

## Longitudinal Study of Graduates of a Spanish Dual Immersion Program

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### Context

Dual Language Immersion (DLI) programs offer academic content instruction in two languages, English and another language (e.g., Spanish, Mandarin). Such programs enroll English Learners (ELs) who are heritage speakers of the target language (e.g., Spanish) as well as native English-speaking students. DLI programs have expanded rapidly in the past 60 years in the United States.

The proliferation of DLI programs in the United States is notable because most elementary students do not have the opportunity to study a second language (Devlin, 2015). The goal of these programs is to promote bilingualism, biliteracy, academic achievement, and sociocultural competence (Christian, 2000). Indeed, research has shown that students in well-implemented DLI programs, both ELs and English only students, reach higher levels of academic achievement, become bilingual and biliterate, and gain intercultural competency (Howard, Sugarman, Christian, Lindholm-Leary, and Rogers, 2007; Padilla, Fan, Xu, & Silva, 2013).

DLI programs are typically implemented using a 90:10 model. In this model, kindergarteners spend 90 percent of the school day learning academic content in the target language and 10 percent in English. The percentage shifts by 10 percent each year until by the 4th & 5th grades the percentage of target language to English instruction reaches 50:50. The majority of DLI programs are found in the elementary school level and parents are encouraged to make a long-term commitment to DLI and to ensure that their children remain in the program through the 5th grade.

After immersion students graduate out of elementary school, they typically transition to a middle school where either there is no continuation of the immersion language or there is an articulation between the elementary and middle school where an accommodation is made to have one or two classes in the target immersion language. Most commonly, the DLI students will have an advanced language class (e.g., Spanish) and content-based class (e.g., History) in Spanish. Such an arrangement may continue through the 8th grade. When DLI students transition to high school they typically are sufficiently proficient to enroll in an advanced world language class (e.g., AP Spanish).

### Rationale for Research

A significant research gap in the DLI literature is what becomes of DLI students as they transition from elementary to middle school and then again as they transition to high school and eventually graduate. While there are a plethora of studies examining the effects of DLI programs at the elementary level (Lindholm-Leary & Block, 2010; Marian, Shook, & Schroeder, 2013; Padilla, Fan, Xu, & Silva, 2013; Thomas & Collier, 2014), there is a dearth of research at the high school level (Robins, 2017). The limited research that exists gives some insight into the long-term effects of immersion education on academic outcomes. (Lindholm-Leary and Borsato,

2005; Steele et al., 2017; Steele, et al., 2018; Burkhauser, et al., 2016; Robins, 2017; Cortes, 2015).

The purpose of this longitudinal study was to track several cohorts of students who completed elementary school in the Redwood City Elementary School District where they were enrolled for six years (K-5th grade) in a Spanish DLI program and who then transitioned to a middle school program where they had the option of continuing in a modified DLI program consisting of two classes in Spanish - one class in Spanish language and culture and a social science class taught in Spanish. Following completion of middle school, the majority of the students transitioned to a nearby high school where they had the freedom to select whether or not they wished to continue with Spanish instruction, or switch to a different language, or discontinue language instruction.

The goals of this study were to investigate longitudinal student data through high school completion to understand the differential impact of academic and linguistic outcomes of students who had been enrolled in a Dual Language Immersion program in an urban school district.

### **Study Design & Methodology**

The DLI program studied in this research centered on an elementary school in the Redwood City Elementary School District which is guided by a 90:10 two-way model. The school serves students from transitional kindergarten through fifth grade. The student population consists of 50 percent Spanish-speaking students and 50 percent English-speaking students. The school also utilizes the Sobrato Early Academic Language approach, which is focused on English Learners and developing intellectual and linguistic skills at an early age. The expectation of the program is for students to have a high degree of proficiency in two languages by the time they exit the school.

The dual immersion program, plus the middle school to which the immersion graduates transition, have been in existence for over 25 years. Most of the graduates of the district transition following the 8th grade to the neighboring high school district in the same urban center.

The research project was guided by the following research questions:

1. Do English language learners (ELs) who enter a Spanish immersion program in kindergarten differ from English only (EO) peers as they transition from elementary to secondary school in academic outcomes on state mandated achievement tests and other academic achievement indices (i.e., STAR scores for 5th, 6th & 7th grade, CAASPP/SBAC scores for 11th grade, GPA from 9th to 12th grade)?
2. Do graduates of a K-5 Spanish DLI program perform at the same levels academically, as measured by high school GPA and Standardized Testing and Reporting and California Assessment of Student Performance and Progress/Smarter Balanced Assessment Consortium test scores, as a comparison group of students who did not attend a DLI program in elementary school?
3. To what extent are gender, socio-economic status, parent education level, and primary language status predictors of academic outcomes of DLI graduates in middle and high school?

4. Do graduates of a Spanish DLI program continue with advanced Spanish language classes and/or other world language classes in middle school and high school? What are their linguistic outcomes, as measured by grades in middle school Spanish classes and rates of earning the California Seal of Biliteracy at high school completion?

The study tracked five cohorts of students beginning in the 2009-2010 academic year. This included: 322 students at the end of the 5th grade; 265 students by the end of the 8th grade; and 225 students by the end of 10th grade. The 10th grade is the last grade level for which there is data for all five cohorts of students due to COVID-19 school closures in March 2020.

The following measures were used to assess the students:

- Annual Academic Achievement:
  - English Language Arts (ELA) and Math scores on the Smarter Balanced Assessment Consortium (SBAC) test for grades 3rd - 8th, and on the California Assessment of Student Performance and Progress (CAASPP) for grades 9th - 11th.
  - Standardized Testing and Reporting (STAR) test was administered, and scores included ELA and Math scores in grades 5-7 (The STAR test was discontinued before any of our cohorts reached high school).
  - Achievement scores on the CAASPP/SBAC in ELA and Math were available for Cohorts 1-4 who took the test in the 11th grade.
  - High school G.P.A.s: grade level G.P.A. was available for all cohorts, as well as cumulative high school G.P.A. for all classes at the end of 12th grade for Cohorts 1-3.
  - University of California/California State University A-G approved course indicator which indicates students' completion of the high school course requirements to attend a UC/CSU.
- Linguistic Outcomes
  - Letter grades in middle school for all students, including grades in Spanish language and Social Studies (Spanish) classes.
- Measurement of Student Demographic Information
  - Students' outcomes in middle school and high school.
  - Gender
  - Ethnicity
  - Primary language: The language most spoken in the student's home
  - Parent education level: The education level of the student's most educated parent
  - English Language status: English only, reclassified English proficient, English learner
  - Grade level
  - Lunch status: On free or reduced lunch (an indicator of socioeconomic status)

### **Key Findings**

- In general, graduates of the DLI program who are classified as English Learners (ELs) in kindergarten are reclassified as fluent English proficient (RFEP) prior to graduating from the program in the 5th grade. By high school, almost all ELs are reclassified as fully English proficient.

- ELs who are reclassified make significant progress toward closing the achievement gap.
- There were no significant differences between the scores of students who are Reclassified Fluent English Proficient (RFEPs), Initial Fluent English Proficient (IFEPs), and English (EOs) on any examined achievement measures.
- When EL graduates of a DLI program are reclassified, they tend to have higher achievement than students who were ELs in 5th grade and did not participate in a DLI program. DLI graduates had similar outcomes to a comparison group of EO students.
  - Graduates of the DLI program at the end of the 5th grade exceed the achievement levels of a comparison group of EL's who did not attend a DLI program in kindergarten.
  - Graduates of the DLI program had higher middle school STAR scores than a comparison group of students who were EOs in 5th grade.
  - The DLI students and the EO comparison group had equivalent CAASPP ELA and math scores and high school GPAs.
  - Looking at DLI students by language classification, all students except long-term ELs performed at the same level or higher than the comparison groups across all achievement measures.
- There are few definitive effects of demographic factors that predicted academic outcomes across achievement measures.
  - Among DLI students, the most consistent demographic factors associated with both overall and subject-specific measures were ethnicity and EL status. Hispanic students, as well as students classified as long-term ELs, tended to have lower performance on average.
  - The models that included both DLI and non-DLI students showed varying patterns of significant effects, depending on the academic achievement measure. In general, male students tended to have lower scores than female students, and students with at least one parent who was a college graduate tended to have higher scores.
  - Other demographic variables did not show consistent effects across achievement measures. Importantly, DLI students generally achieved at equivalent or higher levels than the non-DLI comparison groups, the only exception being that the non-DLI, non-Hispanic comparison group had significantly higher 11th grade CAASPP math scores than DLI students.
- Students who continue to study second language from elementary immersion all the way through high school reach high levels of proficiency and are prepared to participate in the global economy.
  - About 90 percent of the DLI students for whom there was data participated in a Spanish immersion program in middle school. Over eighty percent of those earned an A or B in the immersion classes. Many of the students continued to study higher levels of Spanish language and/or native speaker classes in high school.
  - Over 60 percent of students took advanced courses in Spanish such as Advanced Placement and International Baccalaureate.
  - Forty-two percent of DLI graduates earned the Seal of Biliteracy by their high school graduation, a rate that was significantly higher than any comparison groups.

**Recommendations for Policy/Practice**

The findings in this study demonstrate that students who begin in a dual language immersion program in elementary school and continue with language instruction through high school reach high levels of linguistic proficiency and academic achievement. The recommendations are as follows:

1. Expand the implementation of a robust DLI program into other elementary schools and languages.
2. Plan and execute DLI program pathways from elementary through high school to maximize dual language proficiency.
3. Measure the outcomes of Spanish language proficiency at key transitions (e.g., 5th and 8th grades) in K-8/12 programs.
4. Identify and use assessment instruments that measure content knowledge (e.g., math and science) in both languages.

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