

Learning the laryngeal contrast in Japanese

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Human infants must learn the acoustic cues that differentiate contrasting sounds in a language. One of the challenges they encounter can be varying cues in the input across generations if there is an ongoing sound change. Recently, an apparent change-in-progress was reported with respect to voice onset time (VOT) of initial voiced stops in Japanese, that is, lack of pre-voicing among younger speakers. This leads us to question whether the shift of VOT was reflected in infant-directed speech (IDS) as well, which is the primary speech input for infants' language acquisition.

To investigate the acoustic characteristics of IDS, this study tested three different types of speech data: 1) IDS and adult-directed speech (ADS) in spontaneous speech, 2) IDS and ADS of words in isolation, and 3) careful/read speech. The results of acoustic analyses revealed that mothers spread the innovation in initial stops rather than facilitating the perceptual development of infants. Also, the monomodal VOT distribution of two stop categories suggests difficulties in discriminating the voicing contrast, which leads to question when infants become able to discriminate the laryngeal contrast in Japanese, and how about children's own stop productions?

Japanese-learning infants aged 5 and 9 months old were tested using the visual habituation paradigm. The results of the behavioral study confirmed that the development of Japanese voicing discrimination is acquired relatively late, highlighting the weak discriminability of stop contrast perhaps due to the ongoing sound change in maternal input. However, the production data by 3 years olds exhibited adult-like VOT distributions, implying children's early attunement to the acoustic feature of native speech.