

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

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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 [$R^2=.18$, $R=.43$, $F(1, 21)=4.40$, $p<.05$], 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].

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