ACOUSTICS2008/2386
Training of English vowel perception by Finnish speakers to focus on spectral rather than durational cues

Maria Uther[a], Sari Ylinen[b], Antti Latvala[b], Reiko Akahane-Yamada[c] and Paul Iverson[d]

[a]Brunel University, School of Social Sciences, UB8 3PH Uxbridge, UK

[b]Cognitive Brain Research Unit, University of Helsinki, PO BOX 9, 00014 Helsinki, Finland

[c]ATR Promotions, Human Information Sciences Laboratory, -2-2 Hikaridai Keihanna Science City, Seika-cho, Soraku-gun, 619-0288 Kyoto, Japan

[d]University College London, Department of Phonetics and Linguistics, 4, Stephenson Way, NW1 2HE London, UK

This study used the High-Variability Phonetic Training (HVPT) technique to train Finnish speakers to distinguish English vowels. It was found that Finnish speakers tend to use durational cues (which are phonemically relevant in their own language) to make a vowel category distinction rather than the relevant spectral cues. We used duration-modified stimuli with a HVPT program to 'force' the use of spectral cues. We focused on the /i/ (as in 'feet') vs /I/ (as in 'fit') vowel contrast and tested behavioural performance using a perceptual identification task. We also measured the Mismatch negativity (MMN) component of auditory event-related potential (ERP) before and after the training to look at changes in brain responses. The worst pre-test performance was for the 'modified duration' condition (i.e. where the learner had no choice but to rely on spectral cues). There were also asymmetries in vowel perception in both behavioural and MMN tasks, with the detection of /i/ being more difficult compared to the detection of /I/. Nevertheless, training did result in marked improvement of the most problematic contrasts for Finnish speakers.