Spanish-English Speaking Preschoolers: An Exploratory Study Examining LENA Data

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Recognized Need

- Increased risk of language disorders in migrant population, associated with poverty (Dollaghan et al., 1999; Hart & Risley, 1995)
  
  38% of Hispanic American children live in poverty (US Census, 2010)

- Progress monitoring tools are needed for earlier identification of young ELLs with LI, particularly in high poverty settings
  
  - Authentic ecologically valid assessments
  - Culturally responsive
  - Capture the interplay between languages
Shortfalls in Addressing Need

Shortfalls in traditional assessments

- Culturally biased assessments
  (Kester & Peña, 2002; Laing & Kamhi 2003)

- Lack of translation equivalence
  (Restrepo, & Silverman, 2001)

- Ignores interplay between languages
  (Cummins, 1984; deGroot & Hoeks, 1995)

- Over or under identifies ELLs
  (Kaderavek, 2010)
Current Study

113 LENA samples from preschoolers in Florida

- 71 typically developing monolingual English-speaking children
- 42 migrant ELLs who predominantly speak Spanish at home and attend English-speaking childcare or preschools
Purpose

Examine mean hourly CVC, AWC, and CTC for potential group differences and covariates.

- What are average hourly child vocalization counts for young Spanish-English speaking children?

- Are there significant differences between preschool ELLs and monolinguals in average hourly CVC, AWC, and CTC?

- What factors account for significant variability?
Spanish-speaking English Language Learners

- 42 children age 36mo-65mo
  \[M \text{ age} = 51\text{months}, SD= 8.8\]
- Children of migrant farm workers- rural FL
- 100% free lunch eligibility
- Spanish was spoken at home for 78% of segments.

Of 5 minute segments:
  - 59% were exclusively in Spanish
  - 19% comprised of mixed Spanish/Eng productions
  - 20% were exclusively in English
Family Demographics for ELL group

- Maternal Education
  - High school diploma was highest level completed
- Employment self-reported
  - Field work, laborer, migrant camp
- Predominantly of Mexican descent
- Spanish spoken at home; 1 reported exposure to Mixtec dialect at home as well.
Monolingual Comparison

- 71 Children 34-65 months
  \[M \text{ age } = 48 \text{ months, } SD = 7.6\]
- English spoken at home
- No identified disabilities
- Race/Ethnicity
  - 77% White Caucasian
  - 13% Black African American
  - 8% Hispanic Latin American
  - 2% Asian
## Family Demographics

<table>
<thead>
<tr>
<th>Mother’s Education Level</th>
<th>Father’s Education Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school</td>
<td>High school</td>
</tr>
<tr>
<td>18%</td>
<td>15%</td>
</tr>
<tr>
<td>Some college</td>
<td>Some college</td>
</tr>
<tr>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
<td>Associates</td>
<td>Associates</td>
</tr>
<tr>
<td>8%</td>
<td>12%</td>
</tr>
<tr>
<td>Bachelor</td>
<td>Bachelor</td>
</tr>
<tr>
<td>48%</td>
<td>41%</td>
</tr>
<tr>
<td>Masters</td>
<td>Masters</td>
</tr>
<tr>
<td>18%</td>
<td>13%</td>
</tr>
<tr>
<td>Doctoral</td>
<td>Doctoral</td>
</tr>
<tr>
<td>3%</td>
<td>8%</td>
</tr>
</tbody>
</table>
### Average Hourly Counts

<table>
<thead>
<tr>
<th></th>
<th>English Language Learners</th>
<th>Monolingual Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>CVC</td>
<td>122.4</td>
<td>85.7</td>
</tr>
<tr>
<td>AWC</td>
<td>784.5</td>
<td>435.8</td>
</tr>
<tr>
<td>CTC</td>
<td>23.2</td>
<td>19.9</td>
</tr>
</tbody>
</table>

\[ n=42 \] \[ n=71 \]

*Significantly different between groups at p<.001*
Age as a Covariant

• No significant difference in age between groups $F(1,111)=2.96\ p = .09$

• Age was a significant covariant of CTC for the total sample.
No Significant Effects by Gender

CVC/hr: males $(M=235)$ females$(M=204)$

\[ F(1,111) = 1.396 \quad p = 0.240 \]

AWC/hr: males $(M= 984)$ females$(M=1,074)$

\[ F(1,111) = 0.776 \quad p = 0.380 \]

CTC/hr: males $(M=46)$ and females $(M=43)$

\[ F(1,111) = 0.455 \quad p = 0.501 \]

Female $n = 63$; Male $n = 50$
Influence of Spanish Use?

Language use differed across environments

<table>
<thead>
<tr>
<th></th>
<th>% of Spanish Use</th>
<th>% of English Use</th>
<th>% Spanish/English Use (Mixed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>38.09</td>
<td>42.88</td>
<td>19.00</td>
</tr>
<tr>
<td>Home</td>
<td>59.36</td>
<td>20.50</td>
<td>19.07</td>
</tr>
</tbody>
</table>

*Excluded naps and bus ride between preschool and home*
Environment Differences in Mean CVC/hr

![Bar Chart]

- **All**
  - School: [Value]
  - Home: [Value]

- **ELLs**
  - School: [Value]
  - Home: [Value]

- **Monolinguals**
  - School: [Value]
  - Home: [Value]
<table>
<thead>
<tr>
<th></th>
<th>Mean hourly CVC at School (SD)</th>
<th>Mean Hourly CVC at Home (SD)</th>
<th>Difference between Home and School Mean Hourly CVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELL &amp; Monolingual Combined</td>
<td>177.30 (94.4)</td>
<td>255.97 (139.0)</td>
<td>78.67 (133.0)</td>
</tr>
<tr>
<td>ELL (Spanish-English)</td>
<td>138.77 (66.5)</td>
<td>208.04 (126.9)</td>
<td>69.27 (130.0)</td>
</tr>
<tr>
<td>Monolingual (English-only)</td>
<td>218.68 (103.3)</td>
<td>307.46 (135.0)</td>
<td>88.78 (137.9)</td>
</tr>
</tbody>
</table>
Summary of Environment

• Based on the total sample, the mean home average hourly CVC was significantly higher than the mean school average hourly CVC $t(55) = -4.43; p<.0001$.

• There was not a statistically significant difference in the effect of the environment between groups ($F(1,54)=0.297, p=.588$).
Next steps

• Effect of Maternal Education: Compare Spanish-English children of parents with normally distributed levels of education.

• Norms/Progress Monitoring: Continue to gather longitudinal data on migrant ELLs for normative database.

• Construct Validity: Examine CTC predictive validity for estimating KG-2nd grade language and literacy performance.
Gratitude
Special Thanks!

- Children and Families in the Panhandle Migrant Education Consortium

- Research Volunteers
  - Jordan Swain
  - Briana Pushaw
  - Nicole Sparapani
  - Katie Kotlarek
  - Alisha Russel
  - Jaclyn Suveg
An ANOVA was used to determine if average hourly CVC, AWC, and/or CTC were significantly different between ELLs and monolinguals.

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVC</td>
<td>41.18</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>AWC</td>
<td>16.59</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>CTC</td>
<td>43.63</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
Relationship between Age & CTC

Language Group: ELL Spanish-English Speakers

Average HRLY CTC vs Age in Months Read (AgeinMonthsRd)