

Bilingual Infants' Perceptual Narrowing and Speech Sound Awareness

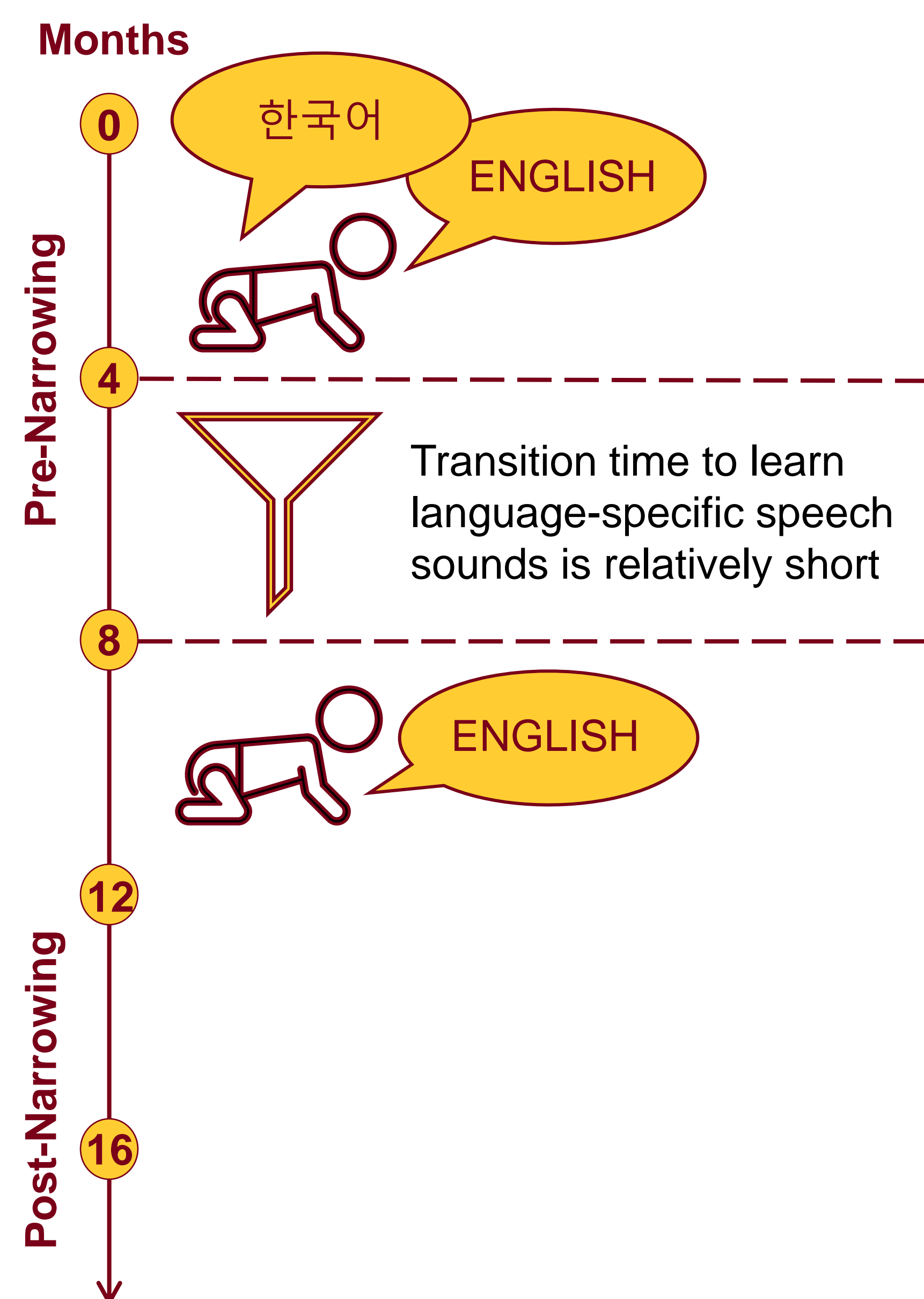
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INTRODUCTION

- Early experiences of infants affect how they process language.
- Infants master perceptual narrowing, the ability for infants to identify speech sounds native to the language(s) they know, in their first year of life^{1,2}.
- Bilingual Americans have doubled from 10% to 20% of the population in the past 30 years, making it more important to understand potential effects of multiple language input³.

Monolingual Speech Sound Sensitivity Timeline



QUESTION

Are monolingual and bilingual infants similar in their ability to distinguish native and non-native speech sounds?

LITERATURE REVIEW METHODS

- Reviewed 5 review papers and 20 empirical papers focused on bilingual infants' speech sound perception
- Selected 6 empirical papers that used a switch paradigm
 - Familiarized infant to a specific native and non-native speech sound
 - Infant heard novel stimuli using the native (same condition) and a similar non-native (switch condition) speech sound
 - Compared looking times – an infant looking longer at the non-native stimuli (switch condition) suggested that they recognized the contrast in speech sounds
- Calculated effect sizes (Cohen's D) to compare between studies
 - 0.2 = small, 0.5 = moderate, 0.8 = large

SUMMARY OF FINDINGS

Bilingual vs. Monolingual Perceptual Narrowing

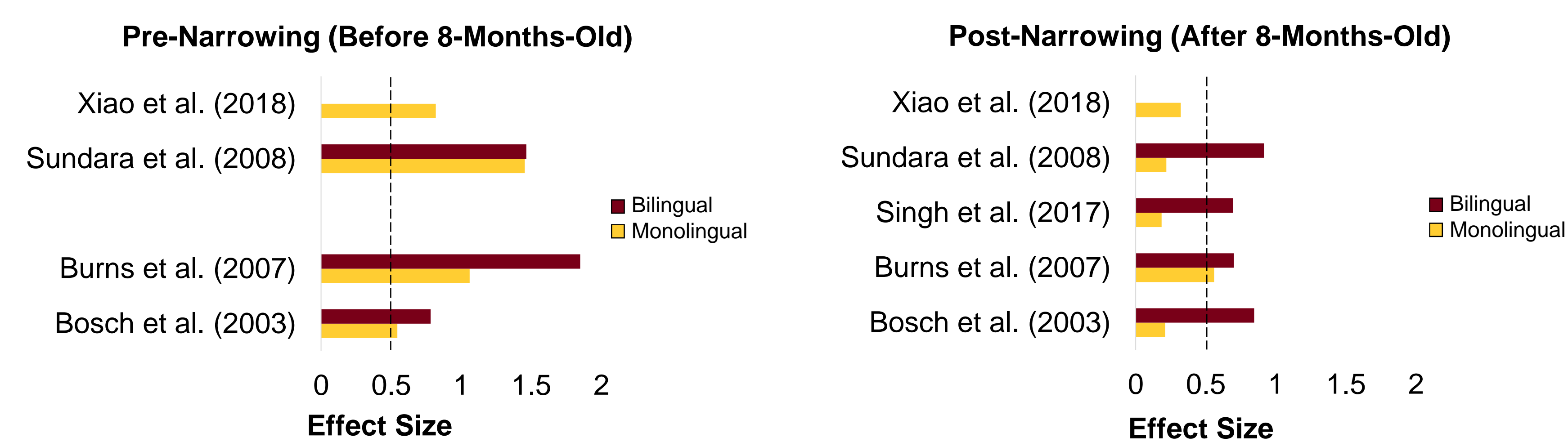
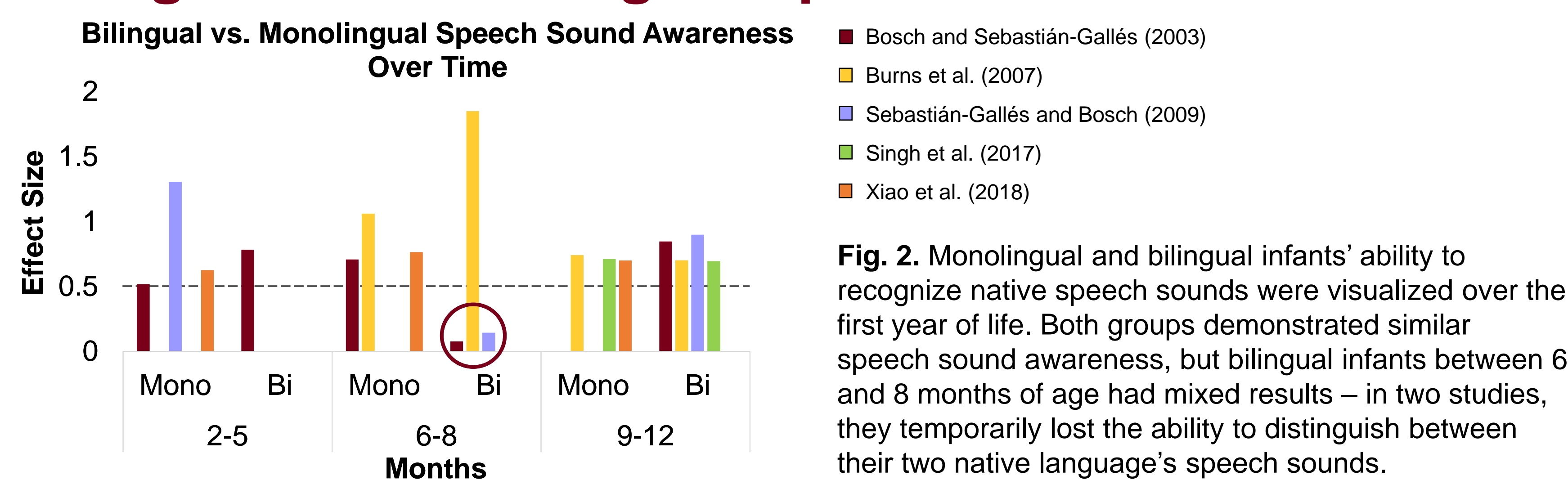
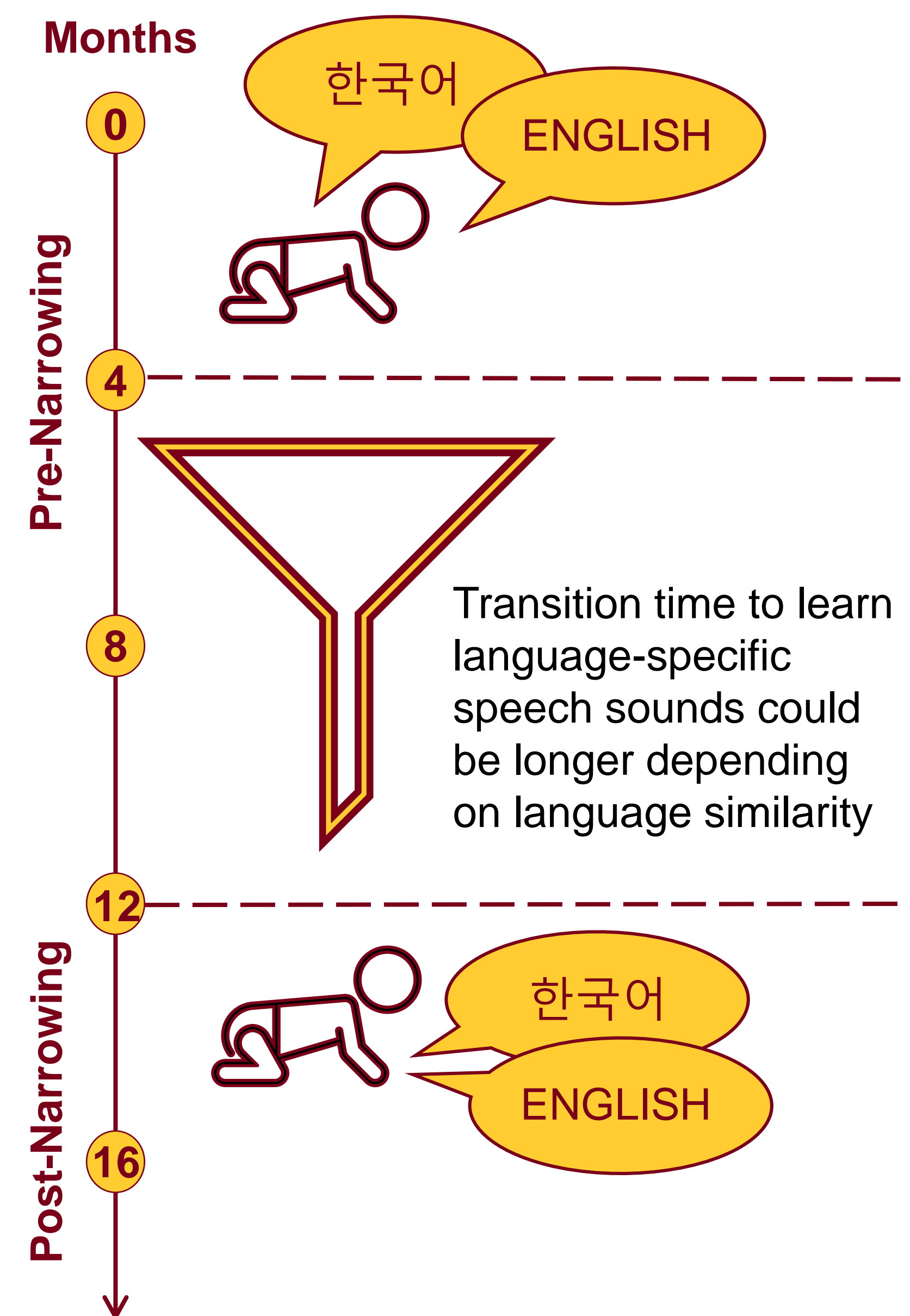


Fig. 1. Monolingual infants' ability to distinguish between a native and non-native speech sound was compared to bilingual infants' ability to distinguish speech sounds from both of their native languages. Both demonstrated perceptual narrowing. Monolingual infants could distinguish non-native speech sounds before 8-months-old, but not post-narrowing after 8-months-old. Bilingual infants continued to distinguish between their two different language's speech sounds.

Bilingual vs. Monolingual Speech Sound Awareness



Bilingual Speech Sound Sensitivity Timeline



DISCUSSION

- Pre-narrowing, monolingual and bilingual infants are similarly capable of distinguishing speech sounds from both languages.
- Post-narrowing, monolingual infants recognize speech sounds from their familiar language, while bilingual infants recognize both.
- Bilingual infants could potentially develop speech sound awareness of their native languages later if the two languages are acoustically similar. More research is needed to clarify the bilingual acquisition timeline.

FUTURE DIRECTIONS

- Investigating the effect of language similarity and acoustic complexity of stimuli
- Determining whether bilingual infants are more sensitive to recognizing a third language's speech sounds
- Conducting studies with multilingual infants who are familiar with 3+ languages
- Exploring other developmental domains:
 - Infants of multiracial families (visual)
 - Benefits of bilingualism (cognitive)

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