



CHARTER SCHOOL PERFORMANCE IN COLORADO

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June 2009

INTRODUCTION

This report supplements the CREDO National Charter School Study *Multiple Choice: Charter School Performance in 16 States* with an in-depth examination of the results for charter schools in Colorado. This state-specific analysis follows the approach used for the pooled national study. Since the methods used to estimate the effects of charter schooling on student academic performance are detailed in the larger report, they will not be repeated here. For the interested reader, the full report is available at credo.stanford.edu.

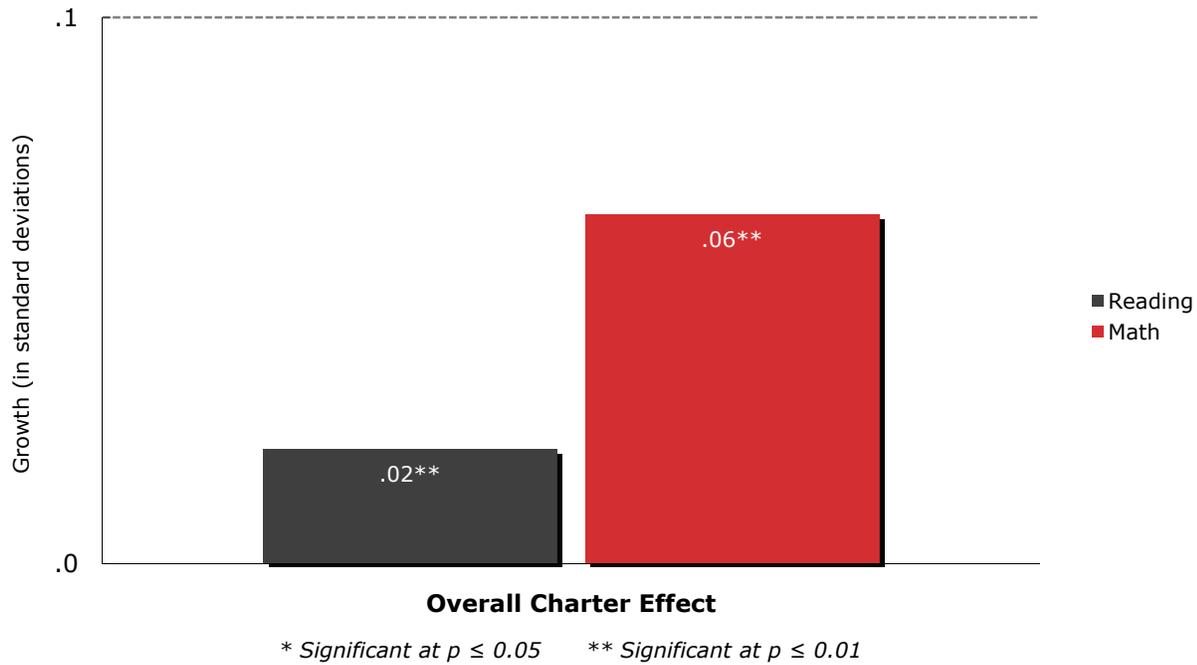
This document reports on the analysis of 5 years of schooling, beginning with the 2003-2004 school year and concluding with the 2007-2008 data. A total of 6,672 charter school students from 141 charter schools are followed for as many years as data are available. The students are drawn from Grades 3 - 10, since these are the grades that are covered by the state achievement testing program. An identical number of virtual comparison students are included in the analysis. The composite virtual student is based on students in competitor traditional public schools, known as the charter school's feeder pool. In Colorado, it was possible to create virtual matches for 74 percent of the charter schools students in reading and 78 percent in math. This proportion assures that the results reported here can be considered as indicative of the overall performance of charter schools in the state. The total number of observations is large enough to be confident that the tests of effect will be sensitive enough to detect real differences between charter school and traditional school students at the $p < .05$ level.

Academic growth on state achievement tests is used as the outcome of interest. The analysis examines whether students in charter schools in Colorado outperform their traditional public school counterparts under a variety of scenarios. In all the scenarios, a number of control factors are applied to the estimation so that the contribution of the schools themselves can be isolated from other potentially confounding influences. Each of the scenarios is presented in the following sections of the report.

In Figures 1 and 2, the numbers inside the bars are the result of a test on whether there is a statistically significant difference between traditional public school and charter school performance. For Figures 3 through 8, the numbers inside the bars signify that the reported effect is significantly different from our baseline student. Where a statistically significant difference between traditional public school and charter school performance is present in Figures 3 through 8, the charter bars have a gradient shade.

First, we examine whether charter schools differ overall from traditional public schools in how much their students learn, all other factors held constant. The results appear in Figure 1. The typical student in a Colorado charter school learns significantly more than their virtual counterparts in their feeder pool in both reading and mathematics.

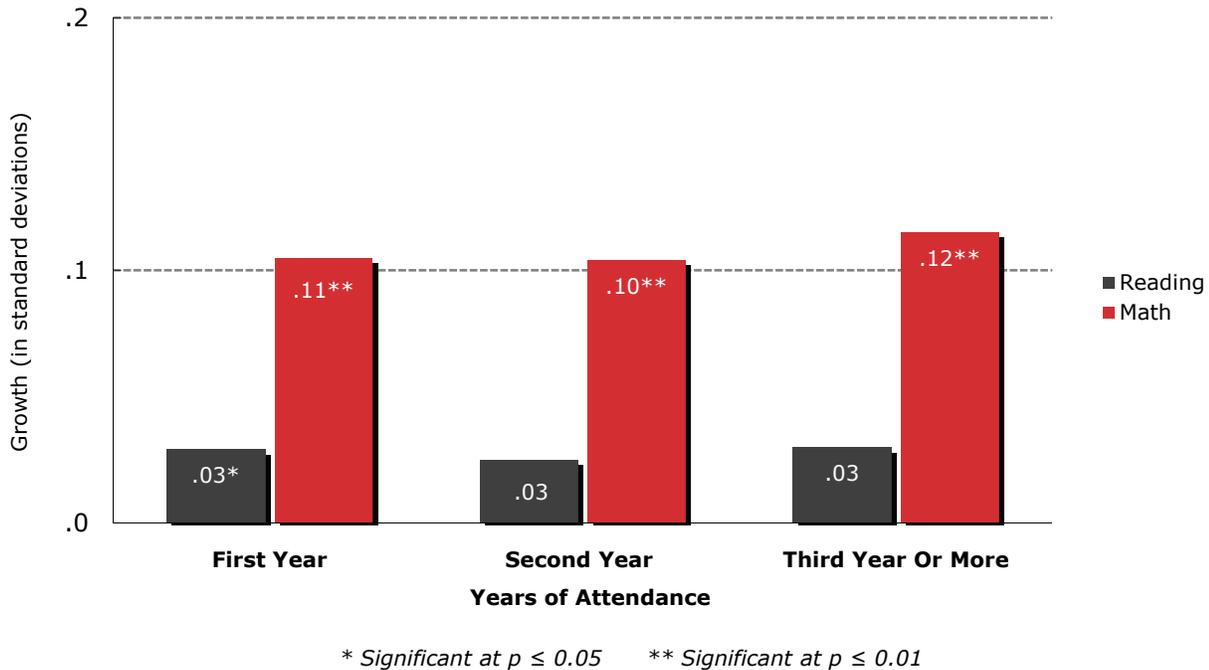
Figure 1: State Effects



CHARTER SCHOOL IMPACT BY STUDENTS' YEARS OF ENROLLMENT

To delve deeper into the charter school effects in Colorado, students were grouped by the number of consecutive years they were enrolled. This question examines whether the academic success of students who enroll in a charter school fluctuates as they continue their enrollment. In this scenario, we limit the analysis to the charter students who enrolled for the first time in the charter school between 2004-2005 and 2007-2008; although the number of students included will be smaller, it is the only way to make sure that the available test results align with the years of enrollment. The results appear in Figure 2 below.

Figure 2: Impact by Students' Years of Enrollment

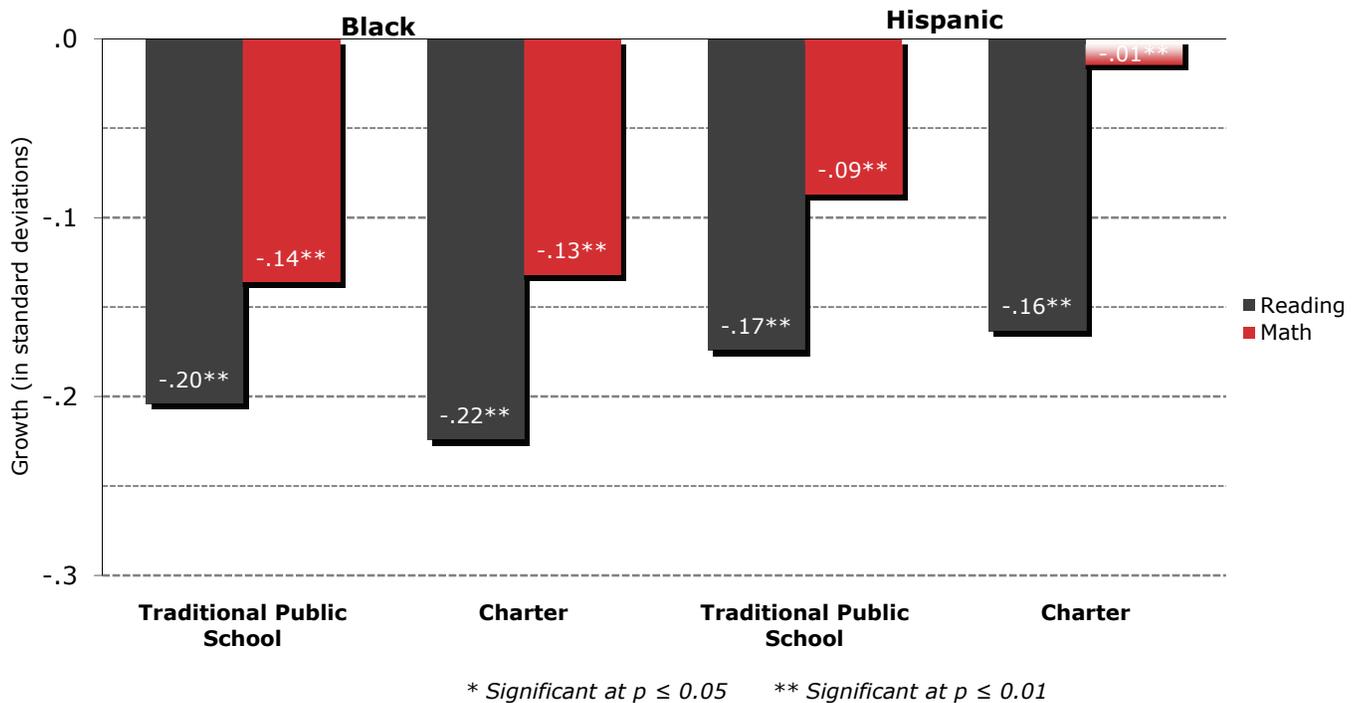


The results suggest that new charter school students do significantly better than their counterparts in traditional public schools in both reading and math. In subsequent years, the impact is variable over this period, with charter school students experiencing no further gain in reading but continued gains in math from charter school attendance compared to their counterparts in traditional public schools.

CHARTER SCHOOL IMPACT BY RACE/ETHNICITY

Attention in US public education to achievement differences by racial and ethnic backgrounds has increased in recent years. The effectiveness of charter schools across ethnic and racial dimensions is especially important since so many charter schools are focused on serving historically underserved minority students. This impact of charter schools on academic gains of Black and Hispanic students is presented in Figure 3 below. The graphics show the differences between charter school students and their virtual peers. The baseline of comparison in every comparison is the performance of the average white student who does not qualify for Free or Reduced Price Lunch subsidies, Special Education services or English Language Learner support.

Figure 3: Impact by Race/Ethnicity



The results show that in Colorado Blacks enrolled in charter schools do about the same in reading and math compared to their counterparts in traditional public schools.

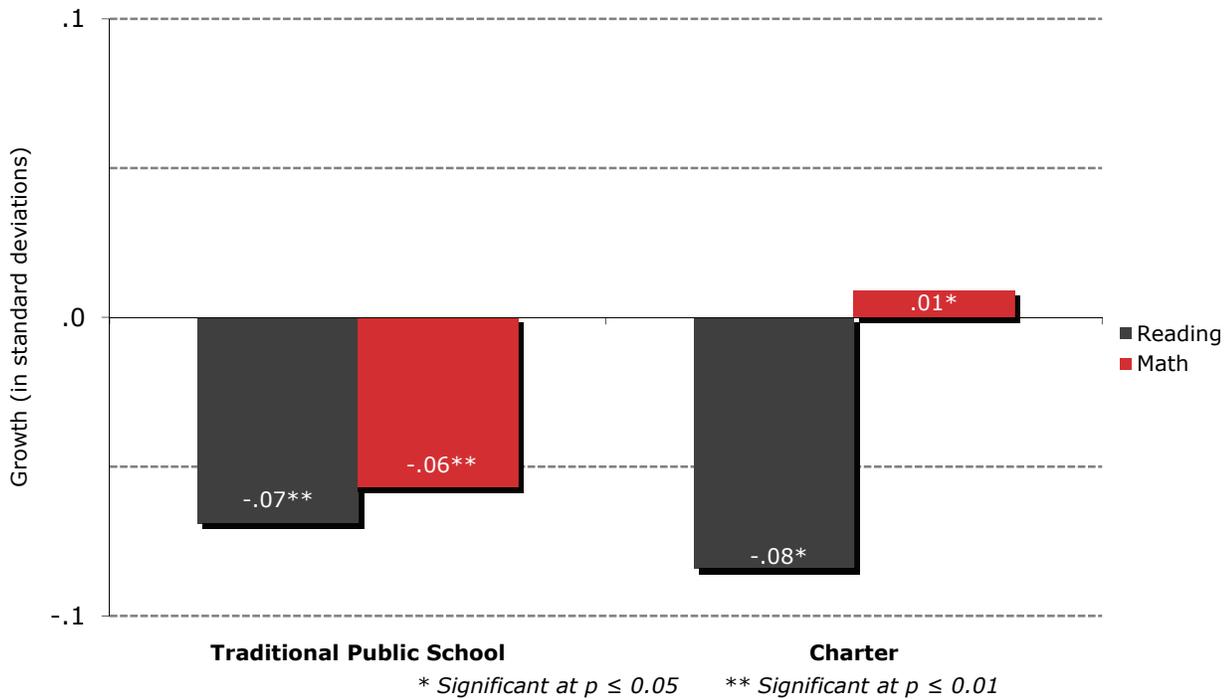
Hispanics enrolled in charter schools also do about the same in reading compared to their counterparts in traditional public schools. However, Hispanic charter students do significantly better in math compared to their counterparts in traditional public schools.

IMPACT OF CHARTER SCHOOLING ON STUDENTS IN POVERTY

Much of the motivation for developing charter schools aims at improving education outcomes for students who are in poverty. The enrollment profiles of charter schools across the country underscore this fact; in the pooled sample 49 percent of the students are eligible for Free or Reduced Price Lunch, a proxy for low income households.¹ Thus, the impact of charter schools on the learning of students in poverty is important both in terms of student outcomes and as a test of the commitment of charter school leaders and teachers to address the needs of the population in better ways than in other settings. Figure 4 presents the results for Colorado.

¹ Claims by other researchers that charter schools under-report their proportions of FRPL eligible students appear to be unfounded in our study.

Figure 4: Impact on Students in Poverty



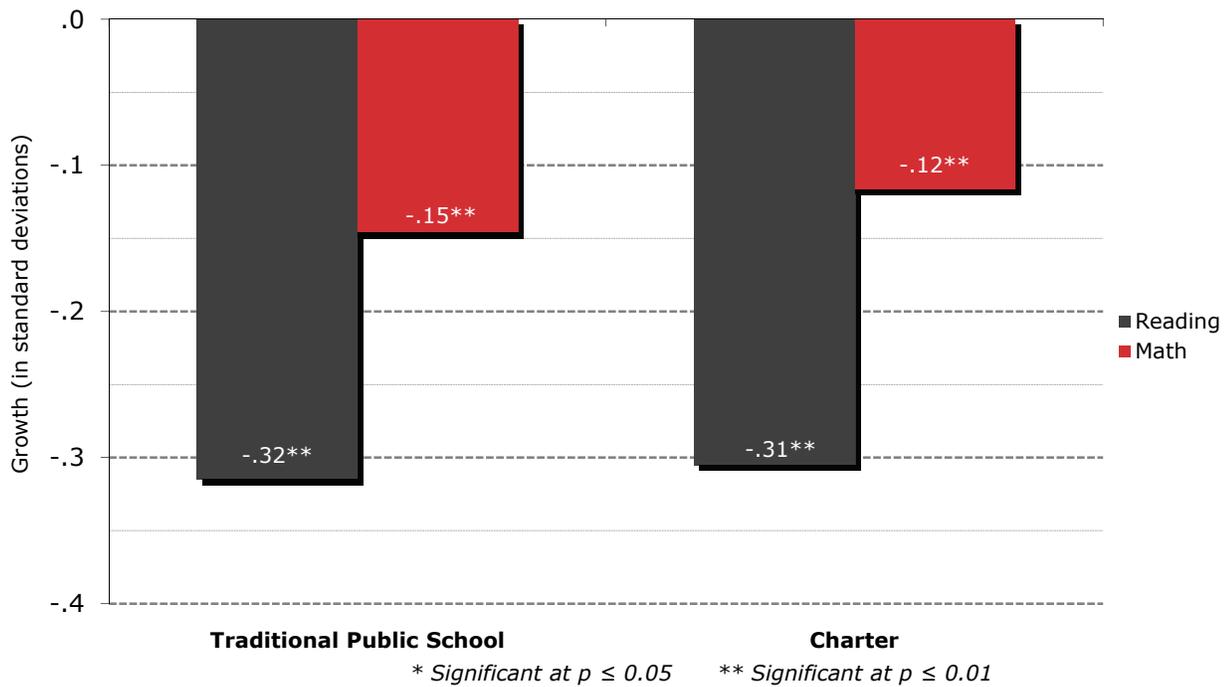
As shown in the figure above, students in poverty enrolled in charter schools do about the same in both math and reading as their counterparts in traditional public schools.

CHARTER SCHOOL IMPACTS WITH SPECIAL EDUCATION

The demographic comparisons in the full report indicate that across the charter sector, schools serve fewer Special Education students and in smaller proportions of their enrollment base than the traditional public schools. In some cases, this result is a deliberate and coordinated response with local districts, based on a balance of meeting the needs of the students and consideration of cost-effective strategies for doing so. In Colorado, the overall proportion of charter school students who are Special Education is 11 percent, compared to 17 percent in traditional public schools.

It is especially difficult to compare outcomes of Special Education students, regardless of where they enroll. The most serious problem is caused by small numbers and diverse typologies in use across states; the result is that there is tremendous variation when all categories are aggregated, a necessary and messy requirement. Of all the facets of the study, this one deserves the greatest degree of skepticism. With this cautionary note, the results are presented in Figure 5 below.

Figure 5: Impact with Special Education Students



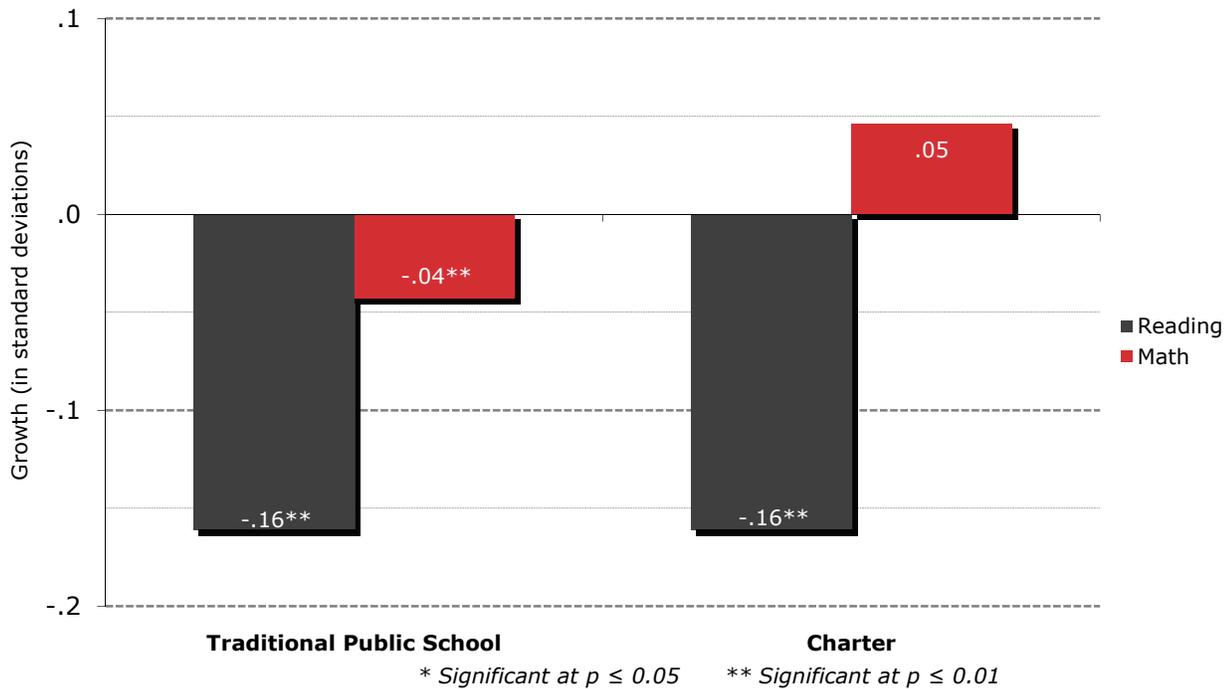
Special Education students in charter schools in Colorado receive no significant benefit from charter school attendance compared to their counterparts in traditional public schools in either math or reading.

EFFECTS OF CHARTER SCHOOLING ON ENGLISH LANGUAGE LEARNERS

Students who enroll in school without sufficient English proficiency represent a growing share of public school students. Their success in school today will greatly influence their success in the world a decade from now. Since their performance as reflected by National Assessment of Education Progress has lagged well behind that of their English proficient peers, their learning gains are a matter of increasing focus and concern.

The comparison of learning gains of charter school English Language Learners and their traditional school counterparts in Colorado appears in Figure 6.

Figure 6: Effect on English Language Learners



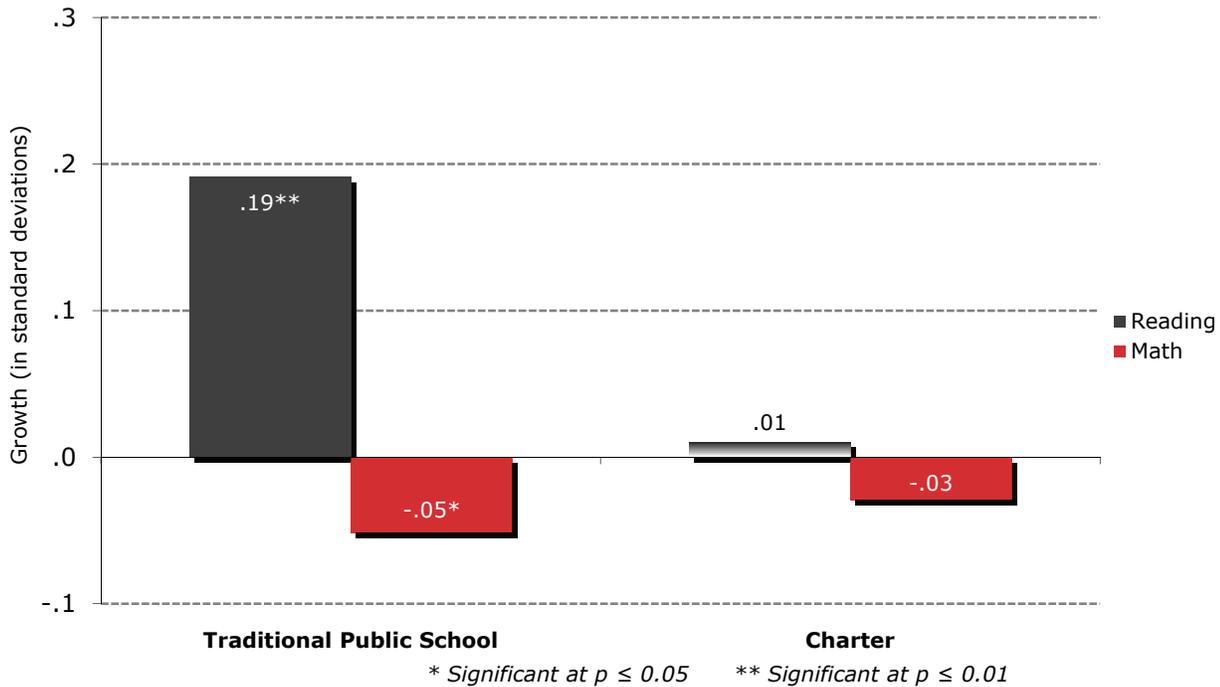
English Language Learner students in charter schools in Colorado receive no significant benefit from charter school attendance compared to their counterparts in traditional public schools in reading or math.

CHARTER SCHOOL IMPACTS WITH GRADE-REPEATING STUDENTS

This study examined the outcomes of students who were retained. Often a highly charged topic, the underlying premise is that additional time in grade can help students by remediating deficits and shoring up grade-level competencies. Existing research on the outcomes of students who have been retained is limited; the breadth of states included in this study provides an opportunity to examine the results generally and the difference between charter school students and those in traditional public schools in particular.

Retention practices differ widely across the country and between the charter and traditional public school sectors. The fact that retained charter students have among the lowest match rates of any subgroup in our study suggests that charter schools are more likely to retain academically low-performing students. Regardless, in both the national and pooled data and in the observations of Colorado students, sufficient numbers of matches were found to enable the learning gains following retention to be estimated. The results appear in Figure 7.

Figure 7: Impact with Grade-Repeating Students



Retained students in charter schools in Colorado receive no significant benefit from charter school attendance compared to their counterparts in traditional public schools in math. However, retained students in charter schools do significantly worse in reading compared to their counterparts in traditional public schools.

CHARTER SCHOOL IMPACT BY STUDENT'S STARTING DECILE

A general tenet of charter schools is a commitment to the education and development of every child. Further, many charter schools, including several in Colorado, have as part of their mission a specific emphasis on students who have not thrived academically in traditional public schools and whose early performance is well below average. We examined the performance of charter schools to see if they produced equivalent results across the spectrum of student starting points and in relation to the results observed for equivalent students in traditional public schools.

To do this, students were grouped into deciles based on their baseline test scores in reading and math on Colorado's achievement tests. The average growth of student achievement in each decile was then computed and compared. The results appear in Figures 8.a and 8.b below.

Figure 8.a: Impact by Students' Starting Decile - Reading

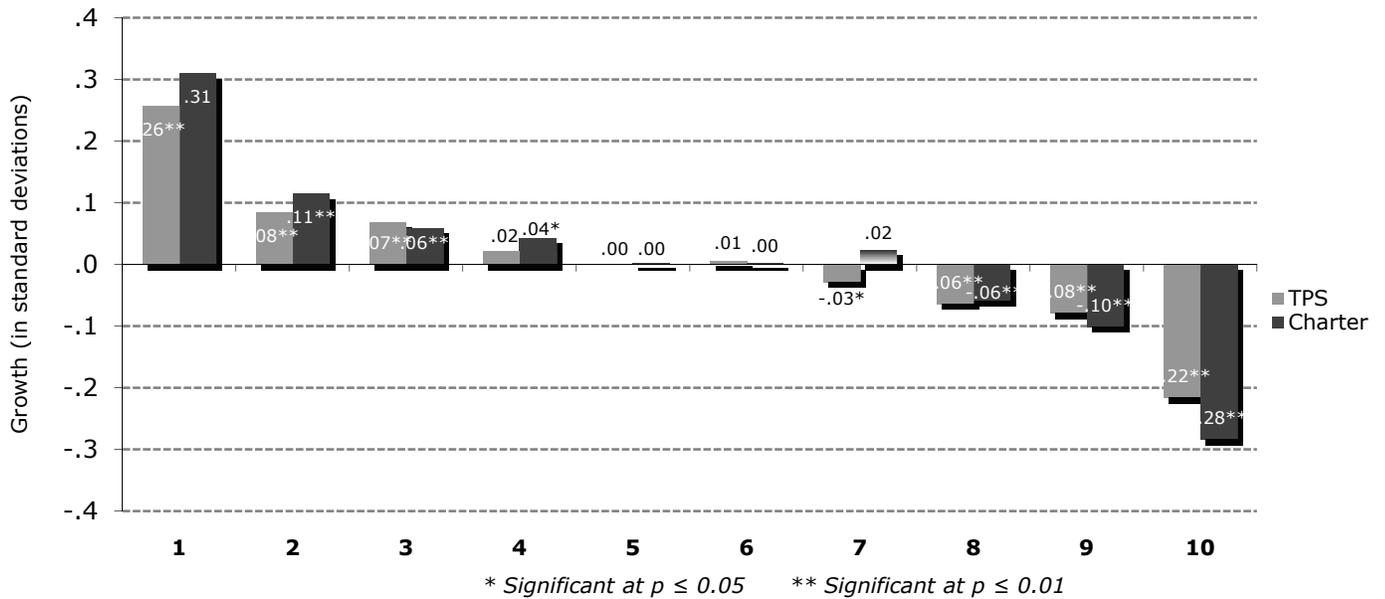
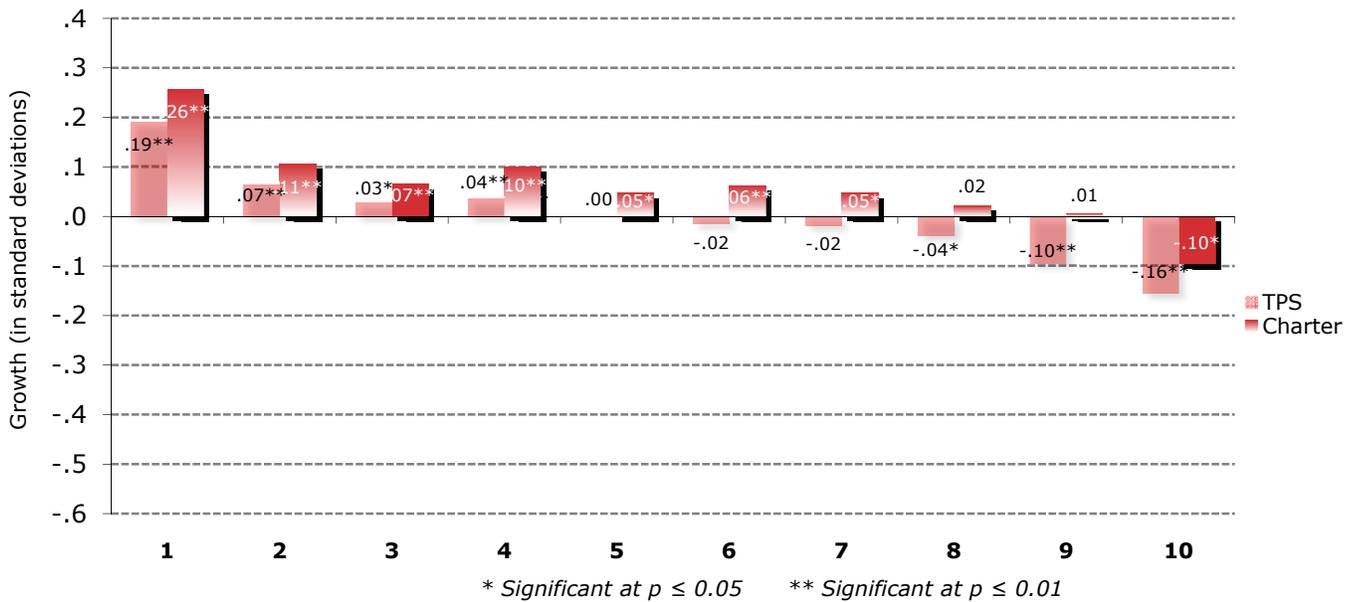


Figure 9.b: Impact by Students' Starting Decile - Math



Both figures demonstrate the expected “S”-shaped curve to the results. The overall curve reflects the typical pattern of larger learning gains for students with lower prior scores and larger learning losses for students with higher starting scores, a phenomenon known as “regression to the mean”. Here, the relative magnitudes are what is important: Do charter schools produce relatively better growth results than traditional public schools? If so, the charter curve would have larger gains on the low end and smaller losses on the high end of the distribution.

For students in Colorado, Figures 8.a and 8.b show that charter schools do better than traditional public schools in some respects. The effect of charter school attendance on growth results in math is mostly positive across the deciles. However, charter schools are not creating significantly different results for students compared to their virtual peers from traditional public schools in reading.

SUMMARY OF FINDINGS

With the students they have enrolled, Colorado charter schools provide **significantly better** results for the following groups of students:

Reading

All Students

Students enrolled for 1 year

Math

All Students

Students enrolled for 1 year

Students enrolled for 2 years

Students enrolled for 3 or more years

Hispanics

Students in the lowest starting deciles

Students in the highest starting deciles

At the same time, the analysis showed they performed **significantly worse** with the following groups of students:

Reading

Retained students

Math

For the remaining groups in the analysis, there was no discernable difference between charter school and traditional public school performance.