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A study of the McGurk effect in 4-year-old French children

It has been shown that visual cues play a crucial part in the perception of vowels and consonants. Conflicting consonantal stimuli presented in the visual and auditory modalities can even result in the emergence of a third perceptual unit (McGurk effect). From a developmental point of view, several studies report that newborn can associate the image of a face uttering a given vowel to the auditory signal corresponding to this vowel. Visual cues are thus used by the newborn. Despite the large number of studies carried out with adult speakers and newborns, very little work has been conducted with preschool-aged children. This contribution is aimed at describing the use of auditory and visual cues by 4-year-old French speakers, compared to adult speakers, in the identification of voiced plosives. Audio-visual recordings of a French adult uttering the sequences [aba], [ada], [aga], [aza], [ava], [ibi], [idi], [igi], [izi], [ivi] have been carried out. The acoustic and visual signals have been extracted and analysed so that conflicting and non conflicting stimuli, between the two modalities, were obtained. The resulting stimuli were presented as a perceptual test to ten 4-year-old French speakers and ten adults in three conditions: visual only, auditory only and audio-visual. Results show that, even though the visual cues have a significant effect on the identification of the stimuli for adults and children, children are less sensitive to visual cues in the audio-visual condition. Such results shed light on the role of multimodal perception in the emergence and the refinement of the phonological system in children.