



Contributions of the Home Environment to Early Disparities in Language Development

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in Collaboration with the PASS Network.

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Introduction

- Phonetic discrimination is a process by which infants perceptually tune to discriminate phonemes of their native language(s), and lose the ability to discriminate phonemes of non-native languages, between 6 and 12 months of age¹
- Large individual differences are present in this process at 9 months², yet the source of these differences is undetermined
- Infants who undergo this process at an earlier age develop stronger language skills in later childhood³
- Environmental contexts (such as SES and child-directed language) have been shown to affect language development⁴, and could account for differences in phonetic discrimination⁵

Hypotheses

- Socioeconomic disparities will account for individual differences in phonetic discrimination at 9 months, such that children from lower SES homes would have higher phonetic discrimination ratios (indicating continued discrimination of non-native phonemes)
- Disparities in quality of the home environment will account for individual differences in phonetic discrimination at 9 months, such that higher HOME scores would relate to lower phonetic discrimination ratios
- Phonetic discrimination score at 9 months will predict language ability at 15 months

Discussion & Limitations

Home environment, but not SES, is related to phonetic discrimination at 9 months

- SES may not be a sensitive enough measure to detect differences in this early skill
- We must examine proximal factors rather than broad measures like SES in order to understand disparities in development

Children from linguistically richer homes at 15 months were more tuned to their native language at 9 months, regardless of general language ability

- A limitation of this study is that home environment was not assessed at the same time as phonetic discrimination
- However, we can hypothesize that home environment engenders earlier perceptual tuning rather than vice versa

Implications for later language development

- Earlier findings about phonetic discrimination predicting later language were not replicated, though we found a trend ($p=.09$)
- Previous research has often used different methods of measuring language, which relied on potentially biased parental reports of vocabulary

Methods

Participants

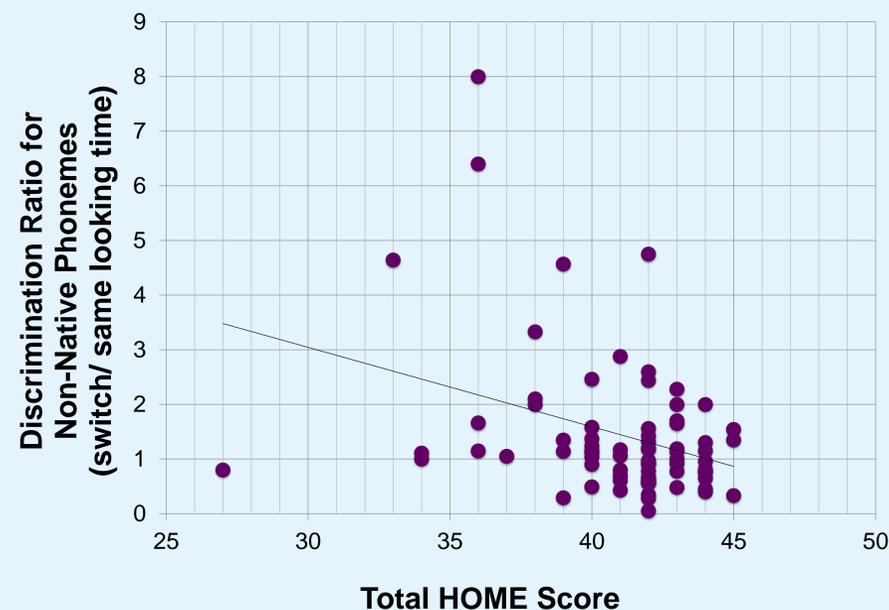
- 75 full-term monolingual infants (27 male)
- Recruited from a cohort of participants enrolled in a large longitudinal study

Measures

- Phonetic discrimination:** non-native contrasts presented while looking-time (every 0.2 seconds) was recorded at 9 months
 - Habituation to one of the nonnative phonemes
 - Additional 14s of the habituated phoneme ("same" trial)
 - 14s of the novel phoneme ("switch" trial)
 - Ratios above 1.0 indicate preferential looking during the "switch" trial relative to the "same" trial
- Preschool Language Scale 4:** measure of expressive and receptive language, measured at 9 and 15 months
- Infant-Toddler HOME Inventory:** assessed the quality of child's home life and environment at 15 months
- Socioeconomic Status Questionnaire:** parent-report items on education, income, family size, administered at 15 months

Results

Phonetic discrimination scores were related to HOME scores but *not* SES



This correlation remained significant when controlling for expressive language at 9 months, rendering it less likely that children with better language skills at 9 months were simply engendering richer home environments at 15 months ($\beta = -.32$, $t = -2.99$, $p = .005$).

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