



New Mexico Charter School Study: Findings Report



April 30, 2021



Rachel McCormick, Eleanor Harvill, Jacqueline Mendez, and Meghan Shea,
Abt Associates

In partnership with:

Matthew Pahl, *Public Charter Schools of New Mexico*;

Michael Rodríguez and David Rogers, *Dual Language Education of New Mexico*;

Elizabeth Howard, *University of Connecticut*; and

the *New Mexico Public Education Department*.

Abt Associates
6130 Executive Boulevard
Rockville, MD 20852

Acknowledgements

We appreciate the many contributions to this project from: David Rodriguez, Juanita Jaramillo, Wendy McRae, Marina Kosareva, and David Dupree (currently or formerly of **Abt Associates**), Yanira Gurrola Valenzuela (of **Dual Language Education of New Mexico**), and Zhanna Galochkina, Richard Trujillo, and Alan Brauer (currently or formerly of the **New Mexico Public Education Department**). Special thanks to Barbara Goodson of **Abt Associates** for her endless guidance and enthusiasm.

We also acknowledge the commitment to rigorous research, the sharing of data, and the helpful feedback on this project from the 21 schools (and their staff) who participated in this study.

Finally, we gratefully acknowledge the support from **Arnold Ventures** that made this research possible and Amanda Moderson-Kox for her collaboration and always thoughtful input.



Images throughout this report are stock images, and do not depict any actual study participants.

Contents

Summary of Findings & Recommendations	ii
Background:	ii
Key Findings:	ii
Introduction	1
Charter School Findings	4
Lottery Study Findings	4
Matching Study Findings	8
Dual Language Charter School Findings	13
Dual Language Matching Study Findings	14
Consideration of Prior Research	17
Implementation Study Findings	17
Charter Schools in the Study Sample	20
Who Is Served by Charter Schools in New Mexico	23
Theory of Change Logic Models	26
Charter School Theory of Change	27
Dual Language Education Theory of Change	27
References	32
Notes	34

Summary of Findings & Recommendations

Background:

Why this study? This study provides New Mexico’s policymakers and practitioners with an evaluation of the performance of charter schools (with a special focus on those employing a school-wide dual language model) using data from the state’s students.

Which schools were in the study sample? Public charter schools in the state that used a lottery to admit students for school years 2009-10 to 2017-18 were eligible for this study (21 schools ultimately participated, which represents 70% of the eligible schools).

How was this study conducted? Our *implementation study* surveyed principals from charter schools and conducted virtual site visits to a subset of dual language charter schools to understand the key ingredients of an education at the schools that participated in our study. Our *impact study* used (1) a lottery study, the most rigorous analysis available to evaluate charter school effectiveness, and (2) a matching study to examine the academic effects of multi-year attendance at a charter school.

Who conducted this study? A team of researchers from Abt Associates worked closely with two non-profit organizations in New Mexico – Public Charter Schools of New Mexico and Dual Language Education of New Mexico – to conduct this study. The New Mexico Public Education Department provided critical student data for this study.

Key Findings:

Charter Schools in the Study (Implementation Study):



- Charter schools in the study were founded individually by teachers, parents, and/or other community members to respond to a perceived community need and/or demand from families for local public schools offering high-quality, rigorous education. The local derivation of these schools has resulted in schools with a diversity of missions, strategies, and key educational components. The schools are located across the state, with slightly fewer than half located in small towns and rural areas.



- Charter schools in this study served fewer economically disadvantaged students and more White students compared to all charters in the state (to some extent) and to all public schools in New Mexico (to a greater extent). This could be due in part to school location and other logistical barriers such as lack of buses preventing economically disadvantaged families from enrolling. We provide recommendations for expanding equity of access below.

Charter School Performance (Impact Studies):



- Our **charter school lottery study** included 10 schools that had well-documented records about their initial spring lotteries. The study found no statistically significant impacts on measured student academic outcomes for elementary-aged and middle school-aged students, nor on college enrollment for high school-aged students who were offered admission in the initial lottery compared to those students not offered admission.
- Our **charter school matching study** included all 21 schools and focused on the effect of continual attendance at a charter school versus continual attendance at a non-charter school. The results were mixed, suggesting high school charters increased college enrollment and elementary charters reduced mathematics achievement, relative to comparison students.

Together these findings suggest that the locally established charter schools in our sample will not remedy the lower performance of students in New Mexico relative to the nation nor close the gaps in educational outcomes between more and less privileged students in the state. However, the findings for college enrollment indicate that several charter schools in our sample have effectively identified mechanisms for ensuring more students enroll in college.

Dual Language School Performance (Impact Study):

- Our **dual language matching study** focused on the effect on students' English Language Arts (ELA) performance of five years of dual language education at a charter school compared to five years of standard instruction at a non-dual language school. All of the dual language charter schools and comparison schools in the study were located in the Albuquerque area. We did not find any statistically significant differences in English Language Arts (ELA) achievement in fifth grade relative to comparison students. Our findings do however suggest that the sub-group of English learners who continuously attend a school-wide dual language charter school perform similarly to or better in ELA than English learners who continuously attend non-dual language schools. However, approximately half of all English learners who enrolled in the focal schools over the follow-up period were enrolled for two school years or less (48 percent) so these findings do not apply to the typical English learner in these dual language schools.
- The study found descriptive evidence from principal reports that dual language students are developing proficiency in Spanish. Principals were asked about growth in Spanish proficiency for their students and reported dramatic growth in proficiency in oral and written Spanish at grade level in the period from enrollment in kindergarten to fifth grade. Although we cannot say what principals in the comparison schools would report about growth in the Spanish language skills, the gains reported by dual language principals suggest they are achieving their goal of developing students who are bilingual and biliterate.

Recommendations for New Mexico's Policymakers

- 1. Support quality instruction and programming at locally designed charter schools.**
 - ✓ invest in outcomes analyses that encompasses the full range of hypothesized effects on students (described in the charter school theory of change in this document);
 - ✓ consider ways to support high-quality instruction for charter school students.
- 2. Improve equity of access to charters.** If New Mexico has the goal of making charter schools accessible to all students in the state, the state could look at ways to remove barriers:
 - ✓ increase awareness of charter schools' existence and ensure all parents (especially non-English speakers) know schools are tuition free;
 - ✓ invest resources necessary to offer busses to avoid transportation barriers;
 - ✓ consider the location of new charters and prioritize census tracts where economically disadvantaged and minority students reside – and offer support to community groups focused on education of disadvantaged populations looking to start new charter schools;
 - ✓ consider changing state regulations to allow charter schools to hold separate lotteries for subgroups of students to ensure admission of disadvantaged students.
- 3. Increase access to dual language programs.**
 - ✓ in addition to the above, consider changing state regulations to allow or require dual language charter and magnet schools to offer admissions priority to English learners (or hold separate lotteries for Spanish and English dominant speakers);
 - ✓ to the extent that the state has the goal of increasing linguistic equity in the state's schools while supporting English learners' achievement, consider expansion of quality dual language programs.
- 4. Consider standardizing and centralizing charter lottery data systems.**
 - ✓ Efforts to improve the lottery tracking/data systems would help support compliance with charter lottery requirements and would help support future rigorous research.
- 5. Revamp data systems and data polices to support linguistic equity.** If New Mexico is to fully measure students' academic, linguistic, and socio-cultural capabilities, the state could bolster its data systems accordingly by:
 - ✓ Giving assessment data in non-English languages equal priority in all data systems to ensure students' capabilities are honored and data are available to assess related programs and policies.

Lastly, we recommend additional research that (1) explores the approaches at the participating charter high schools that appear to increase college enrollment; (2) expands the number of charter and dual language school students included in the research effort; (3) identifies individual charter schools that are effective and their key elements and (4) further aligns with the respective program's theory of change logic model in terms of outcomes explored (ie. student engagement and family empowerment for charter schools, and partner language written and oral proficiency and socio-cultural competence for dual language programs).

Introduction





The goal of the New Mexico Charter School Study is to assist New Mexico policymakers and practitioners in understanding the performance of charter schools in the state. About 7% of New Mexico’s public school students attend one of 97 charter schools, which is a similar proportion to the United States overall.ⁱ Charter schools are seen by proponents as a way to offer students and families more choice and educational opportunities. Further, proponents argue that charters could offer higher quality education because the schools are free from most of the traditional bureaucracy and regulations that divert educator energy and resources. On the other hand, charter school opponents argue that they distort the distribution of resources in the public education system and risk skimming the children of parents who would be more likely to be engaged in their traditional public school. As charter schools play a sizeable role in New Mexico’s public education system, it is important to know how they are performing.



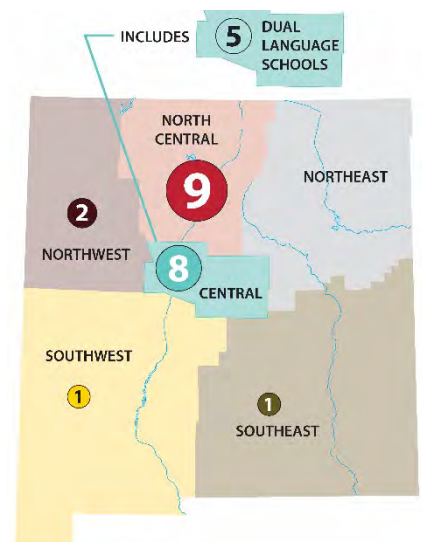
Prior studies of charter schools have focused on different types of charter schools than those in New Mexico. For example, many prior research studies elsewhere have focused on charters in urban and suburban areas or on charters run by charter management organizations (CMOs). New Mexico’s charter schools are often in rural areas, and the state does not have any charter schools run by CMOs; instead, charter schools in New Mexico are grass roots institutions run by independent governing councils.

In addition to studying charter schools more generally, this study has a special focus on elementary charter schools that employ a school-wide dual language education model. *Dual language education* provides instruction in literacy and content in two languages. It has been shown to be effective at improving students’ academic achievement,ⁱⁱ and it is an especially timely research topic for New Mexico given the emphasis of the Yazzie-Martinez lawsuit on ensuring the provision of equitable bilingual and multicultural education.ⁱⁱⁱ

The remainder of this document presents what we learned from this study. We encourage the reader to review the entire report, but those interested in specific chapters can skip directly to them using the hyperlinks below –

- 
 - **Charter School Findings** presents findings about the performance of charter schools by grade levels of the students served (high school, middle school, and elementary school).
- 
 - **Dual Language Charter School Findings**, presents all findings from analyses related to dual language education, including (1) Spanish proficiency reported by principals, (2) the impact of attending a dual language school on all students and on English language learners specifically, and (3) findings from virtual site visits conducted by Dual Language Education of New Mexico.
- 
 - **Schools in the Study** describes the key traits of the schools we studied. Data come from a survey of school principals (which had a 95% response rate). In this chapter, we summarize the origin of the focal schools, their missions, their instructional time, and other key ingredients of the school.
- 
 - **Who Is Served by Charter Schools in New Mexico** presents the demographic traits of students attending the 21 schools that are part of this study, as well as students in all 97 charter schools and all 862 public schools in the state.

Location of 21 Study Schools



INTRODUCTION



- Theory of Change Logic Models documents the theorized pathways to improved outcomes behind charter schools and dual language schools. These logic models were created by study partners from Public Charter Schools of New Mexico and Dual Language Education of New Mexico in collaboration with the Abt Associates team.ⁱ Our study is not able to report on all the components of these logic models, but we believe they are critical tools for understanding how each model can affect schools and communities and for supporting existing programs.
- We have also created a separate Technical Appendix for a research audience.

Implementation Study Design and Questions. We conducted an implementation study that used surveys of principals from all charter schools and virtual site visits to dual language schools. Our implementation study aimed to understand the key ingredients of an education at the charter schools that participated in our study.

Impact Study Research Design and Questions. We answered seven research questions with seven separate impact sub-studies. Exhibit 1 (below) presents the key characteristics of each sub-study, including the topic, the rigor of the study design, the research priority (meaning the level of importance -primary or secondary- within the study), and the number of schools and students included in the sub-study.^{iv} For the reader's ease, we repeat these key characteristics when presenting findings in later exhibits. The full research questions are included in the chapters presenting findings, along with results.

Exhibit 1. Key Characteristics of Sub-Studies

	Rigor of Design	Research Priority	Number of Focal Schools in Study	Number of All Students in Study	
1		primary			A lottery study with low attrition is the gold standard research design for showing that the treatment caused the outcome (golden ribbon for rigor)
2		primary			A lottery study with high attrition uses the gold standard design but is less rigorous due to sample loss (silver ribbon for rigor)
3		primary			A matching study with baseline equivalence is a less rigorous design that attempts to mimic lottery results (bronze ribbon for rigor)
4		secondary			Findings from a pre-specified analytic approach designated as answering primary research questions
5		secondary			Findings from a pre-specified analytic approach designated as answering additional secondary research questions
6		secondary			Number of focal schools included in the study (1 building = 5 schools)
7		secondary			Number of students included in the study (1 person = 100 students)

ⁱ Because our partners, Public Charter Schools of New Mexico and Dual Language Education of New Mexico, have a vested interest in the results of the lottery and matching studies, they were involved only in the conduct of the implementation studies; they did not have access to nor contribute to lottery and matching studies' data collection or analyses.

INTRODUCTION

We used two research designs to answer our key questions – a lottery design and a matching design. Together these two designs present a balanced and nuanced view of the effects of charter schools in New Mexico because the lottery study does not require enrollment at the school whereas the matching study examines continuous enrollment.

LOTTERY STUDY DESIGN. The lottery sub-studies^v use the **most rigorous analysis available to evaluate charter school effectiveness.** The three lottery sub-studies test the effects of students being offered admission to a charter school on the students' math and English Language Arts (ELA) achievement, looking at effects separately for elementary, middle, and high school charter schools. These studies are limited to charter schools that are **oversubscribed**, use lotteries that randomly allocate seats to students, and had sufficient records available about their initial lotteries.²

The lottery ensures that the students offered admission to a charter school (the “treatment” group) and the students not offered admission (the “control” group) have the same backgrounds and characteristics, including characteristics that cannot be measured. As a result, the comparison is “apples-to-apples” and any differences in their achievement or college enrollment can be attributed to the opportunity to attend the charter school; that is, being **offered** a admission through the lottery. This design allows us to make causal statements about the *effect of being offered admission to a charter school.*

MATCHING STUDY DESIGN. The matching sub-studies^{vi} **test the effects of multi-year attendance** in charter schools and charter/magnet dual language schools on students' math and ELA achievement. As in the lottery sub-studies, in the matching sub-studies we again include only oversubscribed schools, and we look at effects separately for students attending elementary, middle, and high schools.

This type of study is termed *quasi-experimental* because students being compared were not randomly assigned to the charters. Instead, students who chose to attend and remain in a charter school over multiple years are compared to similar students who attended a single non-charter traditional public school. The study matches each student in a charter school to a student in a non-charter on their prior achievement, race/ethnicity, English learner status, and Free or Reduced Price Lunch (FRPL) eligibility (if available), but students may differ in several ways that cannot be measured. As a result, this may be more of an “apples-to-oranges” comparison and any differences in student outcomes cannot be attributed solely to charter attendance; instead, differences might reflect charter attendance and/or they might come from differences between students such as differences in parental education, family support, or motivation)).

Although matching studies do not permit us to make the same causal statements we can make in lottery studies (because matching studies do not require students to be randomly assigned), matching studies allow us to include substantially more schools.



Finally, this study focuses on the time period from about 2009-10 through 2018-19, before the COVID-19 pandemic. Because of the massive shifts in educational delivery during the pandemic, the results are best applied to time periods when students are educated primarily in school buildings.

Research Terminology

Oversubscribed in our study means having had at least 15-20 students on a wait list after the initial lottery in at least one grade.

A LOTTERY STUDY is the most rigorous research design.



Our MATCHING STUDY measures the effect of continuous attendance.



² Ten participating schools provided lottery records that allowed us to conduct the experiment: i.e. they allowed us to (1) identify the students that were admitted in the initial lottery and (2) follow the students from application through outcome measurement.



Charter School Findings

Lottery Study Findings

The charter school lottery studies were designed to answer three research questions about the impact of oversubscribed elementary, middle, and high school charters^{vii} on key academic outcomes:

1. What is the impact of oversubscribed **elementary charter schools** in New Mexico on grade 3 math and English Language Arts (ELA) achievement?
2. What is the impact of oversubscribed **charter middle schools** in New Mexico on grade 8 math and ELA achievement?
3. What is the impact of oversubscribed **charter high schools** in New Mexico on college enrollment?

These sub-studies prioritize rigor and allow us to say whether these charter schools caused any **statistically significant** impacts to be observed between the **treatment group** and **control group** when the **error bands** do not cross zero (i.e. when we can be reasonably confident that the difference in outcomes is not due to chance). However, the strict requirements of lottery studies mean we could only include a limited number of schools in these analyses (as shown in the *Design at a Glance* summaries throughout this chapter).

Across all three types of schools, the lottery sub-studies did not find evidence that charter schools improved academic outcomes. The wide error bands around all the primary impact estimates suggest that admission to a charter school could either reduce outcomes or could improve outcomes.

Lottery studies rigorously estimate the difference in outcomes for students who applied to the focal schools in the study. However, the focal schools in the study are not representative of charter schools in New Mexico generally. See the chapter *Who is Served by Charters Schools in New Mexico* for a discussion comparing our overall study sample of oversubscribed charter schools to all charter schools in the state and to all schools in the state.

These analyses focus on a limited set of student academic outcomes. It is possible that these charter schools improve other outcomes that we did not measure such as teacher retention, and other elements of the theory of change for charter schools (see the charter school theory of change logic model in Exhibit 18 at the end of this report). Other rigorous research has found statistically significant effects on both student and parental satisfaction, which we were unable to measure in this study due to resource limitations.^{viii}

At the high school level, the proportion of students who enrolled in college in the fall after expected high school graduation did not differ significantly between students offered admission at a charter school and those not offered admission.

- The rate of **college enrollment** for treatment group students was 15 percentage point higher than for control group students. Wide error bands

Research Terminology

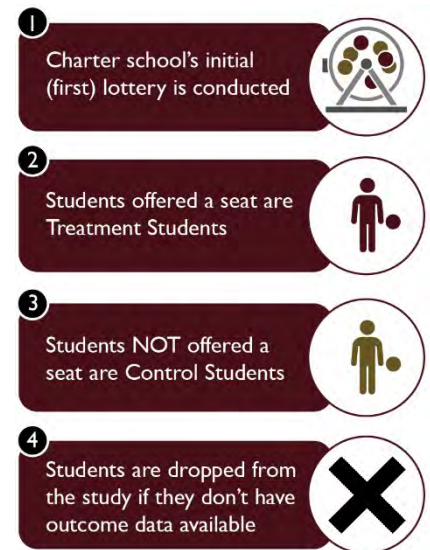
Statistically significant means believed to be a real difference in the population.

The **treatment group** includes students offered seats at a focal charter school the initial spring lottery.

The **control group** is a term used in lottery studies only, and includes those students not offered admission at a focal charter school during this same lottery. Our treatment and control students are virtually the same, except that some were offered admission and some were not.

Error bands show the range of plausible values when accounting for sampling error.

Lottery Study Steps:



CHARTER SCHOOL FINDINGS

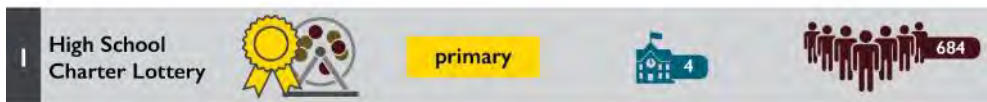
indicate that moderate negative effects and very large positive effects are plausible.³

- Two exploratory analyses show no difference in **college persistence** or **retention**.⁴ Persistence is enrollment in the fall after expected high school graduation and in the following fall. Retention is enrollment in the same college in the fall after on-time graduation and the following fall. These exploratory analyses support the interpretation that charter high schools have not been shown to improve college outcomes.

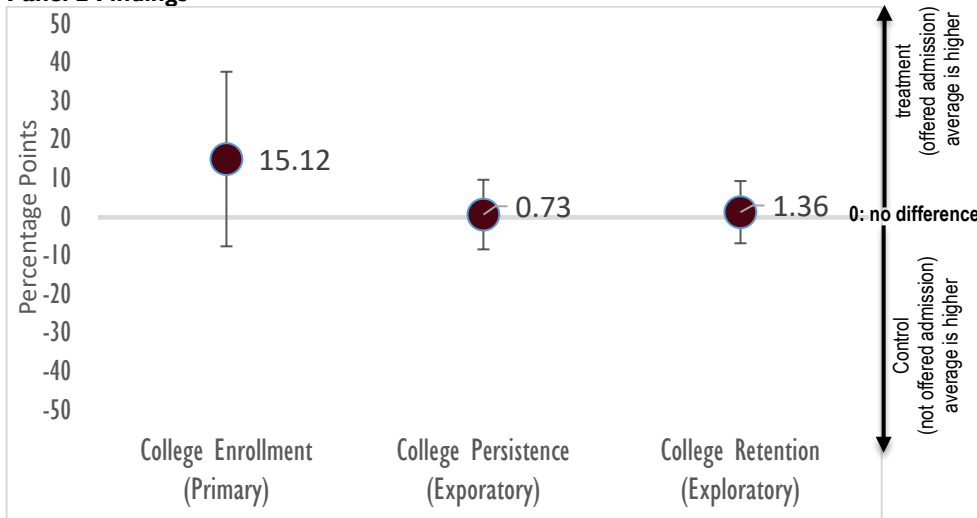


Exhibit 2. High School Lottery Study Findings: Difference Between Treatment (Offered Admission) and Control (Not Offered Admission)

Panel 1: Design at a Glance



Panel 2 Findings



Key:

I The line represents sampling error

● estimate from our data (not statistically significant)

Source(s): National Study Clearinghouse (NSC) and NM PED Administrative Data

Sample: The NSC analysis sample includes 684 (401 treatment and 283 control) students.

The NM PED analysis sample for High School Graduation and ELA achievement outcomes include 638 students (267 treatment and 371 control). The NM PED analysis sample for the Algebra II outcome includes 480 (181 treatment and 299 control) students.

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. None of the impacts are significantly different than zero. All primary and exploratory comparisons in the table are experimental. Students in the sample were not enrolled are included with 0 values.

³ Admission to a charter high school could reduce college enrollment by up to 8 percentage points or increase college enrollment by up to 38 percentage points.

⁴ Persistence rates are about the same between the treatment and control groups (40 vs. 39 percent), as are the retention rates (35 vs 33 percent). Error bands indicate that moderate negative or large positive effects are plausible.

CHARTER SCHOOL FINDINGS

At the middle school level, neither 8th grade ELA nor math achievement differed significantly between students offered admission at a charter school and those not offered admission.

We find no evidence that admission to the eight charter middle schools significantly increased 8th grade ELA achievement or the proportion of students passing the Algebra I PARCC test.

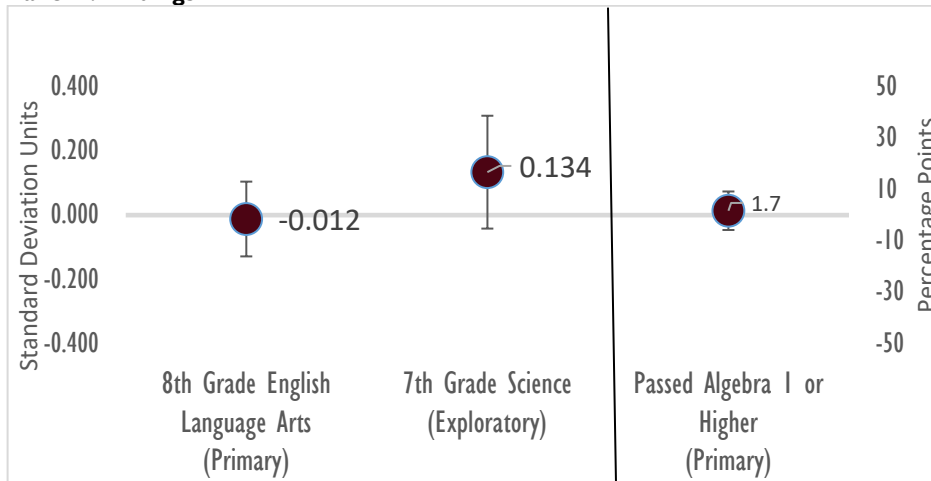
- About the same proportion of students **took and passed the Algebra I PARCC test** in each group (24 vs 23 percent). The error bands indicate that large positive and negative effects are plausible.⁵
- Average **8th grade ELA achievement** scores were slightly lower for the treatment group than for the control group (difference is less than a tenth of typical annual gains in reading), with error bands including both large negative effects and moderate positive effects.⁶
- An exploratory analysis of **7th grade science** achievement finds no difference in average outcomes between students offered admission and students not offered admission.

Exhibit 3. Middle School Lottery Study Findings: Difference Between Treatment (Offered Admission) and Control (Not Offered Admission)

Panel 1: Design at a Glance



Panel 2: Findings



Key:

I The line represents sampling error

● estimate from our data (not statistically significant)

Source: NM PED Administrative Data

Sample: The ELA analyses include 1,650 (321 treatment and 387 control) students. The Algebra I analysis includes 1,585 (304 treatment and 1,281 control) students. Students who took the 8th grade math PARCC test (Pre-Algebra) are included in the analysis as students who did not take and pass the Algebra I test. Students who took a higher-level math PARCC tests (Geometry or Algebra II) are included in the analysis as students who took and passed the Algebra I PARCC tests. The Science analysis includes 1,551 (300 treatment and 1,251 control) students.

⁵ Admission to a middle school charter could reduce the probability of passing Algebra I by up to 6 percentage points or increase the probability of passing by up to 9 percentage points.

⁶ Middle school charters could *reduce* 8th grade ELA achievement by more than half of typical annual gains or *increase* ELA achievement by about two-fifths of typical annual gains.

CHARTER SCHOOL FINDINGS

Notes: After correcting for multiple comparisons, the 90% confidence interval for ELA achievement is (-0.151, 0.127) and the 90% confidence interval for Algebra II is (-7.2, 10.7). See Appendix for additional detail.

At the elementary school level, the 3rd grade math and ELA achievement of students offered admission at a charter school did not differ significantly from that students not offered admission.

We find no evidence that admission to the four elementary charters in the study significantly increased 3rd grade achievement in math or ELA.

- Estimates show higher **3rd grade ELA test scores** for students admitted to the focal schools (equivalent to one-fifth of typical annual gains in reading); however, the wide error bands around the estimates indicate that small negative effects or large positive effects are plausible.⁷
- The estimated difference in **3rd grade math scores** is small (less than one-tenth of the typical annual gain in math) and error bands indicate that small negative or moderate positive effects are plausible.⁸
- An exploratory analysis of **4th grade science achievement** finds no difference in average outcomes between students offered admission and students not offered admission.

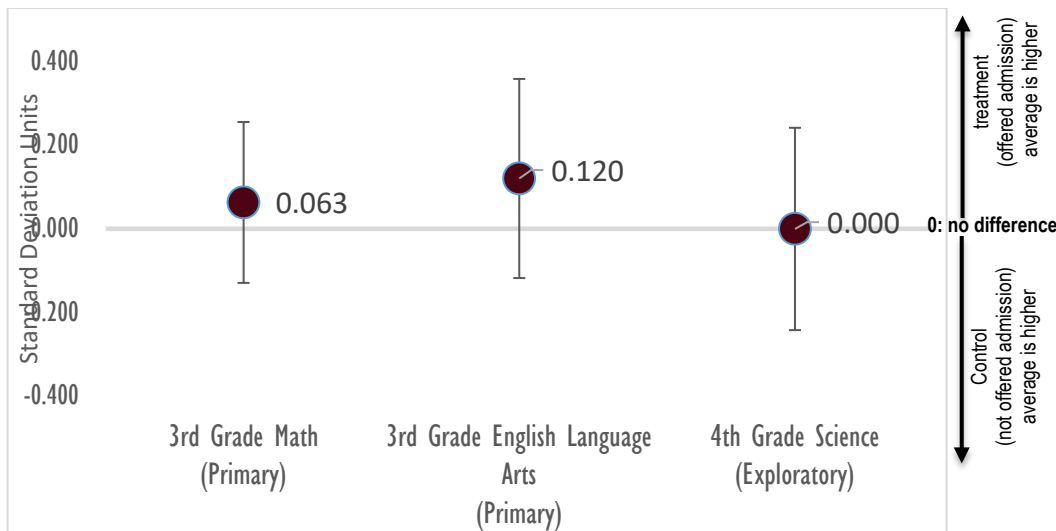


Exhibit 4. Elementary School Lottery Study Findings: Difference Between Treatment (Offered Admission) and Control (Not Offered Admission)

Panel 1: Design at a Glance



Panel 2: Findings



Key:

- I The line represents sampling error
- estimate from our data (not statistically significant)

Source: NM PED Administrative Data

Sample: Math and ELA analyses include 452 (115 treatment and 337 control) students. Science analysis includes 362 (89 treatment and 273 control) students.

Notes: After correcting for multiple comparisons, the 90% confidence interval for ELA achievement is (-0.163, 0.404) and the 90% confidence interval for math achievement is (-0.166, 0.292). See Appendix for additional detail.

⁷ Admission could reduce 3rd grade ELA scores by as much as one-fifth of typical annual gains or increase test scores by slightly more than one half of typical annual gains.

⁸ Admission could reduce 3rd grade math scores by about one-sixth of typical annual gains or increase math scores by just over one-fourth of typical annual gains.

CHARTER SCHOOL FINDINGS

Matching Study Findings

The charter school matching sub-studies were designed to answer three research questions about the effects of continuous attendance at a focal school on key academic outcomes:

1. What is the impact of enrollment in first through third grade at oversubscribed **elementary charter schools** in New Mexico on grade 3 math and ELA achievement?
2. What is the impact of enrollment in sixth through eighth⁹ grade at oversubscribed **charter middle schools** in New Mexico on grade 8 math and ELA achievement?
3. What is the impact of enrollment in ninth and tenth grade¹⁰ at oversubscribed **charter high schools** in New Mexico on college enrollment?

These sub-studies seek to compare each focal charter school to the traditional public schools that that would be the most likely alternative schools for students. School lottery records allow us to identify traditional public schools where applicants often enroll. Enrollment records allow us to identify students who switch into or out of the charter school and the traditional public schools they attend. The matched comparison sample is drawn from students enrolled in these traditional public schools.

These sub-studies prioritize learning about the effect of charter schools on students who chose to remain enrolled in a charter school during all grades served by the school and can therefore be expected to have received the full benefit of the educational program. These students are compared to students who were enrolled in a single, traditional public school over the same grades. This focus on students who did not switch schools means that the analysis excludes students whose schooling is disrupted by one or more moves.

Although they are less rigorous than the lottery sub-studies, the matching design allows us to include a larger number of schools and students in the analyses (as shown in *the Design at a Glance* summaries throughout this chapter) reducing the width of the error bands and increasing the range of schools to which our findings would apply.

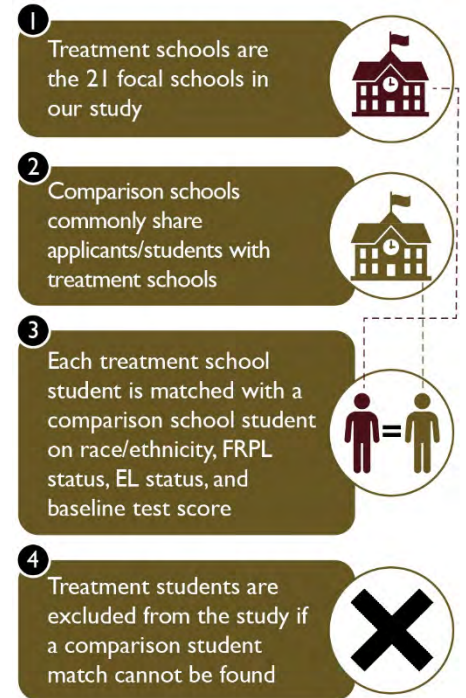
The matching study found mixed impacts on educational achievement or attainment, with , positive findings at the high school level for college enrollment, negative findings at the elementary level for mathematics, and otherwise null (no difference) findings relative to the **comparison group**.

A higher proportion of students who attended charter high schools in 9th and 10th grade enrolled in college in the fall after expected high school graduation than similar students enrolled in traditional public schools in 9th and 10th grade.

This finding suggests that enrollment in charter high schools may increase college enrollment.

- The **college enrollment** rate is 6 percentage points higher for students enrolled in charter high schools than for students enrolled in traditional high schools. As shown in Exhibit 6, this impact is larger than the difference among urban, suburban, and rural schools (4 percentage points) but not as large as the difference between low-income and higher-income schools (15 percentage

Matching Study Steps:



Research Terminology

The **comparison group** is a term used in matching studies, and includes the students from non-charter schools who were matched to the students in charter schools on prior achievement, race/ethnicity, FRPL status, and English learner status.

⁹ Seventh through eighth grade in the one school that doesn't have a sixth grade.

¹⁰ Tenth grade only at the two schools that don't have ninth grade.

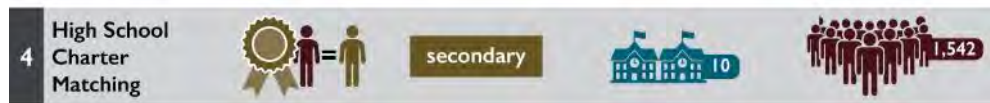
CHARTER SCHOOL FINDINGS

points) or the difference between high-minority schools and low-minority schools (11 percentage points).

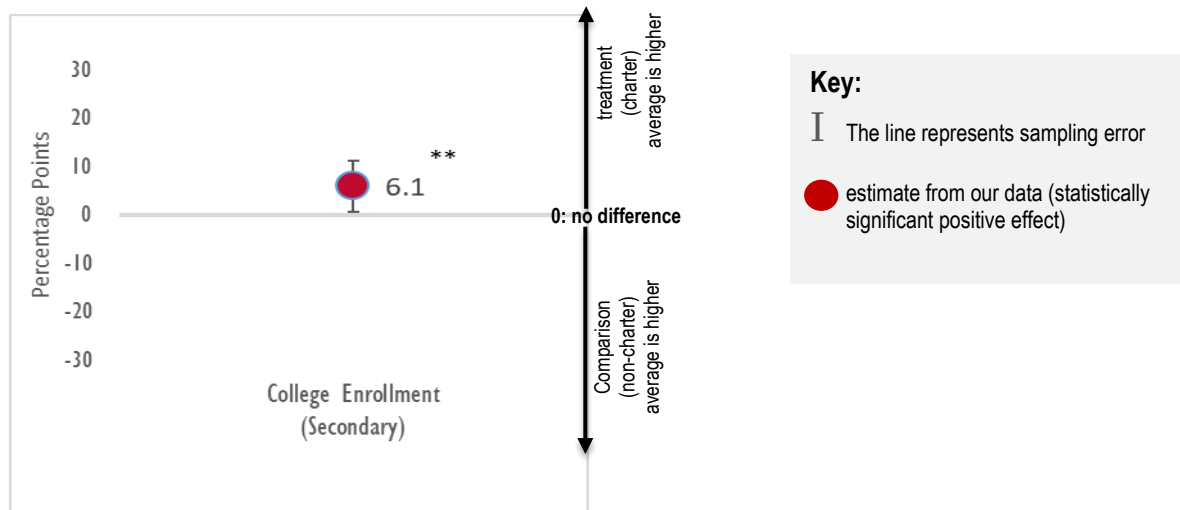
Although the sample includes early college high schools, the estimated impact is not associated with dual enrollment, where students enroll in community college classes while in high school,¹¹ or of the requirement that students be enrolled in both 9th and 10th grade.^{12,13} This finding is consistent with our lottery study findings. Focusing on the four charter high schools included in the lottery sample, yielded an impact estimate similar to the lottery study and the error bands fall within with error bands of lottery study estimates.¹⁴

Exhibit 5. High School Matching Study Findings: Difference Between Treatment (Charter) and Comparison (Non-Charter)

Panel 1: Design at a Glance



Panel 2: Findings



Source(s): NSC Data

Sample: Sample includes 1,542 (771 treatment and 771 comparison) students.

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent.

¹¹ Given that there are early college high schools in the sample, observed college enrollment could be dual enrollment if high school students who did not graduate on time. That is not where the impact estimate comes from.

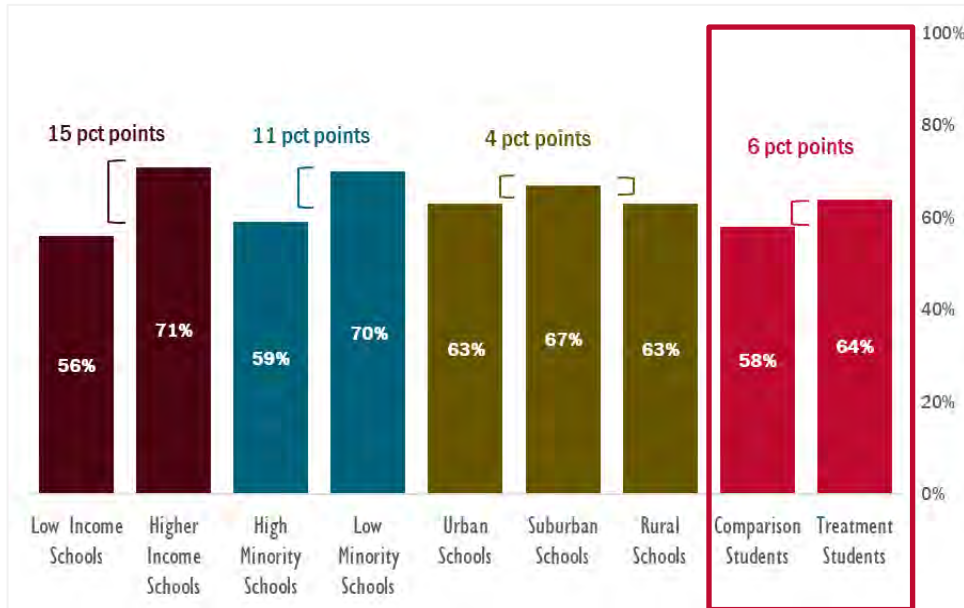
¹² We estimated the difference excluding schools with dual enrollment programs and found a 7-percentage point difference between students enrolled in charter schools and students enrolled in traditional public schools.

¹³ We estimated the difference between students enrolled in charter schools in 9th grade and similar students enrolled in traditional public schools in 9th grade and found a difference in college enrollment of 8 percentage points.

¹⁴ College enrollment among students enrolled in charter schools in 9th grade is 13 percentage points higher than for similar students enrolled in traditional public schools in 9th grade. The error bands around the estimate range from a 2 percentage point increase to a 24 percentage point difference.

CHARTER SCHOOL FINDINGS

Exhibit 6. National College Enrollment in the First Fall After High School Graduation, by School Type, Compared to This Study's Findings



Source: National Student Clearinghouse Benchmark Report 2017-18; Study findings.

Math and ELA achievement did not differ significantly between students enrolled in charter schools from 6th to 8th grade and similar students enrolled in traditional public schools from 6th to 8th grade. These analyses offer no evidence that enrollment in charter schools from sixth to eighth grade significantly increases or decreases achievement in math or ELA compared to enrollment in a traditional public school from sixth to eighth grade.

- Average **8th grade ELA test scores** were slightly higher among students enrolled in charter schools (about two-fifths of typical annual gains in ELA), with error bands including both small negative and large positive effects.¹⁵
- Although a lower proportion of students enrolled in the charter schools **took and passed the Algebra I PARCC test** (15 percent vs. 19 percent), the error bands around the estimate indicate that large negative or small positive impacts are plausible.¹⁶



¹⁵ Middle school charter enrollment could reduce ELA achievement by less than a tenth of typical annual gains or could increase ELA achievement by almost a full year of typical annual gains.

¹⁶ Middle school charter enrollment could be associated with a reduction in the proportion of students passing Algebra I as large as 11 percentage points or could be associated with an increase up to 2 percentage points.

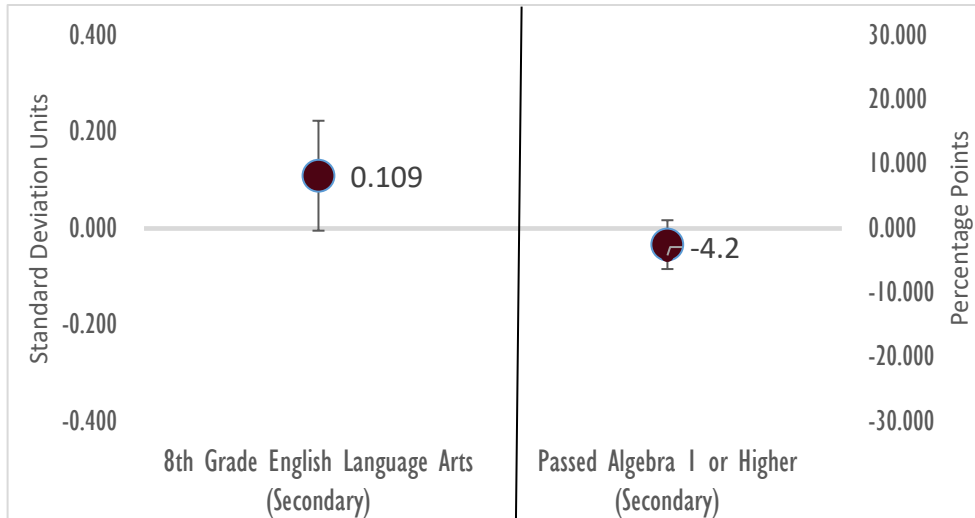
CHARTER SCHOOL FINDINGS

Exhibit 7. Middle School Matching Study Findings: Difference Between Treatment (Charter) and Comparison (Non-Charter)

Panel 1: Design at a Glance



Panel 2: Findings



Key:

I The line represents sampling error

● estimate from our data (not statistically significant)

Source(s): NM PED Administrative Data

Sample: The sample includes 480 (248 treatment and 248 comparison) students. Students who took the 8th grade math PARCC test (Pre-Algebra) are included in the analysis as students who did not take and pass the Algebra I test. Students who took a higher-level math PARCC tests (Geometry or Algebra II) are included in the analysis as students who took and passed the Algebra I PARCC tests.

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. After correcting for multiple comparisons, the 90 percent confidence interval for ELA achievement is (-0.231, 0.109) and for math achievement is (-0.379, -0.025).

Students enrolled in elementary charter schools from 1st to 3rd grade had significantly lower 3rd grade math test scores than similar students enrolled in traditional public schools from 1st to 3rd grade. We did not find a significant difference in ELA scores between the groups.

Secondary analyses suggest that enrollment in elementary charter schools from first to third grade may reduce academic achievement compared to enrollment in a traditional public school from first to third grade.

- The average student enrolled in elementary charters from first to third grade scored significantly lower on **3rd grade math** tests than matched comparison students (difference equivalent to one-fifth of typical annual gains in math).
- Although estimates indicate that **3rd grade ELA** scores are also lower for students in elementary charters than comparison students (difference is about one-tenth of typical annual gains in ELA), error bands include large negative effects and small positive effects.¹⁷

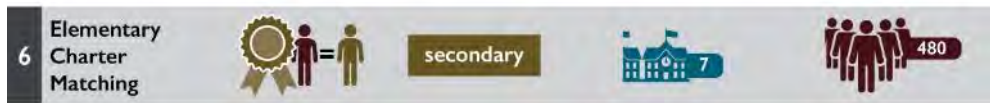
¹⁷ Our findings suggest that enrollment in elementary charters could reduce ELA test scores by more than one-half of typical annual gains or could increase ELA scores by about one-eighth of typical annual gains.

CHARTER SCHOOL FINDINGS

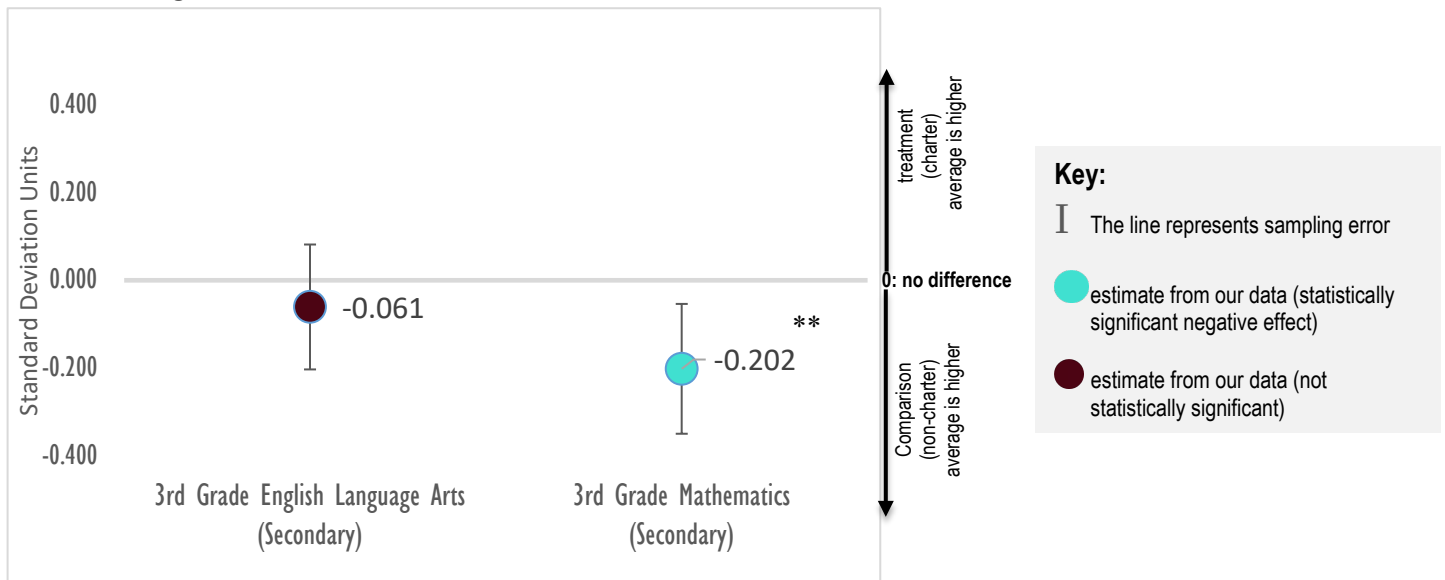
The observed difference in math outcomes is not due to differences in demographics nor differences in kindergarten reading levels.¹⁸ We cannot rule out the possibility that kindergarten math levels differed between the groups or that the difference in math outcomes is a consequence of another unobserved difference between the groups.

Exhibit 8. Elementary School Matching Study Findings: Difference Between Treatment (Charter) and Comparison (Non-Charter)

Panel 1: Design at a Glance



Panel 2: Findings



Source(s): NM PED Administrative Data

Sample: The sample includes 480 (248 treatment and 248 comparison) students.

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. After correcting for multiple comparisons, the 90 percent confidence interval for ELA achievement is (-0.231, 0.109) and for math achievement is (-0.379, -0.025).



¹⁸ Even before matching, the students enrolled in the focal schools from first to third grade were similar to students enrolled in the comparison schools from first to third grade, both in terms of demographics and kindergarten reading level (55th percentile vs 53rd percentile). After matching, the average charter student and the average matched comparison student both scored at the 55th percentile on the kindergarten reading test.



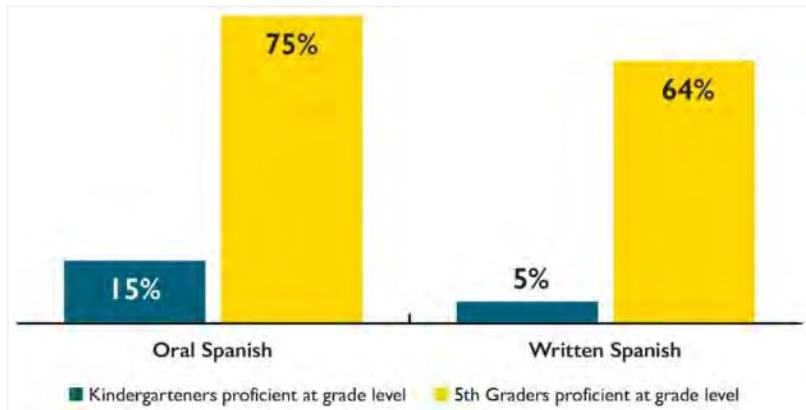
Dual Language Charter School Findings

In this chapter we report on the dual language charter/magnet¹⁹ elementary school study findings. *Dual language education* is a model that provides instruction in literacy and content in two languages, with the goal of student bilingualism, biliteracy, and sociocultural competence. This chapter is structured differently from the previous chapter on charter schools because we provide context from our principal surveys and virtual site visits to dual language schools conducted in partnership with Dual Language Education of New Mexico.

Although we could not directly measure Spanish proficiency in the dual language matching study, we were able to ask DL school principals to use assessment data whenever possible to provide information on their students' Spanish proficiency in both oral and written Spanish. Principals reported the percentage of students who entered kindergarten proficient in oral and written Spanish at grade level and the percentage who, after continuous enrollment, were proficient at the end of fifth grade at grade level. Exhibit 9 reports the results of our query.



Exhibit 9. Principal-Reported Oral and Written Spanish Proficiency Increased Dramatically from Kindergarten Entry to Fifth-Grade Exit for both native Spanish and native English speakers with Continuous Enrollment at a Dual Language School



Principals reported dramatic growth in oral and written Spanish proficiency at grade level from Kindergarten to fifth grade with continuous DL enrollment.

Source(s): Email Exchanges with DL Principals

Sample: The sample includes 4 of the 5 DL schools that participated in the study.

The average principal reported that while only about 15% of Kindergarteners were proficient at grade level in oral Spanish, 75% were in fifth grade. The growth was similarly dramatic for written Spanish, increasing from approximately 5% in Kindergarten to approximately 64% in fifth grade.

Although we cannot say what principals in the comparison schools would report about growth in the Spanish language skills, the gains reported by dual language principals suggest these dual language schools are generally ensuring the majority of their students are bilingual and biliterate.

¹⁹ We include four oversubscribed charter schools and one oversubscribed magnet school.

DUAL LANGUAGE STUDY FINDINGS

Dual Language Matching Study Findings

The dual language matching study measured the effects of continuous attendance at a focal DL school. We answer one secondary questions about dual language schools:

1. What is the impact of enrollment in K or 1st to 5th grade at oversubscribed **dual language** charter/magnet schools in the Albuquerque/Rio Rancho area on grade 5 English Language Arts (ELA) achievement?

Similar to the charter matching study, the dual language matching study seeks to compare dual language schools to non-dual language schools that parents consider alternative options to enrolling their child in dual language schools. School lottery records allow us to identify public schools where applicants often enroll. Enrollment records allow us to identify students who switch into or out of dual language school and the English language schools they attend. The matched comparison sample is drawn from students enrolled in these English language schools.

This study focuses on understanding the effect of dual language schools on students expected to receive the full benefit of the program, those enrolled from first to fifth grade. These students are compared to students who were enrolled in a single, English language school over the same key grades. We committed to this analytic approach in our pre-analysis plan because prior studies of dual language found positive effects in 5th grade and because experts on dual language told us that they would not expect to see impacts for students who were not enrolled for the five years.

Below, we report these results separately for our overall sample of students, and for English learners separately (as they are a key group of interest in bilingual education programs).

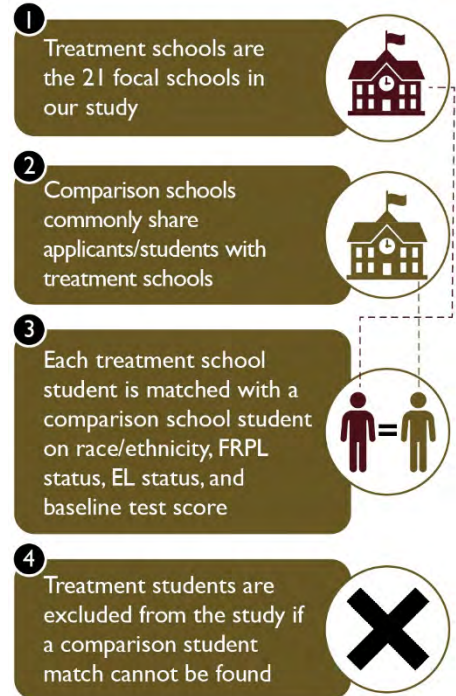
Overall Sample

The overall sample for the DL matching study is very small due to assessment data being unavailable.²⁰ The analysis only includes 90 students who were continuously enrolled in a dual language school.

Due to small sample sizes and variation across students, estimates of the difference in 5th grade ELA achievement between dual language students and students in English language schools are too uncertain to support interpretation.

- Although the **average ELA test scores** are higher for students enrolled in focal DL schools from 1st to 5th grade (equivalent to about half of typical annual gains in ELA), the error bands include both large negative and large positive effects.²¹ These error bands are so wide that no conclusions can be drawn from the analysis.

Matching Study Steps:



²⁰ Although the NM PED required that kindergarten and first graders take a reading test starting in the 2013-2014 school year, most dual language schools fielded the Spanish version of the test and those scores are not available in the NM PED school accountability data system. Because matching requires a test score, the sample of students never identified as English learners is limited to the students for whom we observe a first grade English language test score. We are able to expand the sample slightly by using the first grade ACCESS score, an assessment tracking progress for English learners, to match English learners

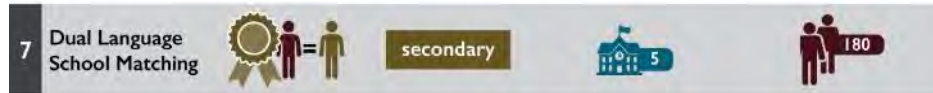
²¹ Our estimates suggest that dual language could decrease ELA scores by three-quarters of typical annual gains or increase ELA scores by one-and-three-quarters of typical annual gains.

DUAL LANGUAGE STUDY FINDINGS

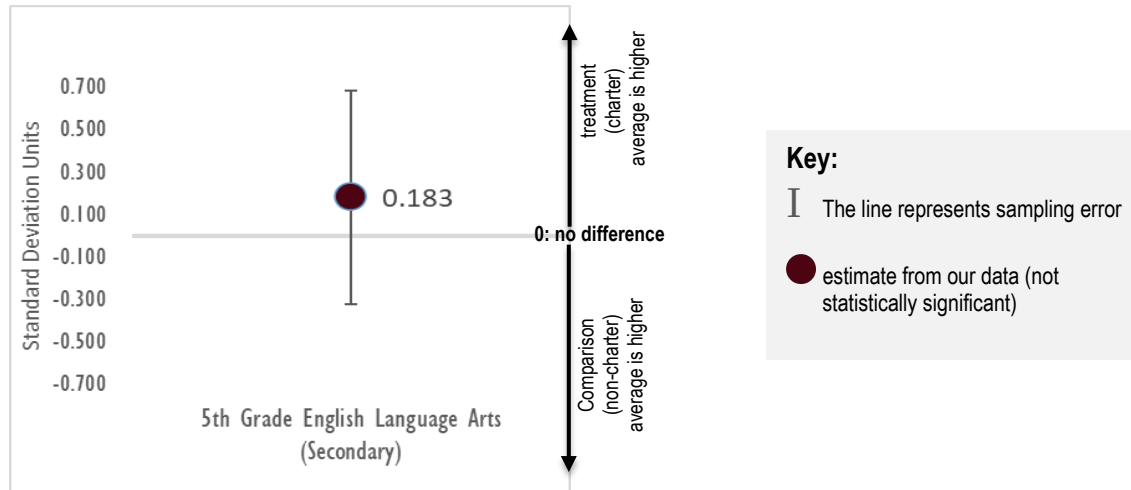
Exhibit 10. Dual Language Elementary School Matching Study Findings: Difference Between Treatment (Dual Language) and Comparison (Non-Dual Language)

All Students

Panel 1: Design at a Glance



Panel 2: Findings



Source(s): NM PED Administrative Data

Sample: The sample includes 180 students (90 treatment and 90 comparison) students.

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows: *** = 1 percent; ** = 5 percent; * = 10 percent. The difference is not statistically significant.

English Learners

We found that few English language learners remain enrolled in the focal schools through all five grades. Four of the five schools included in this analysis moved building during the period we studied, which likely exacerbated reductions in the number of students who were continuously enrolled.

As a result, current or former English learners received a much lower dose of dual language than students never identified as English learners. Among students who were enrolled in 5th grade in one of the dual language treatment schools from 2014-2015 to 2018-2019, 75 percent of students who were never English learner were enrolled in that school for 5 years or more compared to 38 percent of current or former English learners. The difference in average years of enrollment in dual language between current or former English learners and students never identified as English learners is statistically significant. Unfortunately, we do not know if this finding is similar or different from what occurs in traditional schools.

Among the 441 current or former English learners who enrolled in the dual language schools over the follow up period, 80 were enrolled in the same dual language school in first and fifth grade – and 71 of those 80 English learners enrolled in the same dual language school in first and fifth grade had the test scores required for inclusion in analysis. This means the 71 dual language English learners included in the analysis are not typical of English learners in the dual language schools. In addition, the very small sample size means that error bands are wide, making it difficult to detect impacts.

DUAL LANGUAGE STUDY FINDINGS

For English learners, ELA achievement and the proportion of students redesignated fluent English proficient by 5th grade did not differ significantly between students enrolled in dual language schools from 1st to 5th grade and students enrolled in English language schools from 1st to 5th grade.

- The average **5th grade ELA scores** are higher for kindergarten English learners enrolled in dual language (equivalent to about half of typical annual gains in ELA) than English learners enrolled in non-dual language elementary schools; however, the error bands include small negative and large positive effects.²²
- A higher proportion of kindergarten English learners enrolled in dual language from first to fifth grade were **redesignated fluent English proficient** than English learners enrolled in non-dual language elementary schools from first to fifth grade (41 vs 37 percent); however, the error bands suggest that dual language education could be associated with a small negative or large positive effect.²³

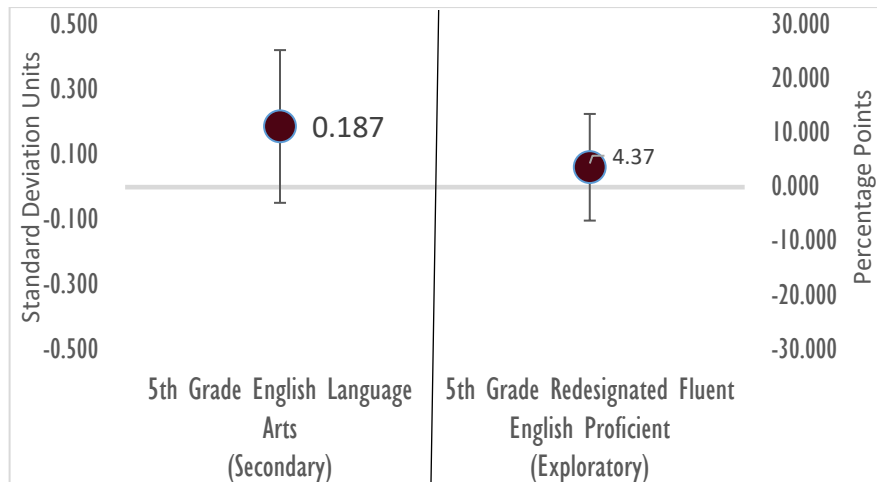
Exhibit 11. Dual Language Elementary School Matching Study Findings: Difference Between Treatment (Dual Language) and Comparison (Non-Dual Language)

English Learners

Panel 1: Design at a Glance



Panel 2: Findings



Key:

┆ The line represents sampling error

● estimate from our data (not statistically significant)

Source(s): NM PED Administrative Data

Sample: The sample includes 142 students (71 treatment and 71 comparison) students.

Notes: Statistical significance levels for two-sided tests are indicated with asterisks, as follows:

*** = 1 percent; ** = 5 percent; * = 10 percent. None of the impacts are statistically significant.

²² These estimates suggest that kindergarten English learners in dual language education are no more than one-eighth of a of school year behind and up to one year ahead of similar English learners in non-dual language schools.

²³ Dual language could reduce the probability that kindergarten English learners are redesignated by the end of 5th grade by 4 percentage points or could increase the probability by up to 42 percentage points.

DUAL LANGUAGE STUDY FINDINGS

Consideration of Prior Research

This study was originally designed to replicate a rigorous dual language study – a lottery study -- conducted in Portland, Oregon. That study found a 0.13 (or 13% of a standard deviation) statistically significant positive effect on ELA performance across all students. For English learners, the study found that lottery admission reduced the probability of remaining classified as an English learner in 6th or 7th grade, a favorable finding equivalent to increasing the probability of being reclassified fluent English proficient. Although we do not find a statistically significant effect of dual language on reclassification, the point estimate is similar to the one found in the Portland study.

Comparison to the Portland study is important because the Albuquerque context is dramatically different from the Portland context. For example, in the Portland sample, 13% of students were ever English learners and 17% were Hispanic compared to 30% and 70% respectively in our analysis of all students. In Portland, four partner languages were offered (Spanish, Russian, Japanese, and Mandarin) across study schools and the authors do not report alignment between home language and these partner languages amongst English Learners. Although we do not have direct data on home language for students in our sample, 96% of English Learners in the sample are Hispanic and Spanish is the partner language at all five focal dual language schools.

Observational studies have consistently found that learning another language while learning English does not hinder performance in English and developing literacy in two languages leads to higher metalinguistic awareness and cognitive strengths not found in monolingual peers (Bialystok, Craik, and Luk, 2012). Principals report that dual language students in this study have gained substantial skills in reading and writing in Spanish in addition to their English literacy skills. Further impact research should prioritize larger sample sizes, and the direct measurement of partner language proficiency as well as sociocultural competence, which is the third goal of dual language programs.

Implementation Study Findings

As a part of our implementation study, we conducted virtual focus groups with three of the five focal DL charter schools. Principal surveys provided additional background on the history and program structure.²⁴ Virtual site visits to DL schools led by Dual Language Education of New Mexico (DLeNM) provided perspectives and context from parents, teachers, and school leaders about student success and program sustainability.

Four DL school leaders reported that their DL school programs were developed to respond to a specific community need and/or to offer parents higher-quality options than those previously available. Two principals specified that there was a community need for bilingual education and dual language programming in Albuquerque and that many traditional public school options were overcrowded. Parents, teachers, other community members, and non-profit organizations were founding members of the focal DL schools.

The DL focal schools defined their DL program structure as one-way or two-way²⁵ and reported the percentage of content taught in each program language as 50/50, 80/20, 90/10, or a variation thereof. Several other critical components separated them from other bilingual program models. As noted in the DL Logic Model (Exhibits 19 and 20 in English and Spanish respectively), DL programs ideally fulfill their mission by basing

DL School Program Key Characteristics

- Strategic selection of instructional materials that support biliteracy development
- Clearly defined Curriculum Alignment Plans that demonstrate the vertical and horizontal alignment of what content is being taught in each language, for how long, at each grade level
- Structures for capacity building, language equity, and the allocation of resources are evident
- Linguistically and culturally diverse staff
- Planning and implementation of creative lessons that leverage cultural, linguistic, and community assets
- Instructional strategies that are implemented consistently
- School culture that celebrates cultural traditions and heritage
- Systems that ensure the consistency, alignment, fidelity, and intentional use of data in various languages
- Sustainability–ownership of program
- Support for school staff through ongoing professional development, collaboration, and resources
- Family and community engagement
- Consistent review of assessment data, and tailored intervention based on student needs

²⁴ This section authored by our DL implementation team leads (Mr. Michael Rodríguez of Dual Language Education of New Mexico and Ms. Jacqueline Mendez of Abt Associates).

²⁵ “One-way” refers to foreign language immersion or developmental bilingual education in the southwestern United States; “Two-way” refers to enrolling students from two language groups, <https://www.cal.org/cwi/glossary.htm>.

DUAL LANGUAGE STUDY FINDINGS

decisions on the fundamental goals of academic achievement, bilingualism and biliteracy, and sociocultural competence, as well as key actions that need to be intentionally planned. The leader at one school described its DL school environment:

“[It] provides an equitable environment where students can share their backgrounds, and through their interactions they are able to take on learning a new language and sharing of cultures.” –DL Principal

All DL focal schools implemented school-wide DL programs, rather than the more common model of DL “strands,” wherein a portion of the students at a school receive a dual language curriculum within an otherwise English-dominant school. Focus groups indicated that this school-wide model means there are never any instances where decisions are made for the school that can contradict or conflict with the foundational beliefs or mission of the DL program. In other words, all stakeholders are grounded in the same model, methodology, and instructional path to student success. School-wide DL programs are designed to influence the entire community and allow for systemic changes that focus on addressing racial, linguistic, cultural, and political issues. Focal DL school respondents described the various strengths and characteristics of their programs that flow from their school-wide approach to DL and shared vision (see side bar).

Me encanta poder compartir de mis experiencias y mostrar un mundo diferente a mis estudiantes. [I love being able to share from my experiences and show my students a different world.] – DL Teacher

Parents described their motivations for enrolling their child in the DL focal schools as being driven by the school’s focus on bilingualism and biliteracy, culture, and family. They noted that this was a benefit that was not provided to them by a traditional public education program. Many parents mentioned that their DL program provided their child with the ability to speak to grandparents or other family members in their native language.

Tengo tres hijos... quiero que sean 100% bilingües para que tengan un futuro mejor. [I have three children ... I want them to be 100% bilingual so that they have a better future.] –DL Parent

Some parents also commented on the asset that the DL school program exposure provides for their child’s long-term career advancement and learning and appreciation of another language and culture. International festivals that focused on learning about other countries and cultures as well as Baile folklórico²⁶ expanded families’ and students’ cultural experiences. Two parents described how the DL program is building meaningful cultural experiences for their children:

Valoran mucho mi lengua natal y para mí es muy importante que mis (hijos) conozcan sus raíces. [They [the DL school] value my native language very much and for me it is very important that my (children) know their roots.] –DL Parent

“I appreciate an experience outside of a White-centric society. [My kids] have a plethora of other children who have totally different lives and experiences. There are teachers who have immigrated [to the United States] themselves, and hearing about their childhoods and other countries, I just think it’s special and unique and meaningful.” –DL Parent

Parents generally stated that the school staff were committed to the school and engaging families in the school community. Parents highlighted high teacher retention as an extremely positive aspect of the school that demonstrated their dedication to the DL model. Parents described the regular school meetings with the principal as helpful

DL School Program Key Challenges Reported

- The designation of school grading/effectiveness by the Public Education Department is English-centric
- There are currently no systems in New Mexico for charter schools to raise capital funds through bond elections in the same way as traditional districts
- With no clear neighborhood boundaries, extra effort is required in order to create a cohesive school community
- Balancing language profiles under the lottery / demographics of students served and how it might affect outcomes
- Charter schools in New Mexico can often feel isolated as they are not part of a larger management organization or supported by a district



²⁶ This is a traditional Mexican dance that emphasizes local folk culture and ballet characteristics which also incorporates traditional Mexican dress.

DUAL LANGUAGE STUDY FINDINGS

and as providing families with direct access to the school leadership team to get updates, ask questions, and share their input. Parents also reported that there was equitable access to materials and communications were shared in both program languages. One parent with two daughters enrolled in a focal DL school said:

“I feel that they really value Spanish at the school, and it shows. My kids went from not speaking any Spanish and learned so much. People are amazed that we don’t speak Spanish at home. She’s in Advanced Placement (AP) Spanish now. The main reason I chose this school for them was for them to learn Spanish and have the advantage of the second language.” –DL Parent

The teachers reported various benefits of the DL school learning environment. Some examples included an emphasis on community involvement, the opportunity to work with a diverse school staff and students, varied professional development to ensure fidelity to the DL program model, the capacity to be creative with curriculum and professional development, and trust and support from the leadership team. For example, one teacher mentioned how they had a staff meeting where they discussed the [Guiding Principles for Dual Language Education](#)^{ix} and assessed where they were on each element.

Lo riqueza del vocabulario que usamos con todo los estudiantes enseña principalmente un lenguaje académico en todas las áreas (del contenido). [The richness of the vocabulary we use with all students primarily teaches the academic language in all (content) areas.] – DL Teacher

“One of the blessings of this school that needs to stand out is that it’s not just the differentiation between English and Spanish, but we have an opportunity to ... exposure through our great, diverse teaching body... that we have a lot of representation from various countries (Mexico, Panama, Europe, Central/South America). We have in the diversity of our student and teacher body [something] that provides enrichment for all. The kids get to hear new vocabulary, and that brings greater linguistic awareness and diversity to language communities. I don’t see this at other schools that I’ve taught at.” – DL Teacher

Teachers reported having a variety of opportunities for collaboration and decision-making at their DL school. Some examples include grade-level team meetings, professional learning committee meetings, unit and lesson development and modification, co-teaching, peer observations and sharing of strategies, and regular formal and informal professional development. Teachers explained that as a result, staff are much more aligned and focused on the same mission priorities.

The DL focal schools reported challenges to their program structure and sustainability (see side bar). These challenges primarily related to English-centricity in educational systems and to isolation, and financial and enrollment constraints from the charter structure. On the other hand, focal DL charter schools reflected on their flexibility in decision-making and the ability to develop effective sustainable structures and make changes as needed. The school staff interviewed at these focal schools generally reported using their autonomy to make swift decisions and pivot in directions that are in the best interest of their mission, their diverse staff with shared goals, and the celebration of language and culture.





Charter Schools in the Study Sample

In this chapter we provide an overview of the focal charter schools that participated in this study. Most of the data in this chapter comes from a survey of principals, focused on the elements of the logic model for the charter school theory of change.

Study Sample flow from 97 charter schools to 21 participants

The studies started with the full sample of 97 charter schools in New Mexico. Based on a survey of charter schools and expert consultation, we identified 30 schools across the state that received more applications than they had seats available and were eligible for the study. Of those 30 schools, 21 agreed to participate in this study. Ultimately, only ten oversubscribed schools provided lottery data that allowed us to include them in the lottery study: i.e. the records allowed us to identify the students that were admitted in the initial lottery and follow the students from application through outcome measurement. All 21 schools were included in the matching studies. Schools that served multiple grade bands (such as K-8 or middle-high schools) are included in multiple studies.

Nearly half the focal charter schools in this study are located outside urban areas.

The 21 focal schools were spread across the state, with almost half (48%) of schools located in small towns and rural areas and the remaining schools in larger urban and suburban areas. The five focal dual language charter schools and three additional charter schools were located in the Albuquerque metro area. Although the large proportion of schools in rural settings is not unusual for New Mexico, it is atypical in charter school research. This study offers important new information on the effectiveness of charters in locales where school choice is often limited to a single traditional public school or a single charter school. Earlier research on charter schools has focused on urban settings, where families routinely have multiple public school choice options.

Characteristics of schools in this study vary as expected, given that they each were founded by local community groups.

The charter schools that participated in this study represent a diversity of missions, strategies, and key educational components. This is expected because each charter school in New Mexico originates independently. This section provides background information on the characteristics of the schools in our study to help the reader understand the types of practices and programs offered by the focal schools.

We surveyed school leaders to better understand how the key ingredients of an education at their school aligned with the logic model in Exhibit 18. Twenty of the 21 schools (95%) responded to our survey,^x allowing us to provide a summary of the key features that make these charter schools unique.^{xi}

School Origin: All responding focal schools reported that they were founded by teachers, parents, and/or community members to respond to a perceived community need and/or demand from families for schools offering quality, rigor, proximity or a specific program-focus, such as dual language, STEM or meeting the needs of an underserved community.



100% of focal charter schools originated locally



CHARTER SCHOOLS IN THE STUDY SAMPLE

Grades Served: Of the 21 schools in our study, fifteen cover multiple educational levels: eight K-7 or K-8 schools, five middle-high schools, and two K-12 schools. We only have six schools with more traditional grade spans: two elementary schools, one middle school and three high schools. As mentioned earlier, schools are included in our sub-studies based on the grades they serve.

Principal and Teacher Tenure: More than half of the schools reported having had only one or two principals in the past 10 years; one school reported six principals. The average across focal schools was 2.5 principals in the past 10 years.

And all but one school reported that two-thirds or more of their teachers are veteran teachers with more than four years of teaching experience. We cannot say whether this is more or less than control schools because we do not have data available to make that comparison.

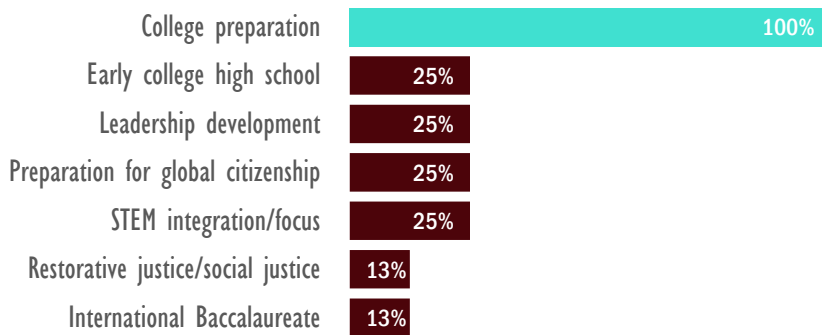
Instructional Time: Three of the 21 study schools had four-day school weeks; however, this is not unusual for charter schools in New Mexico, amongst which 20% have a four-day per week schedule.^{xii} Instructional time is not a systematic key difference between our charter schools and traditional schools. Study schools were split between whether they offered more (12 schools) instructional hours or the same or fewer (9 schools) instructional hours as the district in which they were housed.

Restorative Practices and Socioemotional Learning Curricula: Almost all schools (approximately 90%) across grade levels reported using both restorative practices and socioemotional learning curricula. The latter was almost always (94%) offered to all students at the school in a whole-school integrated approach, whereas restorative practices were used as a whole-school integrated approach at 65% of schools. The remainder used a stand-alone disciplinary approach.

Mission Area: The 21 charter schools that participated in this study represent a diversity of mission strategies and key components – this is expected because each charter school in New Mexico originates independently.

Schools Serving Primarily High School Students: All eight schools that served primarily students in high school grades (either in a traditional middle/high school or high school-only structure) had a mission focused on college preparation (two via Early College High School). Half of the high school mission statements also focused on one or more of the following: leadership development, preparation for global citizenship, and/or integration or focus on science, technology, engineering, and math (STEM) (Exhibit 12).

Exhibit 12. Mission Focus of the Eight Schools Serving Primarily High School Students

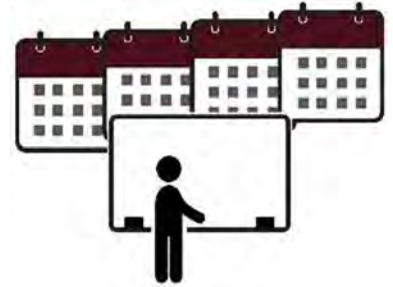


Source(s): Principal Survey

Sample: The sample includes the 8 schools that served primarily students in high school grades including 5 middle/high schools and 3 high schools (excludes K-12 schools).

Note: Principals were able to report multiple mission areas; as a result, some schools are included in multiple categories above. Some principals did not respond to this question; for these cases, the research team coded missions from school websites.

Nearly all schools reported that the majority of their teachers were veteran teachers.

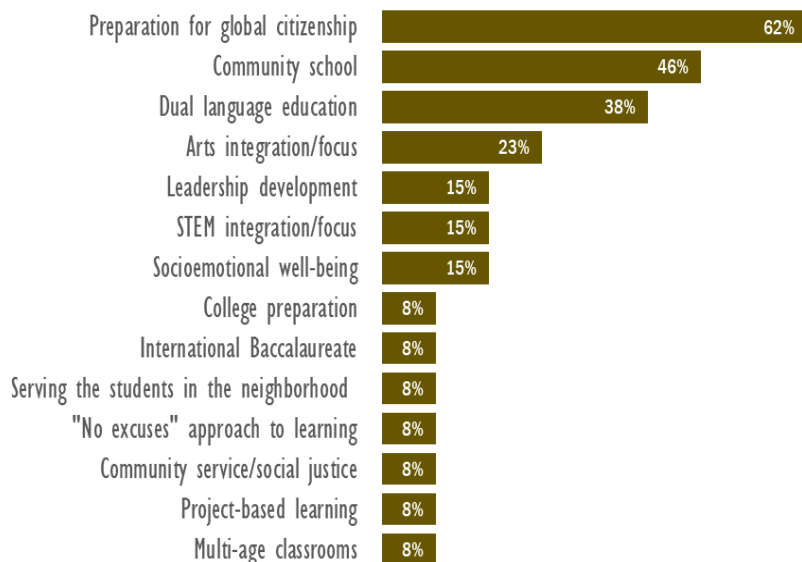


Focal schools varied considerably in whether they offered more or fewer total instructional hours relative to the district in which they are housed.

CHARTER SCHOOLS IN THE STUDY SAMPLE

Schools Serving Primarily Elementary and Middle School Students: The remaining 13 schools that served primarily elementary and middle school aged students most frequently described their mission as focused on “preparation for global citizenship” (n=8), serving as a “community school” (n=6), offering dual language education (n=5), and providing “arts integration/focus” (n=3) (Exhibit 13).

Exhibit 13. Mission Focus of the 13 Schools Serving Primarily Elementary and/or Middle School Students



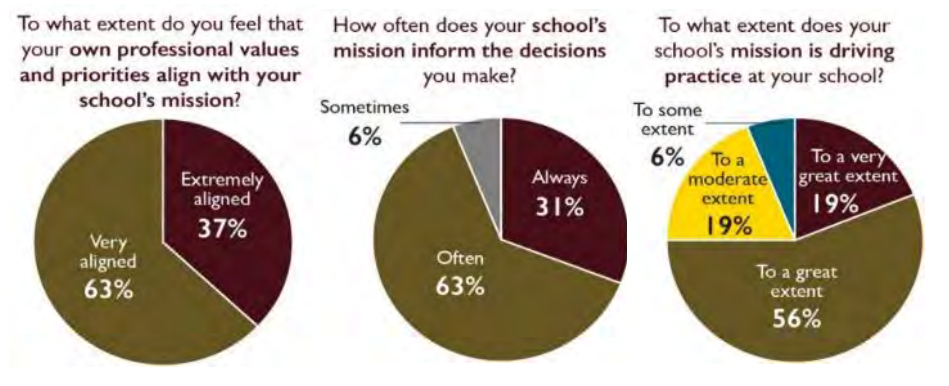
Source(s): Principal Survey

Sample: The sample includes 13 schools that served primary students in elementary and middle school grades (2 elementary schools, 2 K-12 schools, 8 K-7 or K-8 schools, and 1 middle school)

Notes: Principals were able to report multiple mission areas; as a result, some schools are included in multiple categories above. Some principals did not respond to this question; for these cases, the research team coded missions from school websites.

Mission Centricity: All responding principals described their own professional values and priorities as very aligned with their school’s mission. Almost all also reported that the mission drove their decisions. However, there was more variation in whether that mission drove practice at the school, with three-quarters reporting a strong influence of the mission on practice and one-quarter reporting more moderate influence.

Exhibit 14. Responses to Questions about Mission Centricity of Schools in This Study



Source(s): Principal Survey

Sample: The sample includes 16 of the 21 participating schools; the remaining 5 schools did not provide a response to these questions.

WHO IS SERVED BY CHARTER SCHOOLS IN NEW MEXICO?



Who Is Served by Charter Schools in New Mexico

In this chapter we provide important context about the types of students served by public charter schools in New Mexico relative to the full state population.

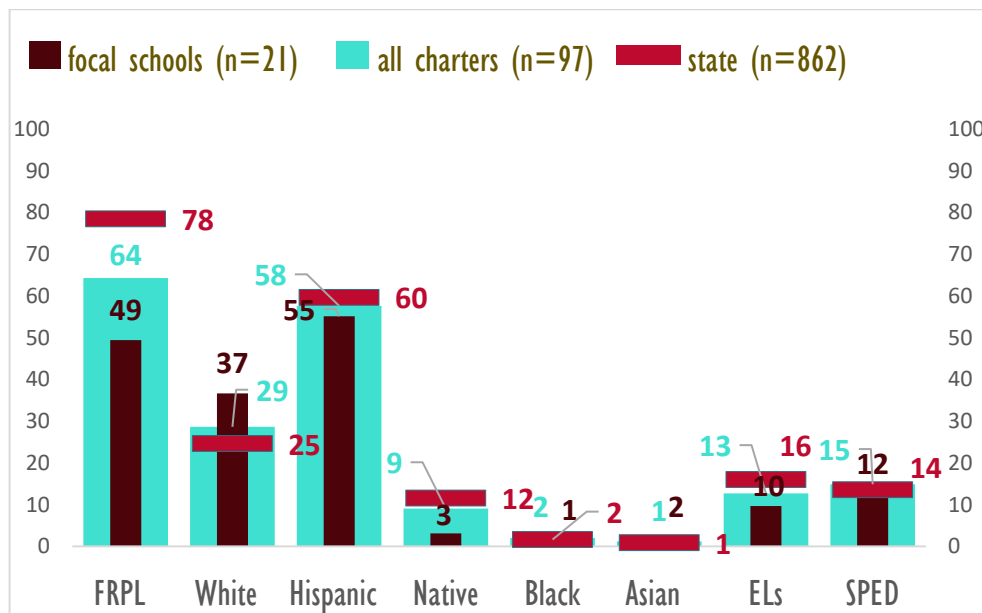
Charter schools included in this study serve fewer economically disadvantaged students than do either all charters or all public schools in New Mexico.

We compared the demographic traits of the 21 focal schools, all 97 charter schools, and the 862 total public schools in the state to understand who is served by charter schools in New Mexico. The charter schools that participated in our study, on average, serve fewer economically disadvantaged and fewer minority students than do either the full population of charters or the full population of public schools in the state (Exhibit 15).



At the average focal charter school, 49% of students received Free or Reduced Price Lunch (FRPL) compared to 64% at the average charter school and 78% at the average public school in New Mexico. The average focal school also served substantially more White students and fewer Native American students than the average charter school or the average public school. On the other hand, the average focal school was generally similar to the average charter and public school in the state in its proportion of Hispanic students, English learners, and special education students. The trends are similar in direction at all three school grade levels, but the differences are more pronounced for elementary charter schools.

Exhibit 15. Characteristics of the Average School, Comparing Focal Schools, All Charter Schools, and All Public Schools in the State



Source: Common Core of Data, 2017-18, New Mexico Report card summary from 2017-18.

WHO IS SERVED BY CHARTER SCHOOLS IN NEW MEXICO?

This evidence spotlights that charter schools in New Mexico overall, and the focal charter schools to a greater extent, were disproportionately serving economically advantaged and White students in 2017-18. There are a number of possible explanations for this finding.

First, because each charter school originated locally, it is possible that demand led to more schools being located in areas accessible to more privileged families and/or providing a mission that appeals to these families. Charter schools are not required to advertise their presence, so knowledge about these school options could vary notably across parents and families, possibly with especially limited awareness among non-English-speaking families. For example, we know anecdotally that there is substantial demand for select charter schools among more privileged college-educated and professional families in Albuquerque and Santa Fe. Because admission should be offered to the more privileged students in proportion to their incidence in the lottery, it is not surprising that student bodies in these schools include a higher proportion of privileged students than their proportion than the overall school population.

Second, it is also possible that logistical barriers such as distance to the school and lack of transportation mean that economically disadvantaged families, even if offered a seat, cannot always take the seat when desired. Few charter schools offer buses, which could limit access to the schools for less privileged families living a distance from the school.

Third, over time, the rules giving preference to siblings of current students in subsequent lotteries could contribute to maintaining the demographic characteristics of students attending a school. (This can occur in either direction, perpetuating the attendance of economically disadvantaged families or perpetuating the attendance of more privileged families.)^{xiii}

Similarly, on average, DL charter elementary schools included in this study serve dramatically fewer economically disadvantaged students than do similar schools in the Albuquerque/Rio Rancho area.

The focal elementary DL charter schools serve dramatically fewer economically disadvantaged students than all public elementary schools or all elementary charter schools that offer DL in the surrounding area (Albuquerque/Rio Rancho). At the average focal school, 35% of students received FRPL, compared to 71% at the average public elementary school and 89% at the average elementary charter school that offers DL (see Exhibit 16). The focal schools are notably different from the other groups of schools in the proportions of White students, English learners, and Special Education students, as well.

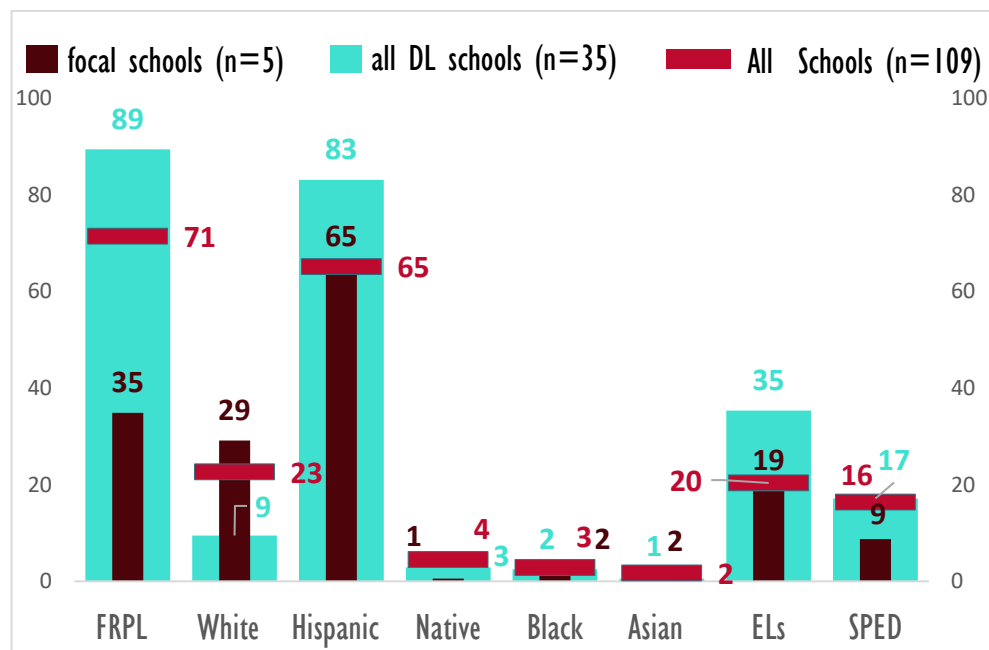


Reminder: our study focuses on a time prior to the COVID pandemic when students were in schools.



WHO IS SERVED BY CHARTER SCHOOLS IN NEW MEXICO?

Exhibit 16. Characteristics of the Average Elementary School, Comparing Focal DL Charter Schools, All Schools offering DL in the Albuquerque/Rio Rancho Area, and All Public Schools in the same Area



Source: Common Core of Data, 2017-18, New Mexico Report card summary from 2017-18, New Mexico PED Bilingual Multicultural Education Programs Report 2017-18.

Note: Many DL schools other than focal schools offer a DL track and a traditional track. In our analysis, we include all students in those schools, as the data source does not allow us to identify only students in the DL program at schools offering such a track.

These dramatic differences for the DL population further illustrate the ways in which the types of students served at schools using lotteries could stem from the admissions lotteries used to determine enrollment. Similar to all charters, there appear to be inconsistencies in the recruitment efforts targeting diverse families across schools. Interviews with some focal school principals found that because charter laws and magnet school regulations in New Mexico do not allow for lotteries to select students by their dominant language, some principals have used targeted recruiting practices as a means of bringing greater linguistic and cultural diversity to the applicant pool. However, clearly these efforts are not sufficient at ensuring the school population matches the city population.

Transportation also poses a related logistical barrier. In particular, some of the focal DL charter schools do not offer buses, which could limit access to the schools for economically disadvantaged families living a distance from the school. In fact, this is seen in the differences in the greater relative diversity in the types of students enrolled in the three schools that offer buses and/or are located in areas accessible to such families compared to the two schools without buses in less accessible areas.



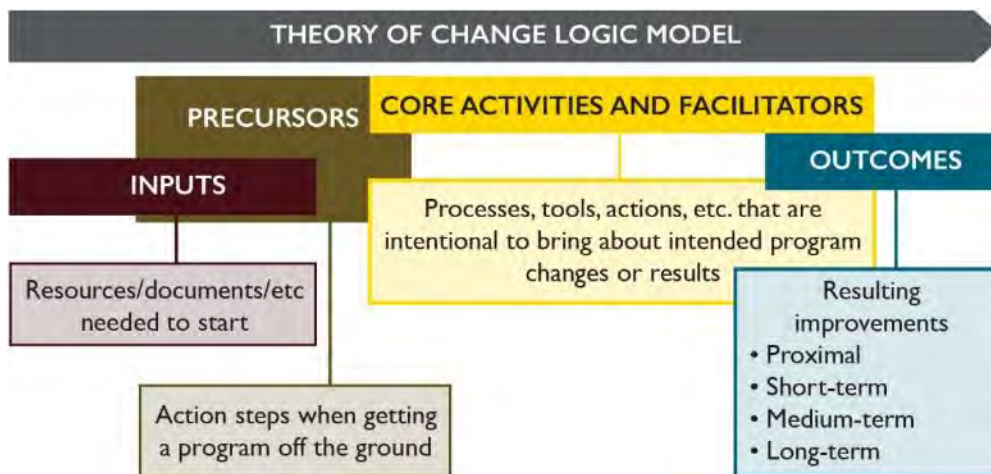


Theory of Change Logic Models

In this chapter we present theory of change logic models for charter schools and for dual language education. The logic models presented here were developed collaboratively by the Abt research team and our partners.²⁷ It is important to note that this study was unable to measure a number of the elements of these logic models. However, we believe it is critical for the reader to understand the full theory of change and for us to acknowledge that ideally we would have measured all aspects of the logic model from the perspectives of all key actors (shown in rows in the logic models in Exhibits 18, 19 and 20). Unfortunately, limited resources often mean that researchers must limit the breadth of topics covered in their research.

Exhibit 17 (below) provides a brief overview of the elements of each theory of change logic model in this chapter. These logic models should be read from left to right, starting with inputs, followed by precursors, core activities and facilitators, and finally outcomes. Though a logic model shows each element as discrete, due to the practicality of limited space, Exhibit 17 shows that the elements (inputs, precursors, core activities and facilitators, and outcomes) overlap in reality.

Exhibit 17. Understanding the Elements of Theory of Change Logic Models



We recommend that in addition to supporting this research project, these logic models be used to support related to practice, policy, and research. The two logic models are intended to provide a comprehensive and yet succinct overview for practitioners, policymakers, and researchers in the field. Practitioners could use them to plan for program development and implementation or to carry out a needs assessment. Policymakers could use them to guide decision-making and resource allocation within a district or state or at the national level (for the DL logic model, particularly around questions of language use that are less well understood or appreciated within a monolingual framework). Researchers could use them to contextualize their research (e.g., charter school researchers might want to focus on logic model elements that are currently un- or under-tested, such as the concept of mission centrality).

²⁷ These expert partners (Matthew Pahl of Public Charter Schools of New Mexico, Dr. Elizabeth Howard of the University of Connecticut, and Mr. Michael Rodríguez and Mr. David Rogers of Dual Language Education of New Mexico) have written the theory of change overviews provided below to ensure the reader hears directly from them about the theory of change.

THEORY OF CHANGE LOGIC MODELS

Charter School Theory of Change²⁸

In addition to the elements described in the overview above, the logic model for charter schools in New Mexico (Exhibit 15 at the end of this chapter) identifies actors (shown in rows), including the school's leader, school staff, the students who attend the school, and their families. The logic model illustrates how charter schools are formed and how the autonomies given to charter schools provide better opportunities for students.

It all starts with the state's Charter Schools Act^{xiv}, which identifies three primary elements of charters:

1. A school that is independently governed by its governing council;
2. A unique mission that is often rooted in a philosophy, goal, or content area; and
3. Exemptions from certain portions of state law to provide freedom in how charter schools manage staff and execute in the classroom.

These elements provide both purpose and autonomy for charter schools. The mission serves as the schools' purpose. Independent governance and flexibilities in law provide autonomy. The governing board provides strategic guidance for that mission, which is then stewarded by the school leader and staff. This stewardship, labeled "Mission Fulfillment" in the exhibit, is at the core of what makes charter schools different and allows them to drive toward better student outcomes.

It is the mission of the school – whether it is for all students to go to college, to implement a Montessori program, or to graduate students who had previously dropped out of high school – that is the lens through which the school makes decisions. The school's leader and staff are selected on traditional teaching merits as well as their personal and professional alignment to the school's mission. This results in higher staff retention. The staff as a whole is more invested in the mission, which guides the collective decisions of the board, school leader, and staff. Together a school will leverage its mission to make decisions about curriculum, electives and programs, professional development, and school culture. The execution of those decisions, which fulfills the mission, is what draws families and students to the schools.

Families and students, because they chose the charter school and were not assigned to it, have higher investment in the school. The connection between engaged adults and families that choose the education offered at a charter school creates the potential for great outcomes. They are more invested in their school site, are more deeply engaged, and show better academic and life outcomes. This includes a higher sense of self-empowerment for students, higher rates of attendance, increased academic success, and increased graduation rates. Having attained higher-level academic skills, the student is poised to attend and complete college or start a fruitful career right out of high school. This success increases family well-being.

Dual Language Education Theory of Change²⁹

The logic model (Exhibit 16 in English and Exhibit 17 in Spanish)³⁰ is anchored in the [Guiding Principles for Dual Language Education](#)^{xv} and supplemented by further research and best



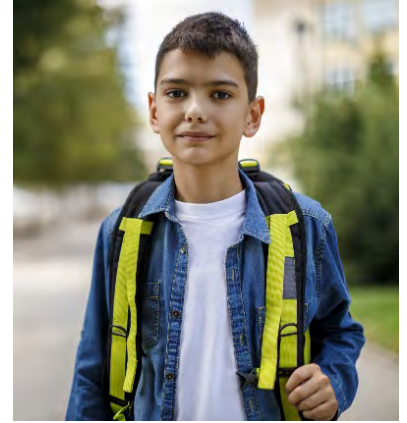
²⁸ Written by Mr. Matthew Pahl, of Public Charter Schools of New Mexico.

²⁹ Written by Dr. Elizabeth Howard, of the University of Connecticut, with Mr. Michael Rodríguez and Mr. David Rogers, of Dual Language Education of New Mexico.

³⁰ Estamos encantados de apoyar la disseminación de este informe a una audiencia de habla hispana. Póngase en contacto con Michael Rodríguez en michael@dlenm.org para obtener más información. [We are happy to provide support for disseminating this report to a Spanish-speaking audience. Please contact Michael Rodríguez at michael@dlenm.org for more information.]

THEORY OF CHANGE LOGIC MODELS

practice guidance in the field since the time of publication. In particular, there has been heightened attention to equity and social justice concerns within DL education in particular,^{xvi} as well as a growing awareness of the urgency of culturally sustaining and anti-racist pedagogy in schools in general,^{xvii} and this is reflected in the model. The logic model assumes that representatives from all stakeholder groups form a steering committee that oversees the enactment of the various phases, with equitable participation among all members, such that the point of view of the logic model is that of the steering committee rather than of the school personnel alone.



Highlighted in red and flowing through the center as three interconnected, synchronous gears is a mapping sentence that aligns with the overarching input statement and articulates the goals, agents, and beliefs that consistently guide the progression of the inputs, precursors, and core activities and facilitators toward the desired outcomes. The mapping sentence calls for “mission fulfillment through a continuous focus on academic achievement, bilingualism and biliteracy, and sociocultural competence by the school, home, and community, through a stance that prioritizes equity and social justice, fosters critical consciousness, and is anti-racist and culturally and linguistically sustaining.” Similar to the input statement to which it is linked, this mapping sentence specifies the goals, partners, and dispositions required to attain the desired outcomes.

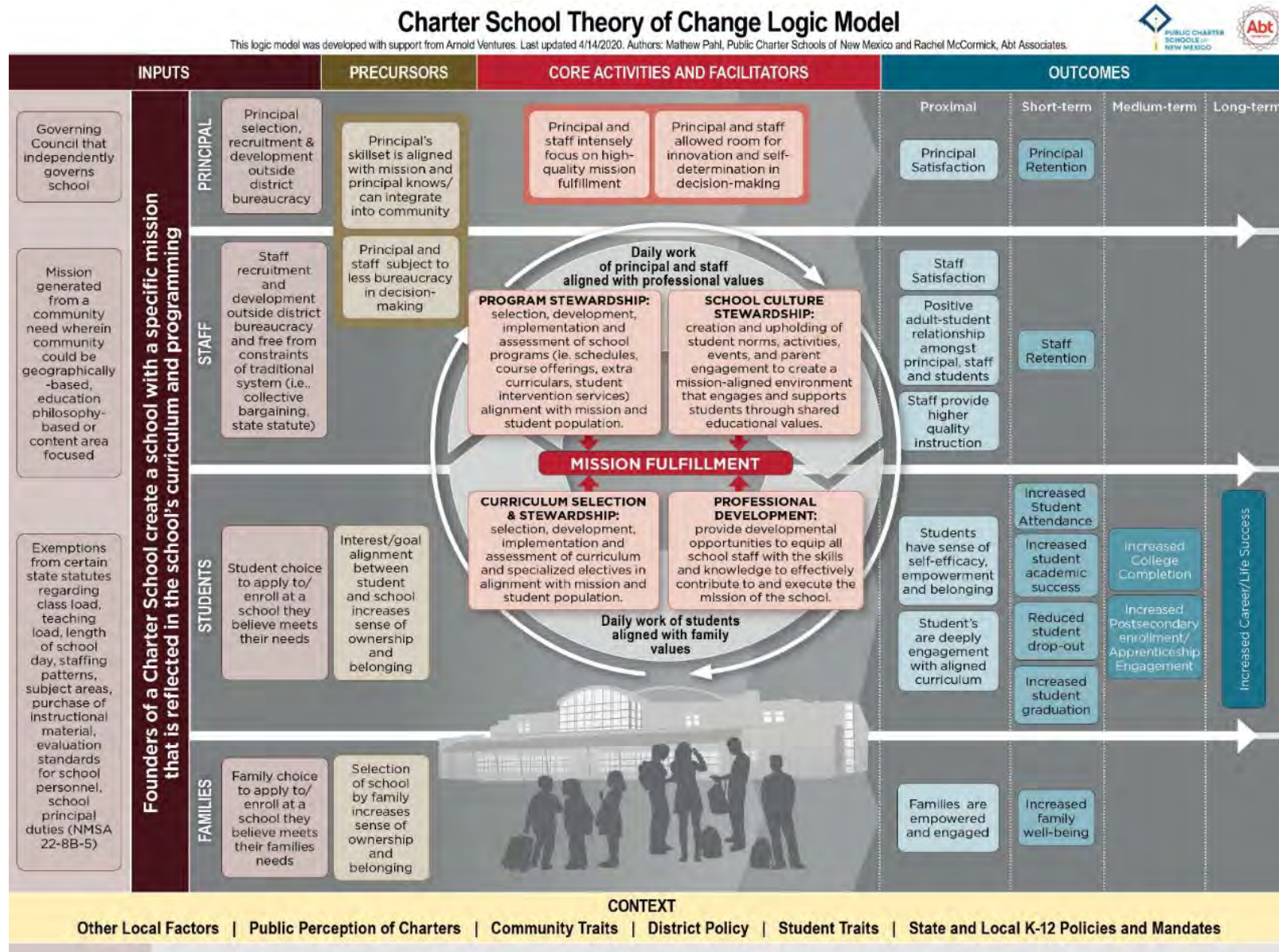
Moving from left to right across the logic model, the first two columns on the left summarize the building blocks of program development and implementation. The inputs (in purple) are the resources that are required to initiate the program. In many ways, these inputs are common to any type of program, such as the selection of curricular materials and assessments, horizontal and vertical alignment of curriculum and instruction, and the development of a scope and sequence of the curriculum to guide instructional pacing. However, within a DL education program, the complexity of these inputs is much greater, as they must account for and be responsive to linguistic and cultural variation and serve to promote sociocultural competence and oral and written proficiency in both program languages, as well as academic achievement. All of this should be reflected in the strategic plan at the district level to ensure that there is system-wide understanding and commitment. In addition, the language allocation plan is a unique input that a monolingual program would not have. The second column (in green) introduces the precursors, or action steps, that are needed to get the program off the ground. For a DL program, this includes recruiting highly qualified administrators, support staff, and instructional personnel; enrolling students from varied language programs as articulated in the strategic plan; and engaging families and other community members and organizations as strategic partners.

The middle of the logic model (in orange) conveys the core activities that the various actors undertake in order to achieve the desired outcomes. As with the inputs, many of the core activities are familiar to educators in any discipline, such as professional development, creating and modifying curricular materials, administering assessments, using effective instructional strategies, and promoting home-school-community engagement. Again, however, these activities are always informed by the goals and stance at the center of the model, meaning that they promote equity and social justice and affirm linguistic and cultural diversity; are specific to the priorities of DL stakeholders; and ultimately promote bilingualism, biliteracy, and sociocultural competence in addition to academic achievement.

On that note, the final column (in blue) represents the four levels of intended outcomes, ranging from proximal to short-term to medium-term to long-term. These outcomes grow from shared responsibility and increased expectations to satisfaction and a sense of ownership. The equitable use of program languages in the school and the wider community increases metalinguistic awareness and the appreciation of linguistic diversity and fosters the development of leadership and shared advocacy. Ultimately the mission is realized through a sustained commitment to the vision and goals of the program and strengthened perspectives about linguistic and cultural diversity and the benefits of bilingualism.

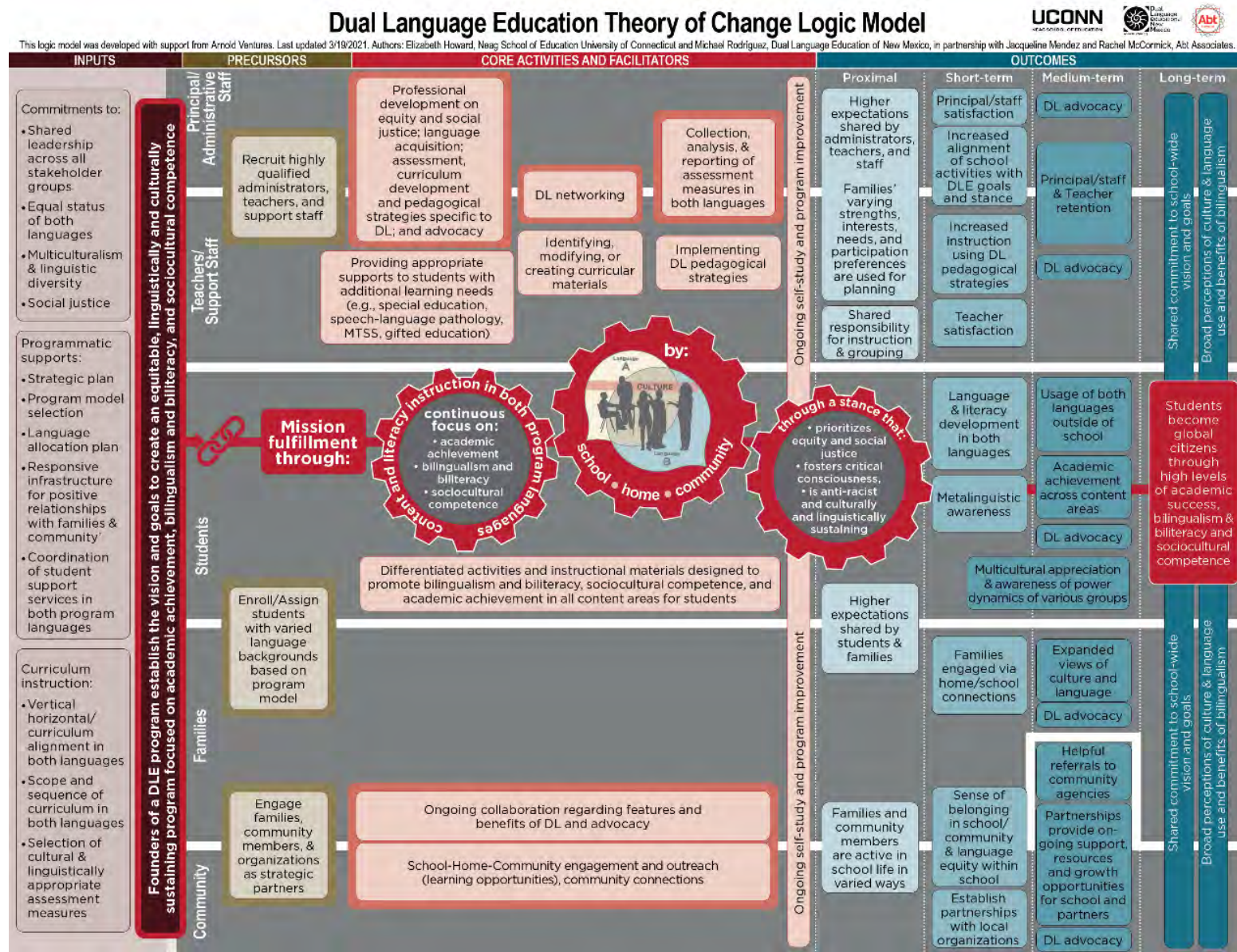
THEORY OF CHANGE LOGIC MODELS

Exhibit 18. Charter School Theory of Change Logic Model



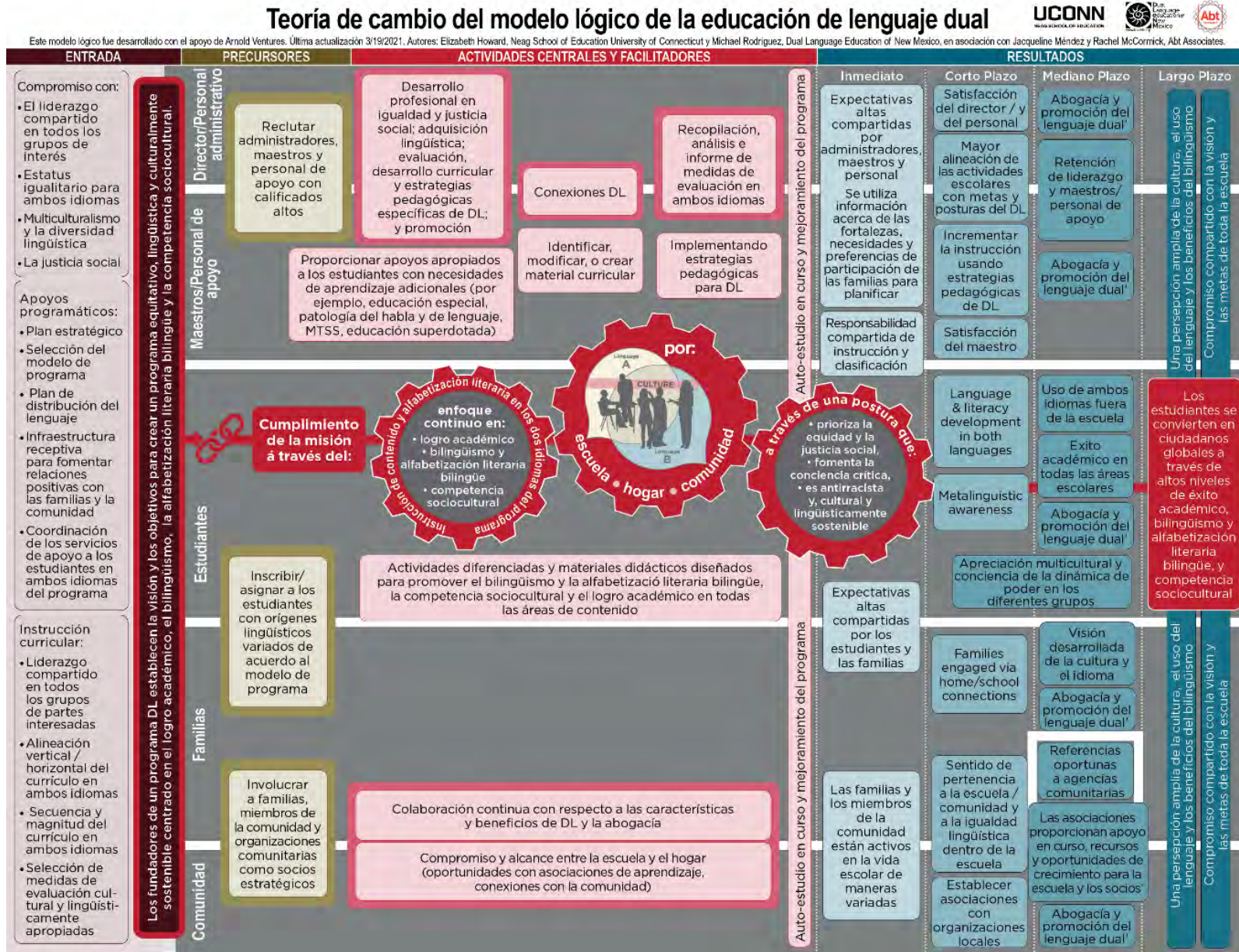
THEORY OF CHANGE LOGIC MODELS

Exhibit 19. Dual Language Education Theory of Change Logic Model -English



THEORY OF CHANGE LOGIC MODELS

Exhibit 20. Dual Language Education Theory of Change Logic Model -Spanish



References

- Angrist, J. D., Cohodes, S. R., Dynarski, S. M., Pathak, P. A., & Walters, C. R. (2016). Stand and deliver: Effects of Boston's charter high schools on college preparation, entry, and choice. *Journal of Labor Economics*, 34(2), 275-318.
- Bialystok, E., Craik, F. I., & Luk, G. (2012). Bilingualism: consequences for mind and brain. *Trends in cognitive sciences*, 16(4), 240–250. doi:10.1016/j.tics.2012.03.001.
- Bloom, H.S., Thompson, S.L., & Unterman, R. (2010). *Transforming the high school experience: How New York City's new small schools are boosting student achievement and graduation rates*. New York, NY: MDRC.
- Cervantes-Soon, C. G., Dorner, L., Palmer, D., Heiman, D., Schwerdtfeger, R., & Choi, J. (2017). Combating Inequalities in Two-Way Language Immersion Programs: Toward Critical Consciousness in Bilingual Education Spaces. *Review of Research in Education*, 41(1), 403–427.
- Cremata, E., Davis, D., Dickey, K., Lawyer, K., Negassi, Y., Raymond, M. E., & Woodworth, J. L. (2013). *National charter school study*. Stanford, CA: Center for Research on Education Outcomes.
- Flores, N., Tseng, A., & Subtirelu, N. (Eds.). (2021). Bilingualism for all? : raciolinguistic perspectives on dual language education in the united states (Ser. Bilingual education & bilingualism, 125). *Multilingual Matters*.
- Freire, J. A. (2020). Promoting sociopolitical consciousness and bicultural goals of dual language education: The transformational dual language educational framework. *Journal of Language, Identity & Education*, 19(1), 56-71.
- Gleason, P., Clark, M., Tuttle, C. C., & Dwoyer, E. (2010). *The Evaluation of Charter School Impacts: Final Report* (NCEE 2010-4029). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Hill, C. J., Bloom, H. S., Black, A. R., & Lipsey, M. W. (2008). Empirical benchmarks for interpreting effect sizes in research. *Child Development Perspectives*, 2(3), 172-177.
- Howard, E. R., Lindholm-Leary, K. J., Rogers, D., Olague, N., Medina, J., Kennedy, B., Sugarman, J., & Christian, D. (2018). *Guiding Principles for Dual Language Education* (3rd ed.). Washington, DC: Center for Applied Linguistics.
- Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., ... & Dilig, R. (2020). The Condition of Education 2020. National Center for Education Statistics, 2020-144, 24-27.
- Lyiscott, J. (2019). *Black appetite. White food.: Issues of race, voice, and justice within and beyond the classroom*. Routledge.
- Martinez v. State of New Mexico, No. D-101-CV2014-00793, (1st Dist. New Mexico November 14, 2014).
- McFarland, J., Hussar, B., Wang, X., Zhang, J., Wang, K., Rathbun, A., Barmer, A., Forrest Cataldi, E., & Bullock Mann, F. (2018). *The Condition of Education 2018* (NCES 2018-144). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Retrieved from <https://nces.ed.gov/pubs2018/2018144.pdf>.

Muhammad, G., Love, B. L., & Scholastic Inc. (2020). *Cultivating genius: an equity framework for culturally and historically responsive literacy*. Scholastic.

National Student ClearingHouse Research Center. (2018). *High School Benchmarks 2018: National College Progression Rates*. https://nscresearchcenter.org/wp-content/uploads/2018_HS Benchmarks Report_FIN_22OCT18.pdf

National Student ClearingHouse Research Center. (2021). *Current Term Enrollment Estimates. Enrollment Coverage Workbook*. https://nscresearchcenter.org/wp-content/uploads/NSC_COVERAGE.xlsx

New Mexico Administrative Code (2007, June 29). *Primary and Secondary Education: Alternative Education – Charter Schools: Charter School Application and Appeal Requirements*. <http://164.64.110.134/parts/title06/06.080.0004.html>.

New Mexico Legislative Finance Committee (2018). *Program Evaluation: Instructional Time and Extended Learning Opportunities in Public Schools, 18-09*. https://www.nmlegis.gov/Entity/LFC/Documents/Program_Evaluation_Reports/Instructional%20Time%20and%20Extended%20Learning%20Opportunities%20in%20Public%20Schools.pdf.

Palmer, D. K., Cervantes-Soon, C., Dorner, L., & Heiman, D. (2019). Bilingualism, biliteracy, biculturalism, and critical consciousness for all: proposing a fourth fundamental goal for two-way dual language education. *Theory into Practice*, 58(2), 121–133. <https://doi.org/10.1080/00405841.2019.1569376>

Paris, D., & Alim, H. S. (Eds.). (2017). *Culturally sustaining pedagogies: Teaching and learning for justice in a changing world*. Teachers College Press.

Puma, M., Olsen, R, Bell, S., and Price, C. (2009). *What to Do When Data Are Missing in Group Randomized Controlled Trials (NCEE 2009-0049)*. Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences.

Sallee, C. (2020). *Improving Educational Outcomes and New Mexico’s Response to Yazzie and Martinez v. New Mexico Decision [Powerpoint slides]*. New Mexico Legislative Finance Committee. <https://www.nmlegis.gov/Handouts/ALFC%20082620%20Item%2011%20Improving%20Educational%20and%20NM%20Response%20to%20Yazzie-Martinez%20v%20NM%20Decision.pdf>

Skandera, H. (2017). *Bilingual Multicultural Education Annual Report for School Year 2015-2016*. Santa Fe, NM: New Mexico Public Education Department. Retrieved from https://webnew.ped.state.nm.us/wp-content/uploads/2017/12/BMEP_Annual_Report_2015-2016_FINAL.01.31.2017.pdf.

Steele, J. L., Slater, R. O., Li, J., Zamarro, G., Miller, T., & Bacon, M. (2018). Dual-language immersion education at scale: An analysis of program costs, mechanisms, and moderators. *Educational Evaluation and Policy Analysis*, 40(3), 420-445.

Steele, J. L., Slater, R. O., Zamarro, G., Miller, T., Li, J., Burkhauser, S., & Bacon, M. (2017). Effects of dual-language immersion programs on student achievement: Evidence from lottery data. *American Educational Research Journal*, 54(1_suppl), 282S-306S.

Unterman, R. (2017). *An early look at the effects of Success Academy Charter Schools*. New York, NY: MDRC.

Notes

ⁱ See Hussar et al, (2020).

ⁱⁱ See Steele et al. (2017).

ⁱⁱⁱ The *Yazzie/Martinez v. State of New Mexico* lawsuit in 2018 ordered the state to “provide a sufficient education to all public school students,” especially Native students, English language learners, students from low-income families, and students with disabilities who would be irreparably harmed if the state did not act swiftly. Expansion of bilingual multicultural education programs has been recommended as a remedy, including by the New Mexico Legislative Finance Committee.

^{iv} We were unable to conduct a lottery study of dual language schools as planned due to limited availability of lottery data for these schools.

^v Known in the research literature as intention-to-treat randomized controlled trials.

^{vi} Known in the research literature as quasi-experimental designs with baseline propensity score matching.

^{vii} We refer to schools as elementary, middle, and high for ease. Note that these levels were defined by the grade a school served, and some schools are included in multiple levels (for example, because they are a Kindergarten through 8th grade school).

^{viii} See Gleason et al. (2010).

^{ix} The *Guiding Principles for Dual Language Education* serves as a tool for planning, self-reflection, and continual improvement for DL programs and educators reflecting the research and knowledge, practices, and policies of dual language education.

^x Where possible, we include information on the non-respondents from the school’s web site and publicly available documents. Across items, response rates vary slightly--see Technical Appendix for details of item responses, missing responses, and data imputed by the research team.

^{xi} The sample includes 20 charter schools and one dual language magnet school that admitted students by lottery. This magnet school exhibits many characteristics of charter schools identified in the charter school logic model, including the focus on mission, but is subject to administrative requirements that other schools in the sample are not. We include all 21 schools in these summary statements and refer to the schools collectively as charter schools for the sake of simplicity.

^{xii} See: New Mexico Legislative Finance Committee (2018).

^{xiii} Some schools also offer preferences to teachers’ students and the students of governing council members’ students which both limits seats available for the lottery and influences the demographic make-up of the school.

^{xiii} The percentages of students on FRPL at each individual focal school is lower than the average for all DL schools and all APS/Rio Rancho elementary schools.

^{xiv} See New Mexico Administrative Code, 2007.

^{xv} See Howard et al. (2018).

^{xvi} For example, see Cervantes-Soon et al. (2017); Flores (2021); Freire (2020); Palmer et al. (2019).

^{xvii} For example, see Lyiscott (2019); Muhammad (2020); Paris & Alim (2017).