Cue weighting of static and dynamic vowel properties by adults and children with normal language and specific language impairment. Ralph Ohde & Stephen Camarata, Dept. of Hearing and Speech Sciences, Vanderbilt University, Nashville, TN, USA. [Full Paper Available on CD]

The purpose of this study was to determine whether children with and without language impairment give more perceptual weight than do adults to dynamic spectral cues versus static cues, when identifying vowel sounds. Three experimental stimulus sets were presented, each with 30 ms stimuli. The first consisted of unchanging formant onset frequencies ranging in value from frequencies for [i] to those for [u], corresponding to a bilabial stop consonant. The second two consisted of either an [i] or [u] onset frequency with a 25 ms portion of a formant transition whose trajectory was toward one of a series of target frequencies ranging from those for [i] to those for [u]. Ten typically developing children between the ages of 3;8 and 4;1, seven children with specific language impairment (SLI) between the ages of 5;1 and 6;11, and a control group of 10 adults identified each stimulus as [bi] or [bu]. The results showed developmental effects: the typically developing children relied more heavily than the adults did on the static formant onset frequency cue to identify the vowels. The SLI children followed one of two perceptual profile patterns: 1) nonrandom perception of [u] onset stimuli, but random perception of [i] onset stimuli; and 2) nonrandom perception of both [i] onset and [u] onset stimuli, but phonetic boundaries different from typically developing children and adults. The results will be discussed in regard to the Developmental Perceptual Weighting Shift theory, and perceptual profile differences in SLI children. [Supported in part by NIH Grants DC00523-08, P30 HD15052, and P50 DC03282.]