Impacts of Instructional Pathways on English Learner Students: Preliminary Findings and Impacts from a University/District Research Partnership

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Outline

• Background
• Results from 2 studies:
  ▫ Reclassification of ELs
  ▫ Academic Growth among ELs
• How the District is Using these Findings
Purpose of the Partnership

• To help the district guide policies and practices
  ▫ To help the district assess how ELs are performing academically over time in general and in each of the pathways.
  ▫ To use these findings to improve instructional programs designed for ELs and to meet the dual need of supporting English fluency and academic development.
  ▫ To develop a system to validate and maintain clean EL data in the future
  ▫ To provide clear information to families and the larger community about ELs’ educational experiences and academic outcomes
Context

- The district has a large and diverse EL student population:
  - 37% EL
    - ~40% Spanish-speaking
    - ~40% Chinese-speaking
    - ~20% Other language backgrounds

- District offers five distinct & well-articulated instructional programs for EL students.

- District is an active and enthusiastic partner in this research and is committed to using research to inform and improve instructional programs.
<table>
<thead>
<tr>
<th>Instructional Program</th>
<th>Bilingual (Early Exit)</th>
<th>Bilingual (Maintenance)</th>
<th>Dual Immersion</th>
<th>English Immersion (English Plus)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Intention</strong></td>
<td>To develop English proficiency and academic mastery with primary language support to access the core curriculum as needed</td>
<td>To develop competency in English while maintaining native language proficiency (i.e. bilingualism) and academic competency</td>
<td>To help native speakers, bilingual students, and English only students become fluent in both languages.</td>
<td>To support language &amp; academic development with only English instruction for low-incidence ELL groups or for students whose parents want their children to be in English Immersion</td>
</tr>
<tr>
<td><strong>Population Served</strong></td>
<td>100% ELL, Initial Fluent English Proficient (IFEP) or Reclassified Fluent English Proficient (RFEP)</td>
<td>100% ELL, IFEP or RFEP</td>
<td>1/3 – 1/2 not proficient in the target language 2/3 – 1/2 proficient in the target language</td>
<td>ELL students served in classrooms with only English instruction</td>
</tr>
<tr>
<td><strong>Instructional Time</strong></td>
<td><strong>K</strong>: 50-90% native language depending on students’ proficiency. - Proportion English increases at quick pace.</td>
<td><strong>K</strong>: 50-90% native language depending on students’ proficiency. - Proportion English increases depending on students</td>
<td><strong>K-1st</strong>: 80-90% in native language  <strong>By 5th</strong>: 50% in English &amp; 50% in native language.</td>
<td>-100% English  - Receive at least 30 min/day of English Language Development (ELD) coursework and Specially Designed Academic Instruction in English (SDAIE) during core content areas</td>
</tr>
</tbody>
</table>
Background Research

- Reading, math, reclassification, and dropout outcomes generally favor bilingual over English immersion programs, especially high-quality and maintenance bilingual programs (Genesee et al., 2009; August et al., 2006).
  - Meta-analyses using studies including a valid comparison group show consistent positive evidence that bilingual programs are more effective than English immersion on achievement outcomes.
    - Effect sizes of 0.18 to 0.85 (August et al., 2006; Slavin & Cheung, 2005; Willig, 1985).
  - Reclassification rates are slightly higher after 9 years among bilingual students, compared to English immersion students (Thompson, 2012).
Background

• A handful of studies have compared other program types to consider academic outcomes
  ▫ Early Exit Bilingual vs. English Immersion:
    • No significant differences in ELA or Spanish in 4th grade between ELs in these programs (Slavin et al., 2010).
  ▫ Early Exit vs. Maintenance Bilingual vs. English Immersion:
    • Findings that students in all programs grow at about the same rates in ELA (Ramirez, Yuen, Ramey, & Pasta, 1991).
    • But used a matching strategy and did not include pre-test scores
  ▫ Dual Immersion vs. English Plus:
    • No significant differences in PreK-1st grade on English outcomes, but those in Dual Immersion show significant gains in Spanish vocabulary (Barnett et al., 2007).
• Suggests that at the least, bilingual education does not hinder academic development & may promote greater academic development and primary language acquisition.
Motivation

- Few studies compare more than two instructional programs designed to serve ELs
- Most longitudinal research is limited to trajectories following students for a few years
- Most studies exclusively look at Latino ELs
- Outcomes frequently limited to English and Spanish
- Large need to expand this research:
  - In the last 30 years, the school age population grew by 10% while the language minority student population grew by 140% (NCES, 2009).
Data

• Administrative data from Undisclosed School District
  ▫ ~13,500 ELs who entered the district in Kindergarten
  ▫ Estimating outcomes using data from 2000/01-2009/10

• Outcome variables:
  • Rates of Reclassification as Fluent English Proficient
  • Academic Growth in Math & ELA
EL Reclassification & English Proficiency
Research Questions:

1. To what extent are English Learners (ELs) reclassified as Fluent English Proficient (RFEP) and how long does it take to attain reclassification?
2. How do the rates and timing of reclassification differ for ELs based on their instructional program & ethnicity?
3. What are the barriers to reclassification overall and by instructional program?
Discrete-Time Hazard Model:

$$\logit(h_{it}) = \sum_{t=1}^{K} \alpha^k S_{it}^k + P_i B_p + X_i B_x + W_i B_w + \Phi P_i \ast T_{it} + \Gamma_{y} + e_{it}$$

- where:
  - $S$ is a vector of dummy variables indicating the time period in which the observation takes place (measured in semesters)
  - $P$ is a vector of dummy variables indicating a student’s initial EL pathway;
  - $X$ is a vector of student background characteristics;
  - $W$ is a vector of school characteristics at a student’s first school in district;
  - $T$ is a continuous time variable that represents the $t^{th}$ semester a student has been in district; &
  - $\Gamma$ represents fixed effects for a student’s year of entry into the school district.
Models:

- Run for all EL students combined and separately for Latino ELs and Chinese ELs.
- Outcomes presented include:
  - Reclassification
  - Reaching English proficiency criteria for reclassification
  - Reaching academic ELA criteria for reclassification
Cumulative Proportion of Students Reclassified by Grade

- English Immersion
- Bilingual (Early Exit)
- Bilingual (Maintenance)
- Dual Immersion

Note: This figure controls for student and school characteristics.
Cumulative Proportion of Students Reclassified, by Grade, Initial Path & Ethnicity

Note: This figure controls for student and school characteristics.
Cumulative Proportion of English Proficient Students, by Grade, Initial Path & Ethnicity

Chinese

Latino

Note: This figure controls for student and school characteristics.
Cumulative Proportion of Students Reaching Academic ELA Threshold, by Grade, Initial Path & Ethnicity

Chinese

Latino

Note: This figure controls for student and school characteristics.
Conclusions

- Attaining reclassification takes many years for a large portion of students. Using the 6+ years definition, more than a quarter of students become long-term ELs.
- There is a two-language advantage, but typically not in the short term.
- Instructional program only explains a small amount of the variation in reclassification outcomes.
- The content and quality of the instructional program may matter more than the program design.
- There are very large gaps in EL outcomes between Chinese and Latino ELs with Chinese ELs outperforming Latino ELs.
- English proficiency is a larger barrier to reclassification than academic standards, especially in elementary school.
EL Academic Growth
Research Questions

• 1.) Does the academic growth of EL students who enter in Kindergarten differ depending on the pathway they are initially enrolled in?

• 2.) Does academic growth by initial pathway vary for Chinese versus Latino ELs?
Growth Models

Level 1: \( Y_{ig} = B_0 + B_1 G_{ig} + \pi_g + r_{ig} \)

Level 2: \( B_0 = \gamma_{00} + P_i \delta_0 + (X_i - \bar{X}) \theta_0 + \mu_0 \)
\( B_1 = \gamma_{10} + P_i \delta_1 + (X_i - \bar{X}) \theta_1 + \mu_1 \)
\( r_{ig} \sim N(0, \sigma^2); \begin{bmatrix} u_0 \n_1 \end{bmatrix} \sim \begin{bmatrix} 0 \tau_{00}^0 \\ 0 \tau_{10} \tau_{11} \end{bmatrix} \)

- \( Y_{ig} \) is a state-level ELA/math score, standardized within grade and year, for student \( i \) in grade \( g \)
- \( G_{ig} \) is a linear grade term
- \( P_i \) is a vector of initial pathway indicator variables
- \( X_i \) is a vector of time-invariant student covariates
- \( \pi_g \) is a vector of grade fixed effects
Average trajectories of ELA achievement, by initial pathway, kindergarten entrants

Note: This figure controls for student and school characteristics.
Average trajectories of math achievement, by initial pathway, kindergarten entrants

Note: This figure controls for student and school characteristics.
Average trajectories of ELA achievement, by initial pathway & ethnicity, kindergarten entrants.

Note: This figure controls for student and school characteristics.
Average trajectories of math achievement, by initial pathway & ethnicity, kindergarten entrant.

Chinese

Latino

Note: This figure controls for student and school characteristics.
Conclusions

- Findings suggest that either there is strong selection into these pathways or there are meaningful differences in pathway effects.

- We do not see evidence that students enrolled in programs using their native language grow in ELA at a slower rate than those immersed in English-only instruction – In fact they seem to grow faster.
  - Linguistic interdependence (Cummins, 1978; 1979; August & Shanahan, 2006; Garcia, 2000).

- Some suggestive evidence of differential pathway effects by ethnicity
  - Evidence suggests that transfer depends on the first language in question (Genesee, 2006; Lado, 1964).
  - Differential school quality and/or differential compliance with program definitions may also explain differences
  - Different initial levels of English proficiency could also explain differential rates of growth
How is the district using these findings?

- While there are some studies on effective programs for ELLs, community and district stakeholders have asked over a number of years for evidence of the best program to serve English Language Learners in the district. *How do we know what is really working?* This research provides preliminary evidence to address this question.

- The process of cleaning the district’s data for English Learners has helped the district to be able to generate its own analysis of the achievement trends to share with key stakeholders and school sites.

- Testing and setting program variables has allowed the district to be able to monitor the progress of English Learners in each respective program over a number of years that will in turn inform necessary changes to
  - 1) program models;
  - 2) professional development; and
  - 3) classroom instruction to better serve ELLs.