INFANT WORD RECOGNITION AND WORD LEARNING IS PREDICTED BY SOCIO-ECONOMIC STATUS

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Do Socio-economic Indicators Predict Infant Language Acquisition?

- Before children learn words, they acquire relevant knowledge about words.
  - *They learn the sounds of their language*
  - *They learn how sounds define words in their language*
- What happens before the word gap?
  - *Phoneme discrimination*
  - *Linking sound to meaning – word learning.*

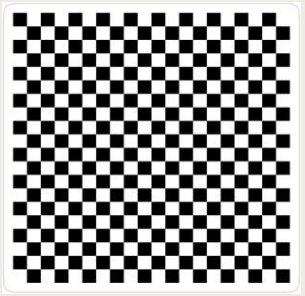
INFANT'S PHONETIC DISCRIMINATION

EXPERIMENTAL METHODOLOGY

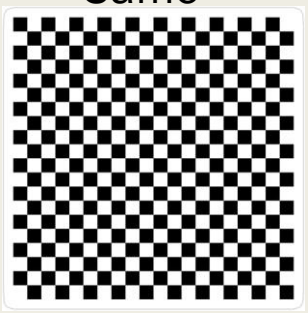
Visual habituation task to measure phoneme discrimination

Habituation

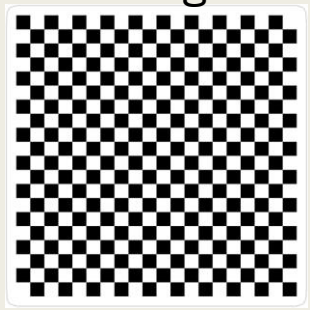
Test



Same



Change



Native contrast: 'ba'	'ba'	'da'
Non-native contrast: 'ta'	'ta'	'ʈa'

By 10-12 months, infants demonstrate native language selectivity in phoneme discrimination (Werker & Tees, 1984)
Studies are largely based on data from research volunteers.

Description of Participants

- 70 infants
- Mean age: 10 months, 21 days (range: 9 months, 12 days to 12 months)
- 39 females, 31 males
- Multilingually-exposed sample
  - *Mean proportion exposure to English = 65% (range: 25 to 100%)*
- 35 families responded to flyers and volunteered their time (‘convenience sample’)
- 35 families from SGLeads (socio-economically diverse sample)
  - *Different incentive structure*
- Groups matched on chronological age and exposure to English

Predictors of Phoneme Discrimination

- Background variables
  - *Age, gender, and exposure to English did not predict phoneme discrimination.*

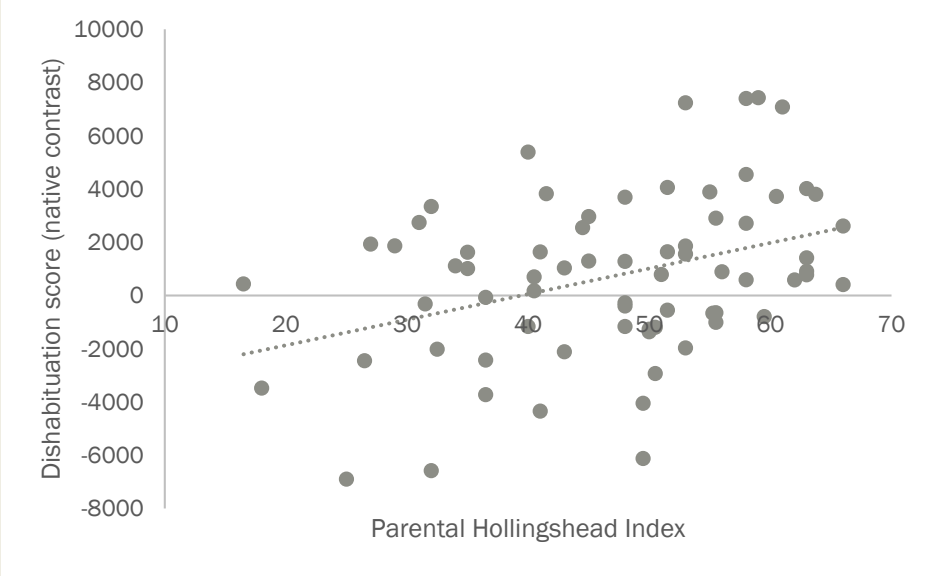
- **Hierarchical linear regression**
- Do socio-economic variables predict discrimination?

Hollingshead index predicted native phoneme discrimination (R^2 = 13.7%)

- Effect of individual components:
  - *Paternal education and occupation*
  - *Maternal education and occupation*
  - *Maternal occupation positively predicted novel word learning over and above effects of other predictors (R^2 change: .14)*

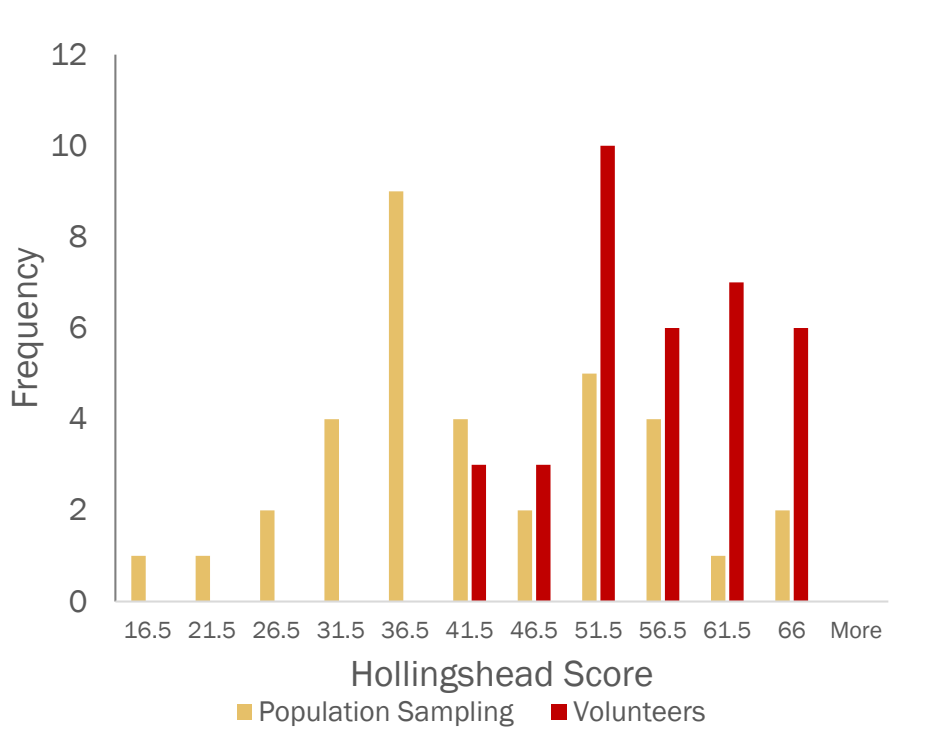
Relationship between socio-economic variables and native phoneme discrimination

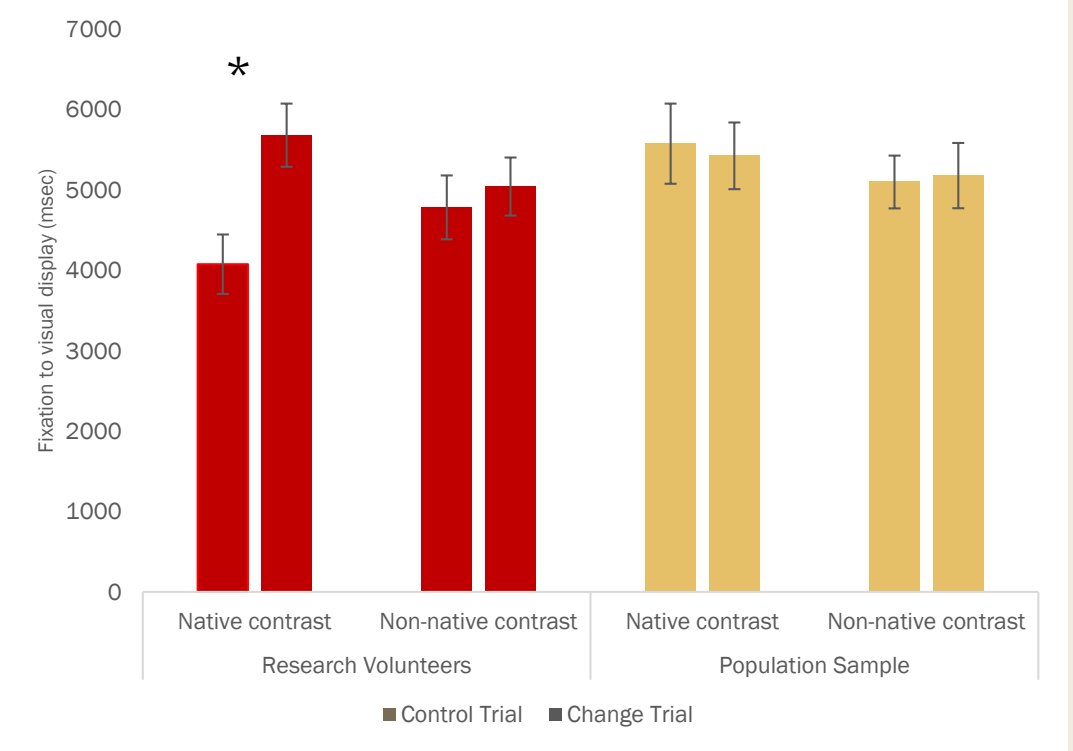
Effects of Hollingshead Index



Effects of maternal occupation

‘Convenience’ sampling versus population sampling.





WORD LEARNING

EXPERIMENTAL METHODOLOGY

Learning Similar-sounding Words

Familiarization Test

‘mun’ ‘nun’ ‘nun’ ‘nun’

(Werker & Yeung, 2005)

Switch trial Same trial

By 18 months, infants map similar sounding words onto different referents (Stager & Werker, 1997)

Description of Participants

- 92 infants
- Mean age: 22 months (range: 18 months, 10 days to 24 months, 7 days)
- 53 females, 39 males
- Multilingually-exposed sample
  - *Mean proportion exposure to English = 62% (range: 19 to 100%)*
- Mean conceptual vocabulary: 213 words (range: 0 to 630 words)
- SGLeads Cohort: High racial, ethnic and socio-economic diversity.

Predictors of Novel Word Learning

- Background variables

- Age, gender, and exposure to English did not predict novel word learning.
- Vocabulary size was a significant predictor.
  - *Entered as a control variable in hierarchical linear regression*

- **Hierarchical linear regression**
- Do socio-economic variables predict novel word learning?
  - *Paternal education and occupation*
  - *Maternal education and occupation*
  - *Conceptual vocabulary*
  - *Maternal occupation positively predicted novel word learning over and above effects of other predictors (R^2 change: .26)*

Conclusions

- Early language processes are influenced by SES
- **Before the word gap, there is a 'speech sensitivity' gap**
  - ***Affects learning the sounds and the words of a language.***
- Maternal factors are particularly influential
- Convenience sampling versus active recruitment of socio-economically diverse families may yield vastly different findings
- Future research will examine the consequences of early differences in speech sensitivity for later word learning.

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