Vocabulary size predicts the development of phonological constancy: An eyetracking study of word identification in a non-native dialect by 15- and 19-month-olds

Karen E. Mulak (1), Catherine T. Best (1, 2), Michael D. Tyler (1, 3), Christine Kitamura (1), and Rikke L. Bundgaard-Nielsen (1)

(1) MARCS Auditory Laboratories, University of Western Sydney, Australia
(2) Haskins Laboratories, New Haven, CT, United States
(3) School of Psychology, University of Western Sydney, Australia

PACS: 43.71.Ft, 43.71.Hw, 43.71.Es

ABSTRACT

Debate over whether early word learners attend to phonetic details (e.g., [1]) or phonemic structure (e.g., [2]) has hinged on their discrimination of word/nonword minimal-pairs (e.g., “BABY” vs. “VABY”). However, such manipulations (/b/ to /v/) conflate phonetic and phonological changes, making it difficult to tease apart the two accounts.

To overcome this, we compared children’s identification of familiar words pronounced in a native (Australian English; AusE) and a non-native dialect (Jamaican Mesolect English; JaME), as cross-dialect pronunciations are phonetically, but not phonologically, disparate. We used an eyetracking (Tobii X120) task to assess word identification. Vocabulary size was used as a predictive measure.

We compared 15- (N=12) and 19-month-olds’ (N=10) looks to corresponding target and distractor images during word repetitions. In all eighteen test trials per dialect, a target word played at the end of a carrier sentence, followed by a second token of the word, then by animation of the target image while a reward phrase played (e.g., “You got it!”).

Fifteen-month-olds looked longer to the named target image than the distractor image in AusE [t(11)=2.24, p<.05], but not JaME, suggesting attunement to experienced phonetic details of their regional dialect, while 19-month-olds identified words in AusE [t(9)=5.67, p<.001], and approached significance in identification in JaME [t(9)=2.21, p=.055], suggesting a perceptual shift to recognizing abstract phonological structure. Moreover, vocabulary size, but not age, was correlated with target-looking in the non-native dialect [R²=.18, R=.43, F(1, 21)=4.40, p<.05], suggesting vocabulary plays an important role in driving this perceptual shift. These findings correspond to results from a previous preference study [3], and to other reports indicating expressive vocabulary size is strongly associated with the emergence of phonologically-based word recognition in toddlers [4, 5, 6].

REFERENCES