task. The experimental group completed four sessions of auditory training utilizing acoustically manipulated tokens in two tasks: minimal pair identification and AX discrimination. Subjects' productions were recorded and acoustically analyzed to obtain measurements of preceding vowel duration, closure duration, voicing during closure and consonant duration. Additional calculations included V/C ratio and the percent of closure which was voiced. Binary logistic regression analysis was performed for within and between-group comparisons of pretest and post-test perception accuracy. For within-group comparisons of pretest and post-test production paired-samples t-test was used. Independent samples t-test was used for between-group comparisons.

Overall, the effects of the training were more visible in the production domain. In perception none of the pre-test/post-test comparisons reached significance due to a strong ceiling effect. The control group's production did not change in any way from pretest to post-test. Production in the experimental group changed significantly in three of the six mentioned parameters. The results demonstrated that auditory training using acoustic manipulations can influence pronunciation. The study was meant to underscore the importance of perceptual training as a component of L2 phonetic training courses.

References:

- Bradlow, A. R., Pisoni, D. B., Akahane-Yamada, R. & Tohkura, Y. (1997). Training Japanese listeners to identify English /r/ and /l/: IV. Some effects of perceptual learning on speech production. *Journal of the Acoustical Society of America*, 101, 2299-2310.
- Flege, J. E. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Issues in cross-language research* (pp. 233-276). Timonium, MD: York Press.
- Hazan, V., Sennema, A., Iba, M. & Faulkner, A. (2005). Effect of audiovisual perceptual training on the perception and production of consonants by Japanese learners of English. *Speech Communication*, 47, 360-378.
- Liberman, A. M. & Mattingly, I. G. (1985). The motor theory of speech perception revised. *Cognition*, 21: 1-36.