

DUAL LANGUAGE IMMERSION AND STUDENT ACHIEVEMENT IN UTAH PUBLIC SCHOOLS

PROJECT UPDATES FEBRUARY 2019

The Study of Dual Language Immersion in Utah Public Schools is a two-year Researcher-Practitioner Partnership study (R305H170005) undertaken by the American Councils Research Center (ARC), the University of Utah, American University, and the Utah State Board of Education with funding by the U.S. Department of Education's Institute for Education Sciences. Running from July 2017 through June 2018, the study's key purpose is to assess the causal effects, overall and by English Learner (EL) status, of dual language immersion (DLI) program access on academic achievement in English language arts, math, and science.

The State of Utah offers an important opportunity to extend research on the impacts of DLI on student achievement. Utah is over a decade into a statewide expansion of DLI K-12 that began with the passage of legislation to fund schools and create a State DLI team for infrastructure support. DLI programs serve over 43,000 students across 22 of Utah's 41 school districts for the 2018-19 school year. Utah DLI schools include both one-way and two-way programs, with two-way programs serving a substantial number of English learners.

The study focuses on three major research questions:

1. By what processes are Utah districts allocating DLI seats to eligible students?
2. To what extent are English Language Learners (ELs) in Utah enrolled in one-way, two-way and non-immersion programs, and to what extent does this vary by district?
3. How well do immersion students perform on standardized tests in ELA, math, and science as compared to similar non-immersion peers in the same schools, cohorts, and years? Does their performance depend on their status as ELs or non-ELs?

PRELIMINARY FINDINGS

DLI Enrollment Processes

We sought to understand DLI assignment procedures across districts in order to understand pathways of student selection into immersion and how these pathways vary across districts. In spring 2018, we obtained online information about student enrollment procedures from 21 of the 22 DLI school districts and received responses to a survey from 17 of 22 DLI district representatives. We found that immersion applications are managed at the district level by 48% of districts, at the school level by 38%, and at both levels in 14% of districts. The majority of districts prioritize siblings and students whose home language matches the DLI partner language. Oversubscribed slots are assigned by a lottery procedure in 81% of these districts, and on a first-come, first-served basis in 19%.

EL Students' Access to DLI

Because one goal of the study is to examine EL students' performance in DLI as compared to that of native English speakers, it was important to establish how well-represented EL students are within Utah's DLI programs. Examining student-level data from 2016-17 for the grades in which DLI is offered (1-9), we find that 12.5% of DLI students statewide were classified as EL, as compared to 8.6% of non-DLI students. This means ELs were overrepresented in DLI, with 8.8% of ELs in DLI, as compared to 6% of non-ELs. Statewide, 2.8% of ELs were enrolled in one-way programs, and 6% were enrolled in two-way programs. This is relative

to 5.1% of non-EL students who were enrolled in one-way programs, and 0.9% of non-EL students enrolled in two-way programs. Moreover, among DLI students who were ELs, 89% were enrolled in programs in which their home language matched the partner language, and 3% of non-ELs in DLI were enrolled in programs in which a language spoken at home matched the partner language. We do find variation in EL access by district, with ELs having greater representation in immersion among districts that offer two-way programs.

Student Learning as a Function of DLI Enrollment and Access

Because of the rapid expansion of DLI programs across Utah, we can leverage changes in students' access to DLI to estimate the effects of DLI expansion on student achievement in English, math, and science. This allows us to move beyond prior studies, which have shown (1) descriptively that students who select into immersion programs outperform those who don't (e.g., Collier & Thomas, 2004; Lindholm-Leary & Block, 2010), or (2) that students who are placed into immersion modestly outperform observably similar students in long-term academic growth in English (e.g., Valentino & Reardon, 2015), or (3) that students who are randomly assigned to immersion modestly outperform over time their counterparts who did not win slots, especially in English language arts (Bibler, 2017; Steele et al., 2018; Steele et al., 2017), but also potentially in math (Bibler, 2017). Though the latter sets of studies are more robust from the perspective of distinguishing the effects of immersion programs from the effects of students and families who choose immersion, a limitation of all of these studies is that they focus on students' placement into an immersion school as compared to a school that does not offer immersion. As such, these studies have not allowed researchers to distinguish the relatively stable attributes of immersion schools, such as their staffing, their leadership, and their student composition, from the effects of language immersion instruction. The time-series variation in access to immersion in Utah allows us to disentangle time-invariant from time-varying effects of immersion schools on their students' learning, and thus to estimate the (at least near-term) student achievement effects of schools' immersion program expansion. In this way, the Utah study is designed to contribute new insights to the literature on immersion effects.

Though we originally planned that the study would encompass all 22 DLI districts in Utah, it instead includes 6 districts that were able to provide historical data on DLI enrollees from program inception. Focusing on the spring cohorts of 2007 through 2018 (the focal years of the study), the six districts comprised 40% of students and 45% of DLI students statewide. Their demographic attributes were nearly identical to that of the full state, except that their students were slightly less likely to qualify for free and reduced-price meals (FRL), at 30% versus 35%, and to be eligible for special education in the base year, at 9% versus 10%. Also, their students were slightly more likely to be classified as English learners, at 15% versus 13%.

Our study thus far uses student achievement and enrollment data from these districts to examine student achievement as a function of DLI enrollment (*the descriptive analysis*) and changes in DLI program access (*the causal, intent-to-treat analysis*). Both analyses control for a host of attributes including year, cohort, test grade/topic, and school fixed effects, as well as baseline status in terms of gender, race/ethnicity, free/reduced-price lunch eligibility, special education eligibility, English learner status, and migrant status. Despite controlling for these characteristics, the descriptive analysis remains vulnerable to selection on unobservable characteristics, and thus it cannot be construed as a causal effect of DLI, but only as a description of the relative performance of similar DLI and non-DLI students. Only the intent-to-treat analysis examines the effect of dual-language immersion access on the cohorts of students who began first grade at a time when DLI was or was not offered.

We find in this *descriptive analysis* that DLI students in the six districts outperform similar counterparts by about 19% of a standard deviation in English language arts, 17% of a standard deviation in math, and 15% of a standard deviation in science. These are aggregate estimates. For ELs, the estimates are slightly

stronger, at about 20%, 21%, and 22% of a standard deviation in ELA, math, and science, respectively, and all are statistically significant at the 0.1% level. An effect of 20% of a standard deviation means that if a given non-DLI student were performing at the 50th percentile, the comparable DLI student would be performing at the 57.9th percentile, on average.

In the *causal intent-to-treat analysis*, which focuses on student achievement as access to DLI expands in their schools, estimates remain in progress. We are currently examining models that estimate differential effects as a function of students' probability of enrolling in DLI when it is offered. We are also examining differences in estimates between one-way and two-way programs. These results will be forthcoming between now and September of 2019.

For additional information on the project please contact any of the project team members below:

Project Team:

Mr. Karl Bowman, Utah State Board of Education. karl.bowman@utah.schools.gov

Mr. Gregg Roberts, American Councils Research Center, groberts@americancouncils.org

Dr. Robert Slater, American Councils for International Education. rslater@americancouncils.org

Dr. Jennifer Steele, American University. steele@american.edu

Dr. Johanna Watzinger-Tharp, University of Utah. J.tharp@utah.edu

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