**BACKGROUND**

**Rationale**
- How do we respond to the United State's most important public education problem, the "achievement gap"? A well-documented observation that children from low-socioeconomic status (SES) families perform less well academically than children from middle- and high-SES families (Loeb, 2007).
- Compared with peers from more affluent families, children living in poverty hear approximately 30 million fewer words by age 3 (Hart & Risley, 1994).
- Research and intervention studies explore ways that we can help parents from low-SES families learn to talk more to their children—they focus primarily on increasing quantity. But what about quality?
- Quality is also related to SES (Gilkerson & Richards, 2009).
- Quality also predicts a child’s later vocabulary skills (Rowe, 2012).
- Increasing quantity of language through intervention measures doesn’t necessarily increase pragmatic quality (Trask, 2012).

**Purpose of this Study**
- To explore the relationship between quantity and quality and how these interact with SES, in order to develop truly effective intervention programs that will result in vocabulary growth for children from low-SES families.

**Research Questions**
1. Does the relationship between quantity and quality of caregiver input and vocabulary size differ as a function of maternal education level?
2. Does the relationship between quantity and quality of linguistic input differ as a function of maternal education level?

**METHODS**

**Participants**
- 52 children who participated in a larger longitudinal study of language development.
- Monolingual English speakers.
- Aged between 28 and 38 months (mean = 32).
- Normal hearing and typical speech and language development.

Table 1. Demographic information for participants

<table>
<thead>
<tr>
<th>SES</th>
<th>Males/Fe males</th>
<th>AAU Speakers</th>
<th>Age</th>
<th>Primary Caregiver education</th>
<th>Family Income</th>
<th>EVT-2 Standard Score</th>
<th>PPVT-2 Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low SES</td>
<td>26</td>
<td>26</td>
<td>30</td>
<td>18</td>
<td>$10,000-$20,000/year</td>
<td>79</td>
<td>68</td>
</tr>
<tr>
<td>Middle SES</td>
<td>14</td>
<td>14</td>
<td>35</td>
<td>20</td>
<td>$20,000-$40,000/year</td>
<td>80</td>
<td>74</td>
</tr>
<tr>
<td>High SES</td>
<td>14</td>
<td>14</td>
<td>38</td>
<td>22</td>
<td>$40,000-$60,000/year</td>
<td>81</td>
<td>76</td>
</tr>
</tbody>
</table>

**3-step scale for education:**
- 1 = Ged
- 2 = High school degree
- 3 = Some college
- 4 = Trade school
- 5 = Technical/associate degree
- 6 = 4 year college degree
- 7 = Graduate degree

**3-step scale for family income:**
- 1 = Below $10,000/year
- 2 = $10,000-$20,000/year
- 3 = $20,000-$40,000/year
- 4 = $40,000-$60,000/year
- 5 = Above $60,000/year

**PROCEDURE & ANALYSIS**

**Procedure**
- The Language Environment Analysis System (LENA) is a small digital language processor that is placed in a specially designed vest and nonintrusively records 16 hours of a child’s natural language environment.
- Orthographically transcribe 30-minutes from each participant’s language sample, using the Computerized Language Analysis (CLAN) program, from the hour with the highest Conversational Turn Count (CTC).
- Code all child-directed speech for pragmatic measures of language quality using custom-made coding system.

**Measures**
- % Adult Meaningful Speech
- Adult Word Count (Hourly)
- % Contingent Speech: topic-continuing replies (Hoff, 2006)
- % Decontextualized Speech: language that does not refer to the here and now. Include abstract explanations, pretend play, and narratives. (Rowe, 2012)
- % Open-ended questions: as opposed to closed-ended and Yes/No questions (Trask, 2012)
- % of Commands
- % Indirect commands
- % Prohibitions
- % Negative Feedback: negative comments and prohibitions (Trask, 2012)
- % Expansions: adds linguistic content to increase syntactic or semantic complexity to the child’s utterance (Trask, 2012)

**Analysis**
- Stepwise linear regression analysis
- Dependent variable: linguistic quality (see Measures)

**RESULTS**

**Question 1:** A significant effect of SES on %meaningful speech, adult word count, %commands, %indirect commands, and %negative feedback was observed.

**Question 2:** A significant difference in both EVT-2 and PPVT-2 scores between low and high SES was observed.

**DISCUSSION**

**Limitations of study:**
- Incomplete number of age and gender high-SES matches
- Inter-rater reliability yet to be calculated

**Conclusions**

**Question 1:** Children from high SES families tend to hear more meaningful speech and adult words compared to their peers from low SES families. They also receive language input of higher quality, meaning they hear less commands and less negative feedback, and more indirect commands as opposed to direct commands.

**Question 2:** Children from high SES families perform better on standardized tests of expressive and receptive vocabulary measures compared to their peers from low SES families.
- Across all SES levels, the amount of decontextualized speech that a child hears is a significant predictor of their performance on standardized tests of expressive and receptive vocabulary. This suggests that intervention programs may benefit from teaching parents to use more decontextualized language with their children.
- Across all SES levels, the amount of prohibitions that a child hears is a significant predictor of their performance on standardized tests of expressive vocabulary. The more prohibitions a child hears, the lower their EVT-2 score. This suggests that it is useful for intervention programs to teach parents strategies to limit the use of prohibiting language.