

Title: Development of Visual Speech Perception in Chinese-Speaking Children

Studies of visual speech perception development have produced mixed results. An age-related development was found in the speed and accuracy English-speaking children's visual speech perception (e.g., Massaro, 1984; Hockley & Polka, 1994; Hickley, 1994), but only in the speed but not accuracy in Japanese children (e.g., Sekiyama & Burnham, 2008). However, performance on visual speech perception was found to be similar across three groups of French-speaking children (ages 5-9, 10-14, and 15-19), suggesting no developmental increase in visual speech perception in French (Tremblay et al., 2007). One explanation for this crosslinguistic difference suggests that it's because English has a more complex phonology and relies more on visual information than Japanese. The study aims to use Chinese data to better understand the role of these two factors in visual speech perception.

Chinese is similar to Japanese in terms of phonological complexity, but it's similar to English in terms of relying more on auditory cues than visual cues in auditory-visual speech perception. Will language-specific properties impact visual speech perception in Chinese, and how? To address these questions, twenty-eight elementary school students (mean age=7;7, $SD=0.52$), 25 middle school students (mean age = 13;9, $SD=0.47$), and 21 high school students (mean age= 16;7, $SD=0.47$) were asked to complete tasks measuring their visual speech perception of simplex finals (monophthongs), complex finals, and initials (consonants) in Chinese. Both accuracy rate and response time data were collected.

Results revealed two relevant findings. First, there was an increase in accuracy of visual speech perception between elementary and middle school years after which the accuracy rate either stagnates or drops. Second, the middle school age group performed the best in speed of perception, suggesting a somewhat U-shaped developmental trajectory. Thus, the developmental pattern in Chinese is different from either the continuous, linear development in English or the lack of such developmental change in French.

These findings suggest that (1) visual speech perception in Chinese is a developmental process that is acquired over time and is still fine-tuned well into late adolescence; (2) more is involved in lack or presence of developmental increase in visual speech perception skills than crosslinguistic differences in phonological complexity and degrees of reliance on visual information.

Main References:

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- Sekiyama, K. & Burnham, D. (2008). Impact of language on development of auditory-visual speech perception. *Developmental Science*, 11(2), 306-320.