Rationale

- Receptive language is typically measured by picture-pointing in response to a verbal prompt but two children may recognize the same words at different rates.
- The looking-while-listening (LWL) paradigm (Fernald et al., 2006) can be used to investigate lexical processing speed in young children.
- Both vocabulary size and SES influence lexical processing speed in young children.
- Most older children recognize words more quickly than children with smaller vocabularies (Fernald et al., 2006).
- The more quickly a child recognizes a word, the more time he/she has to spend on other linguistic or cognitive tasks.

Research Questions

1. Is a 4 AFC paradigm sensitive to differences in vocabulary size for children in the 30-60 month age range?
2. Are differences in lexical processing speed observed between children from middle- and low-SES families in the age range of 30-60 months?

METHODS

Participants

- Two sets of participants
- Question 1: n=34 children from middle-SES families
- Question 2: n=8 children from low-SES families and n=8 children from middle-SES families (matched for age and gender).

Data reduction:

- Identified four areas of interest (AOI’s) and coded looks to target and phonological, semantic, and unrelated foils.
- Binned data across three time points (53 ms)
- Computed log-odds of looking to target (or particular foil) in each time bin (averaged across all trials within a subject).

Data analysis:

- Growth curve analysis (e.g., Barr, 2008; Mirman et al., 2008).
- Dependent variable: Log-odds of looking to target (or specific foil) in a particular time bin.
- Level 1 independent variables: Time and Time^2 (orthogonal)
- Level 2 independent variables: Age, Expressive Vocabulary Size (EVT-2 raw score), and SES (for question 2 only).

RESULTS

- Question 1: A significant effect of expressive vocabulary size on looks to target was observed.
- Question 2: A significant effect of expressive vocabulary size but not SES, on looks to target was observed. A significant interaction between expressive vocabulary size and time was also observed.

DISCUSSION

- Question 1: Children with larger expressive vocabularies, relative to children with smaller expressive vocabularies had faster lexical processing speed for familiar words.
- This extends work of Fernald & Marchman (2008) with a different paradigm (4AFC), older children, and a direct measure of vocabulary size.
- Children who process familiar words more quickly are at an advantage for other kinds of linguistic and cognitive processing.

ACKNOWLEDGEMENTS

This research was supported by NIH/NIDCD Grant 1R01-DC-01532 to Jan Edwards, Mary E. Beckman, and Ben Munson and by NICHD Grant P50 HD015352 to the Wisconsin Center.