Predicting Growth in Reading among Spanish-speaking English Language Learners in the U.S.

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English Language Learners (ELLs)

- U.S.-born ELLs from Spanish-speaking homes represent the largest and fastest growing segment of the ELL school-aged population (Fry & Gonzales, 2008; Planty et al., 2009)

- Account for a disproportionate percentage of struggling readers (August & Shanahan, 2006)

- Yet, little is known about their language and literacy development, especially for learners who are past the primary grades
  - Longitudinal study needed (L1, L2)
  - Few models of L2 comprehension
    - E.g., Droop & Verhoeven, 2003; Hoover & Gough, 1990; Proctor et al., 2005, 2006
Study Goals

1) To track English and Spanish word reading and oral language development from age 4.5 to age 11

2) To examine the influence, both initial levels and rates of growth (age 4.5 to 11), of word reading and oral language on students’ English reading comprehension achievement at age 11
## Research Design

### Early Childhood Phase

<table>
<thead>
<tr>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Wave 4</th>
<th>Wave 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall of Preschool</td>
<td>Spring of Preschool</td>
<td>Kindergarten</td>
<td>1st Grade</td>
<td>2nd Grade</td>
</tr>
<tr>
<td>Age 4.5</td>
<td>Age 5</td>
<td>Age 6</td>
<td>Age 7</td>
<td>Age 8</td>
</tr>
</tbody>
</table>

### Follow-Up Phase

<table>
<thead>
<tr>
<th>Wave 6</th>
<th>Wave 7</th>
<th>Wave 8</th>
<th>Wave 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th Grade</td>
<td>6th Grade</td>
<td>7th Grade</td>
<td>8th Grade</td>
</tr>
<tr>
<td>Age 11</td>
<td>Age 12</td>
<td>Age 13</td>
<td>Age 14</td>
</tr>
</tbody>
</table>
Participants

- 387 children originally recruited from Head Start and public preschool programs at age 4.5
  - Spanish-speaking, predominantly immigrant parents (89%)
  - 75% living in or near poverty
  - Predominantly U.S.-born children of immigrants (89%)

- 173 children recruited for follow-up (age 11, 5th grade)
  - Enrolled in 75 public schools (English instruction)
  - 20 children retained one academic year
  - No significant differences on demographic characteristics or language and literacy skills (L1, L2) between those children recruited into the follow-up study and those who weren’t
Study 1: Normative Growth

Research Questions

1. What are the patterns of development of students’ Spanish and English word reading and oral language skills from age 4.5 to 11?

2. How do students’ rates of growth compare to national norms in each language?
Skills Assessed

- WLPB-R Productive Vocabulary, English & Spanish
- WLPB-R Word Reading, English & Spanish
Analytic Approach

- Individual Growth Modeling (IGM) using the multilevel model for change (Singer & Willett, 2003), with age in months used to index time
Key Findings

- Students’ rates of growth (age 4.5 to 11) and ability in word reading (Spanish and English) were on par with national norms.
- Oral language skills (Spanish and English) started out (age 4.5) below national norms.
- Oral language rates of growth (age 4.5 to 11), although surpassing the national rates, were not sufficient to reach age-appropriate levels.
National Monolingual Norms

Absolute Rate of Growth_National: 135 W-score Points
Absolute Rate of Growth_English:   145 W-score Points
Absolute Rate of Growth_Spanish:  124 W-score Points

English

Spanish

<table>
<thead>
<tr>
<th>Age</th>
<th>English ES</th>
<th>Spanish ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5</td>
<td>0.5</td>
<td>0.8</td>
</tr>
<tr>
<td>5</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>6</td>
<td>-0.2</td>
<td>0.9</td>
</tr>
<tr>
<td>7</td>
<td>-0.2</td>
<td>1.3</td>
</tr>
<tr>
<td>8</td>
<td>0.1</td>
<td>1.4</td>
</tr>
<tr>
<td>11</td>
<td>0.04</td>
<td>1.1</td>
</tr>
</tbody>
</table>
Productive Vocabulary WLPB-R W Scores

National Monolingual Norms

English

Spanish

Absolute Rate of Growth_National: 45 W-score Points
Absolute Rate of Growth_English: 60 W-score Points
Absolute Rate of Growth_Spanish: 34 W-score Points

<table>
<thead>
<tr>
<th>Age</th>
<th>English ES</th>
<th>Spanish ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5 (fall preK)</td>
<td>1.8</td>
<td>2.3</td>
</tr>
<tr>
<td>5.0 (spring preK)</td>
<td>1.8</td>
<td>2.6</td>
</tr>
<tr>
<td>6.0 (kinder)</td>
<td>1.6</td>
<td>2.9</td>
</tr>
<tr>
<td>7.0 (1st grade)</td>
<td>1.3</td>
<td>3.0</td>
</tr>
<tr>
<td>8.0 (2nd grade)</td>
<td>0.9</td>
<td>2.6</td>
</tr>
<tr>
<td>11.0 (5th grade)</td>
<td>1.0</td>
<td>3.4</td>
</tr>
</tbody>
</table>
Study 2: Modeling Reading Comprehension

Research Questions

1. How do students’ English reading comprehension achievement levels compare to national norms?

2. To what extent do initial (age 4.5) status and rate of growth (age 4.5-11) in English and Spanish vocabulary and word reading skills predict English reading comprehension outcomes?
Skills Assessed

- WLPB-R Productive Vocabulary, English & Spanish
- WLPB-R Word Reading, English & Spanish
- English Reading Comprehension
  - WLPB-R Passage Comprehension
  - TORC-3 Syntactic Similarities
  - Gates MacGinitie Reading Comprehension
Analytic Approach

- Longitudinal Structural Equation Models (SEMs) of latent growth curves using Mplus (Muthén & Muthén, 2006)
  - Spanish and English vocabulary and word reading initial status at age 4.5 and growth rates from age 4.5 to 11 as predictors of English reading comprehension at age 11
Key Findings

- Students’ English reading comprehension performance is at a 2nd grade level.
- Spanish vocabulary and word reading skills do not contribute unique variance to the model once English skills are accounted for.
- Word reading achievement is a stronger predictor of reading comprehension, compared to vocabulary.
English Reading Comprehension

- WLPB-R Passage Comp: 0.79
- TORC-3 Syntactic Similarities: 0.62
- Gates MacGinitie Reading Comp: 0.69
\[
R^2 = .88
\]
Study 1 Implications

- Two gaps revealed in students’ developmental trajectories
  - Significant weaknesses in Spanish, relative to norms and relative to their English skills through age 11
  - Striking discrepancy between students’ ability to read words and their word knowledge in English, also through age 11

- Need for increased and sustained attention to promoting this population’s language development
Study 2 Implications

- Word reading exerted a greater influence than vocabulary on comprehension outcomes at age 11
  - Spanish skills did not account for unique variance
  - English vocabulary skills were not only lower than word reading skills, but also more restricted in range

- Theoretical models of comprehension should account for students’ skill profiles and abilities
Next Steps

- Influence of early home language use on students’ developmental trajectories
- Mixed-Methods study of family processes and decision-making re
- Measures of school climate & social-emotional development
- Sub-study: think-aloud & writing
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