The relationship between online lexical processing and expressive vocabulary size in a diverse group of young children: An eye-tracking study

Alissa Schneebeger, Jan Edwards & Chansoo Lee, University of Wisconsin-Madison

BACKGROUND

Rationale

Words
• Stimulus words chosen based on age of acquisition and pictureability.
• All target words paired with semantic, phonological, and unrelated foils.
• Target words and all phrases (find the, see the, isn’t this fun, etc.) recorded in both Mainstream American English (MAE) and African American English (AAE).
• Stimuli presented to children in their native dialect (dialect of primary caregiver).

Pictures
• Color photographs of target objects
• Pictures were normed for comprehension in both a middle-SES and a lower-SES classroom.
• Pictures used only if 80% of children in both classrooms recognized it.

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).

Tables 1 & 2. Demographic information for question 1 (top) and question 2 (bottom).

Number of Mean Age in Average EVT-2 Primary Average Mean Number of males Mean (SD) standard score caregiver caregiver females education level (SD) income (SD) (SD) (SD)
SES families 15/19 38.8 months 128.8 (11.3) 3.8 (1.1)
SES families 3/5 45.4 mo. 128.1 (11.7) 3.8 (1.1)
Low SES 3/5 48.4 mo. 100.3 (16.6) 3.4 (1.0)

Methods

Stimuli
• Experiment programmed in ePrime and ran on a Tobii T60XL Eye Tracking System
• 33 Trials, 2 Blocks
• 4 alternative forced choice (4AFC) paradigm: Target, Semantic Foil, Phonological Foil, and Unrelated Foil

Questions
1. What are the limitations of the study? (Question 2)
2. How many children were there in the study? (Question 1)

Results

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

DISCUSSION

Limitations of study (question 2):
• Very small number of subjects.
• No MAE speakers in lower-SES group and no AAE speakers in middle-SES group.

Conclusions

Discussion

Figure 1. Sample of a stimulus presentation.

Figure 2. Percent of looks to target and three foils over time for children from middle-SES families.

Figure 3. Percent of looks to target over time for children from the two SES groups.

Figure 4. Percent of looks to target over time for children from the two SES groups separated into three expressive vocab. sizes.

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