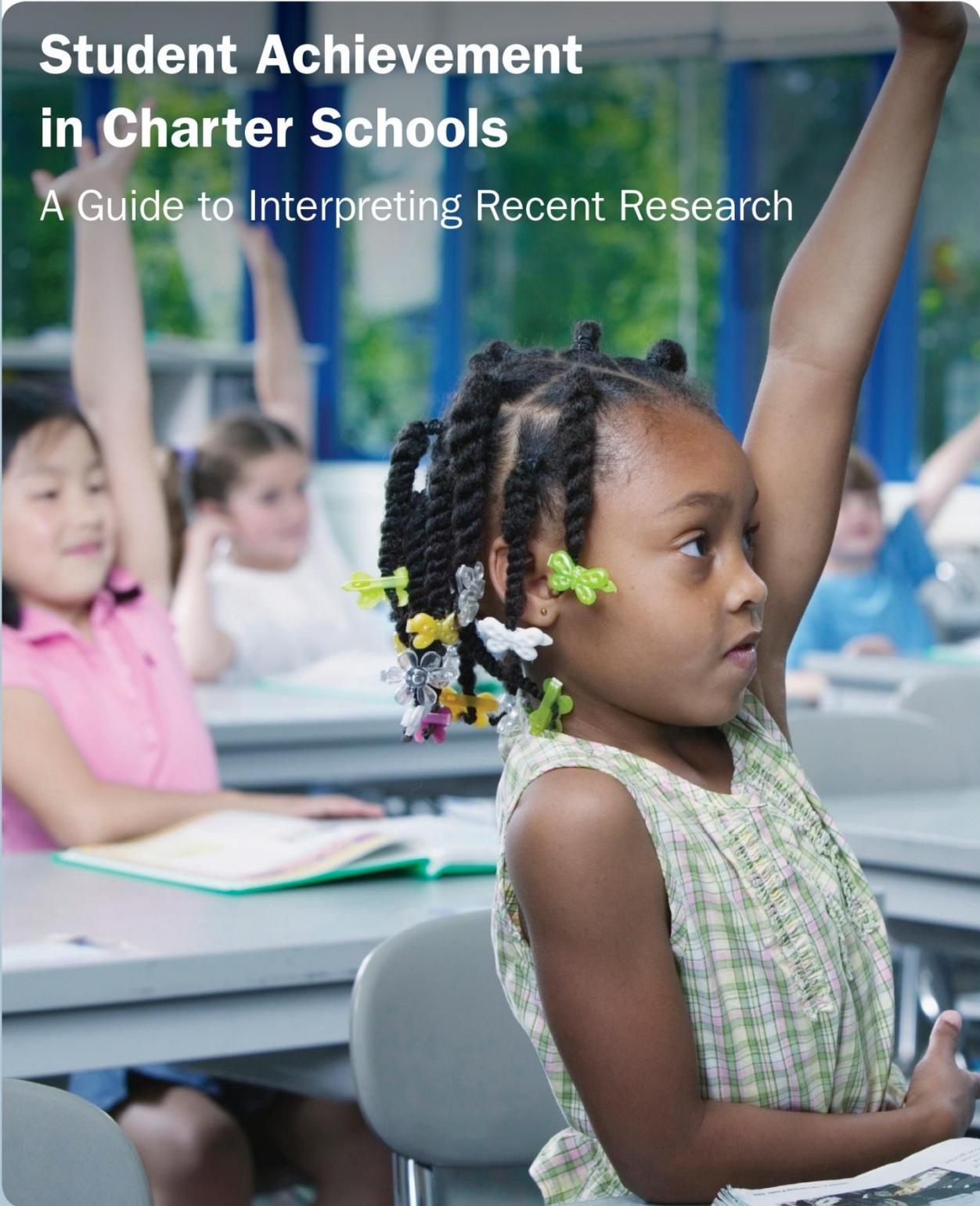


# National **Charter School** **Resource** Center

.....  
at LEARNING POINT ASSOCIATES

## **Student Achievement in Charter Schools**

A Guide to Interpreting Recent Research



| September 2010

A Research Brief from the NATIONAL CHARTER SCHOOL RESOURCE CENTER

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## Introduction

Education policymakers and practitioners have an explicit need to understand the way that charter school effectiveness is evaluated by the research community. Understanding the research on student achievement in charter schools—and also the limitations of current research—is important to the ongoing conversation about how best to foster quality educational opportunities for public school students.

This brief provides guidance for practitioners and policymakers in navigating the body of recent research on student achievement in charter schools. The brief includes an accessible overview of rigorous charter school research published during the past five years and sources for additional information and summarizes research concepts that are imperative to an informed interpretation of the research findings.

The brief is organized in two parts:

- **Part 1. Key Concepts and Methods of Research for Investigating Student Achievement**
  - Distill key concepts from the general body of literature to enable the reader to act as an informed consumer of charter school achievement research.
  - Identify general challenges in evaluating student achievement in charter schools and discuss rigorous research methods that are used to overcome some of those challenges.
- **Part 2. Rigorous Research Published 2005–2010 and Guidance on Interpreting Findings**
  - Identify available, rigorous research and its current geographic scope.
  - Offer guidance on interpreting specific research findings.

## The National Charter School Landscape: Presence, Growth, and Differentiation

### Presence

As of the 2009–10 school year, 4,936 charter schools existed in 39 states and the District of Columbia, serving approximately 3.4 percent of all public school students. This percentage amounts to 1.665 million students, with an estimated additional 420,000 students on charter admissions waiting lists (National Alliance for Public Charter Schools, 2010a)

Charter schools are more likely to open in urban locales and school districts with larger relative student populations and exist in 11 percent of districts nationwide (Lake, 2010). Despite this relatively small national presence, charter schools play a central role in some areas. Seven cities have school districts with charter market shares that exceed 25 percent: New Orleans, Louisiana (57 percent); Washington, D.C. (36 percent); Detroit, Michigan (32 percent); Kansas City, Missouri (29 percent); Dayton, Ohio (27 percent); Youngstown, Ohio (26 percent); and St. Louis, Missouri (25 percent) (National Alliance for Public Charter Schools, 2009a).

## **Growth**

Although charter schools remain a relatively small and concentrated sector of public education as a whole, the number of charter schools has increased steadily during the past two decades. National growth rates have remained roughly constant for the past five years, averaging approximately 9 percent annually. However, a large share of new charter school openings has been concentrated in a few states. From 2004 to 2008, more than half of new charter schools opened in California, Florida, Georgia, Ohio, Texas, and Wisconsin. During that time, 2,081 new charter schools opened their doors nationally, and 495 charter schools closed (Lake, 2010).

## **Differentiation**

By design, charter schools offer a diverse array of educational programs that differ from school to school, district to district, and state to state. State laws that allow publicly funded charters and govern their expansion and operations also vary on many dimensions (National Alliance for Public Charter Schools, 2010b). For example, states vary widely on what type of entity is allowed to authorize and then monitor a charter school. Authorizers are often local education agencies, but they also can be state education agencies, municipality agencies (e.g., a mayor's office), large nonprofit organizations, and colleges and universities.

Authorizers set the guidelines to which charter schools must adhere in order to stay open and can ultimately close a charter school if it is not producing expected results. State laws often do not dictate the exact criteria on which authorizers should base their decisions. Because of this lack of criteria and charter performance variability in general, the rate at which charter schools close is anecdotally known to vary across authorizers and is documented to vary within and across states (Lake, 2010). Therefore, due to internal design and student populations served as well as external factors, resulting charter schools often look very different from place to place.

## **Part 1. Key Concepts and Methods of Research for Investigating Student Achievement in Charter Schools**

Growth in the number of charter schools and their prevalence in some school districts have led many researchers to examine student achievement in charter schools. Although several important research questions have emerged regarding the relative cost effectiveness of charter schools, the competitive effect on traditional public schools, and the effects on integration of racial, ethnic, and socioeconomic groups (The Charter School Achievement Consensus Panel, 2006), the majority of research still seeks to discern whether attending a charter school has a direct effect on student test scores.

Hundreds of studies investigating the various impacts of charter schools have been published within the last decade.<sup>1</sup> Given this extensive body of literature, one would think that a clear consensus would have emerged about the effectiveness of charter schools in increasing student achievement. However, evaluating the effectiveness of charter schools is challenging, and many studies fail to employ strong enough methodological approaches to provide definitive assessments of the effect of charter schools. Part 1 of the brief focuses on the major challenges in evaluating charter school effectiveness and considers the most promising methodological approaches to addressing these issues. Part 2 then summarizes the findings for the most methodologically rigorous studies on the effect of charter schools on student achievement.

### **Challenges in Evaluating Charter School Effectiveness**

Studies intended to measure the effectiveness of charter schools attempt to determine whether charter school students fare better or worse than they would have if they remained in the traditional public school system. Although it is impossible to know exactly how a given charter school student would have fared academically if he or she had chosen to attend a traditional public school instead, researchers try to answer this question by comparing the progress of many charter school students to the progress of many students attending traditional public schools in order to estimate the relative progress of the average student in each setting.<sup>2</sup>

The inherent problem with this comparison is what researchers call *selection bias*. Selection bias refers to the fact that because attendance at a charter school is voluntary, students who attend charter schools may be fundamentally different from their counterparts at traditional public schools in both observed and unobserved ways that influence their level of academic achievement. For example, it is possible that students who attend charter schools have higher

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<sup>1</sup> The National Charter School Research Project has compiled a database of charter school research that includes more than 300 studies ([www.crpe.org](http://www.crpe.org)). Also, the National Alliance for Public Charter Schools has released five consecutive annual reports, the latest in 2009, reviewing the body of charter school research. In 2009, the Alliance identified 210 reports on charter school achievement, 140 comparing charter schools to traditional public schools. (National Alliance for Public Charter Schools, 2009b).

<sup>2</sup> Although they are not discussed in this brief, factors other than demonstrated academic achievement are important, such as social and emotional growth, drop-out prevention and recovery, and student health and safety. Charter schools often make it a specific part of their mission to address these needs and have goals that go beyond increasing test scores.

levels of parental support, which helps them seek out alternative school choices and navigate the charter school application process. If this is the case, it is possible that these students would have higher levels of academic achievement than their public school counterparts whether or not they attended a charter school. Alternatively, it is possible that the students who are faring poorly in the traditional public schools are those most likely to seek out other options. In this case, it is possible that students enrolled in charter schools would have lower achievement rates than their public school counterparts whether or not they enrolled in a charter school. Selection bias is problematic because it makes it difficult to disentangle the effect of charter schools on student performance from these differences in charter school and traditional public school students.

## Identified Rigorous Research Methods

Researchers have employed various approaches to attempt to address selection bias, and several literature reviews identify these rigorous research methods and the studies that use them (Betts & Tang, 2008; Bifulco & Bulkley, 2008; The Charter School Achievement Consensus Panel, 2006; Gill, Timpane, Ross, Brewer, & Booker, 2007; Gleason, Clark, Tuttle, & Dwoyer, 2010; National Alliance for Public Charter Schools, 2009b). Descriptions of these rigorous methods and the student populations necessary to take advantage of them follow:

- **Value-Added Method (Observational).** This type of analysis can be conducted on general populations of students for which data are collected and longitudinally linked at the individual student level. Student achievement is measured at multiple points in time, meaning that a student’s baseline achievement is taken into account when assessing a school’s impact on that student. This method, however, does not account for unobservable selection bias issues, and even when prior student achievement linked from multiple years is controlled for, unobservable student characteristics may still be driving a school’s gains in student achievement and not truly assessing a school’s ability to produce learning gains in students.
- **Student Fixed-Effects Method (Observational).** This approach controls for prior achievement, and it also relies on students who have attended both a traditional public school and a charter school. The fixed-effects method uses the difference in student achievement variation—or learning gains trajectory—that the student had while attending the traditional public school and while attending the charter school to parse out and isolate the unique impact that the student is contributing to his or her learning. The remaining growth or impact is then thought to be reliably attributed to the school and free from the issue of selection bias.

The use of this approach requires the fundamental assumption, however, that the learning trajectory for a particular student varies or grows in a predictable way over time. However, as some researchers point out, this assumption may not hold if students systematically switch school types due to large interruptions in their learning environment, such as a particularly ineffective teacher or large life event that caused their achievement trajectory to lessen or accelerate in slope. If a student’s prior path of learning gains is not predictive of his or her future learning gains, the assessed impact of the new school could be biased up or down, depending on the circumstances. Because this model relies on students who make the decision to switch schools, it is then plausibly more likely that average students’ achievement is affected by specific events, which

prompted them to switch in the first place (Ballou, Teasley, & Zeidner, 2008; Bifulco & Bulkley, 2008)

- **Lottery Oversubscription (Natural Experiment) Approach.** The strongest approach for estimating causal effects, this method of research takes advantage of the fact that some charter schools have more applicants than available seats, and so must hold a lottery to fairly determine which students will be admitted into the school. Based on the lottery, all students (with a few exceptions such as siblings of accepted students who are excluded from the study) have an equal chance of being accepted into the school. For this reason, we expect that the admitted students and the non-admitted students are similar in both their observed and unobserved characteristics, and the only difference between the two groups of students is the fact that one group attends the charter school and the other does not.

Although this method has high internal validity—meaning that as long as the lottery was conducted in good faith, average learning gains can be confidently attributed to the school free from selection bias—the generalizability of these studies may be limited. Charter schools that are oversubscribed may be different from charter schools that do not have a waiting list. In fact, a strong reputation for success may be the very reason a school is oversubscribed (Abdulkadiroglu et al., 2009, Bifulco & Bulkley, 2008). Although these studies can clearly demonstrate the effect of the oversubscribed school, it is unclear whether one would expect to see the same kind of results in charter schools that do not have a waiting list.

## Part 2. Rigorous Research Published 2005–2010 and Guidance on Interpreting Findings

During the last five years, two recent semi-national studies and several state-specific studies have employed the rigorous research methods discussed in Part 1 to evaluate student achievement in charter schools. This section identifies this research and its current geographic scope and offers guidance on interpreting the findings.

### Semi-National Studies

Two recent studies, one conducted in 2009 by the Center for Research on Education Outcomes (CREDO) at Stanford University and one conducted in 2010 by staff from Mathematica Policy Research, examined charter school student performance across approximately 40 percent of the states that allow charter schools (CREDO, 2009; Gleason et al., 2010).

The CREDO study examined 2,403 charter schools in 15 states and the District of Columbia: Arkansas, Arizona, California, Colorado (Denver), Florida, Georgia, Illinois (Chicago), Louisiana, Massachusetts, Minnesota, Missouri, New Mexico, North Carolina, Ohio, and Texas. In 2009, these locations educated 70 percent of United States charter school students. The following findings emerged from the CREDO study<sup>3</sup>:

- Elementary and middle school charter students have significantly higher rates of learning than their peers in traditional public schools, but students in charter high schools and charter multi-level schools have significantly lower rates of learning.
- Students achieve at higher levels in charter schools over time. On average, charter schools demonstrate a negative learning impact relative to traditional public schools in reading and mathematics in the first year. Learning impacts are similar to traditional public schools in the second year, and charter school students make statistically significant gains in reading and in mathematics by the third year.
- Because many charter schools are new, more than half of the records in the CREDO analysis capture the first year of the charter school experience, and the overall data are skewed to represent the first year in which negative learning impacts can be expected.
- Learning gains varied from state to state:
  - Positive gains were found in the following five states: Arkansas, Colorado (Denver), Illinois (Chicago), Louisiana, and Missouri.
  - Similar gains as traditional public schools were found in the following three states and the District of Columbia: California, Georgia, and North Carolina.
  - Negative learning effects were found in the following six states: Arizona, Florida, Minnesota, New Mexico, Ohio, and Texas.

These and other findings (Booker, Gilpatric, Gronberg, & Jensen, 2007; Sass, 2006) underscore the importance of assessing impacts over time. Although the impacts averaged across all three

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<sup>3</sup> See Hoxby (2009) for a critique of the matching methods used in the CREDO research.

years in the CREDO study show small, negative effects, from a policy perspective, it is important to realize that the overall learning trajectory of the charter schools tells a more nuanced story.

The second semi-national study conducted (Gleason et al., 2010) considered two years of data in charter middle schools in 15 states. Study schools were in urban, suburban, and rural locales and had been in operation for at least two years. Only schools that were oversubscribed were included in the study to take advantage of the random assignment possible through admission lotteries. The study concluded that on average, the achievement levels of charter middle schools were statistically indistinguishable from those of the traditional public school students who participated in the lottery.

Some students were better served by charter schools than others. In mathematics, charter middle schools served economically disadvantaged students and those who entered with lower than average baseline test scores better than traditional public schools. However, the study's charter middle schools did not serve students of the opposite spectrum as well, who were above average economically and entered with higher than average test scores. The indistinguishable average impact between charters and traditional public schools masked an extremely large variation in impact magnitude by school. Impacts ranged widely in mathematics, suggesting that some of the study's charter schools had a more positive impact on achievement than others.

Two points about the interpretation of these findings should be noted, however:

- Although this study included 15 states, it did not include a large number of schools (36) or students (2,330). Therefore, the impact of its findings should be understood in that context and not be thought to widely represent achievement in those 15 states as a whole.
- The study protocol required parental consent in order for students to be included in the sample, and researchers were only able to gain consent for approximately 60 percent of students who participated in the lottery and were eligible for the study (i.e., were not siblings or otherwise exempt). The students for whom researchers did not gain parental consent still entered the lottery and attended the charter school with approximately the same likelihood of gaining admittance; they just were not a part of the analysis. Therefore, the findings above are attributable to only those students included in the analysis for which parental consent forms were collected and not the entire population of students that attended the oversubscribed charter schools. It is not possible to know whether an inability to obtain parental consent is correlated in some way to a student's aptitude, but if it were, an analysis of all the students who participated in the lottery may bare different results.

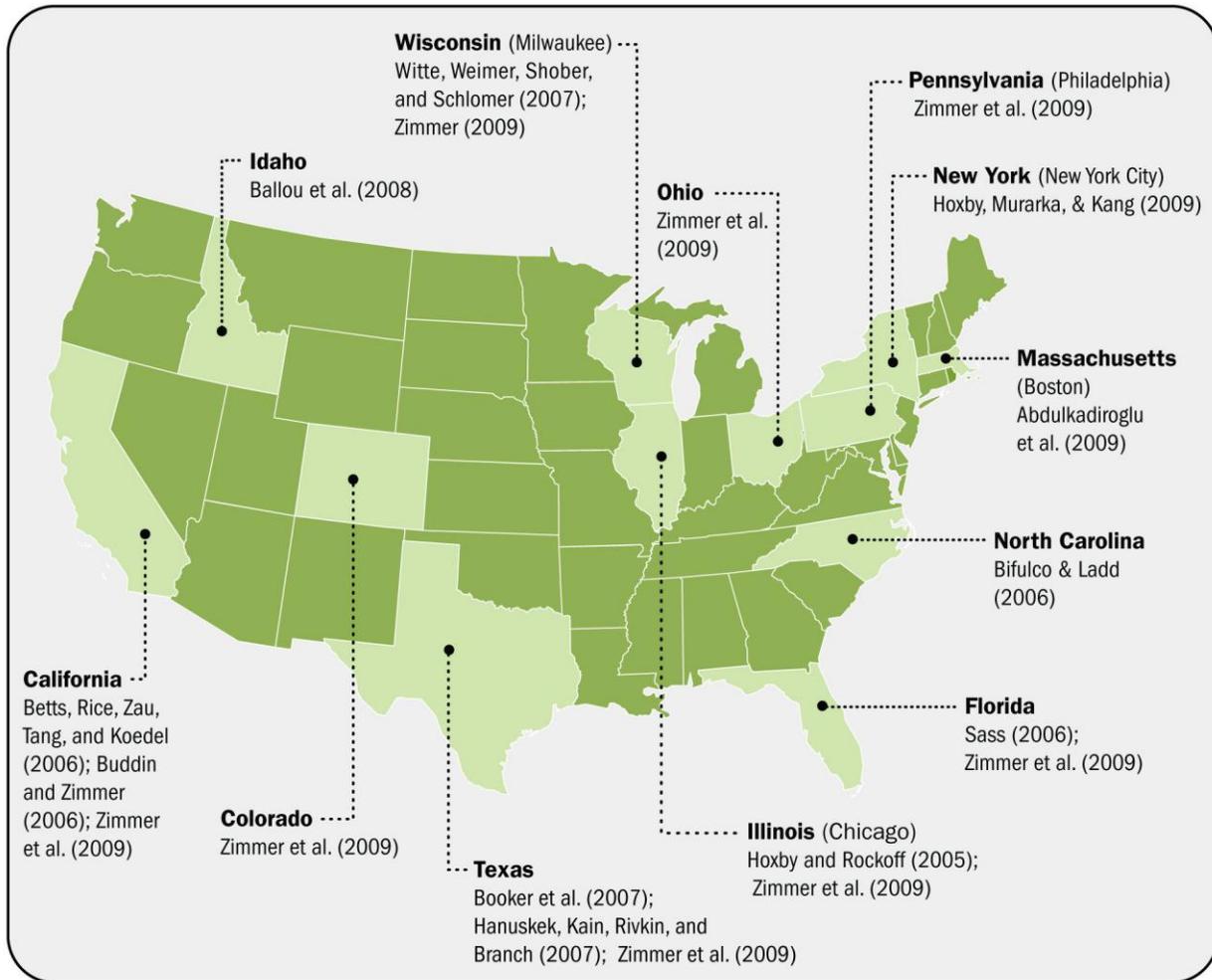
## **State and Local Studies**

Figure 1 highlights where state and locale-specific rigorous research, as described in this brief and identified in several recent literature reviews (Betts & Tang, 2008; Bifulco & Bulkley, 2008) (Gleason, Clark, Tuttle, & Dwoyer, 2010), has taken place since 2005. (Figure 1 does not include all locales that participated in the two recent semi-national charter school studies.)

Table 1 summarizes the population, research method, and average major findings for each study.

It is important to note where studies have been conducted because, as previously discussed, the context under which charter schools operate varies substantially from state to state.

**Figure 1. Geographic Distribution of State and Local, Rigorous Charter School Achievement Research, Published 2005–2010**



**Table 1. Summary of State and Local Rigorous Charter School Achievement Research**

State and Local Specific Study	Population	Research Method	Average Major Findings
Abdulkadiroglu et al. (2009)	28 charter schools in Boston, 8 oversubscribed charter schools	Lottery oversubscription and value-added measures	Large positive gains for oversubscribed charter schools and positive gains for charter schools
Ballou et al. (2008)	28 charter schools in Idaho	Value-added measures and fixed effects	Positive average impact for elementary schools; none for middle schools
Betts et al. (2006)	21 charter schools in San Diego	Value-added measures with fixed-effects	Concluded average achievement not substantially different than traditional public schools Small positive and negative impacts depending on standardized test used
Bifulco and Ladd (2006)	79 charter schools in North Carolina	Value-added measures and fixed effects	Charter school students with smaller gains relative to time in traditional public schools
Booker et al. (2007)	179 charter schools in Texas	Value-added measures and fixed effects	No average differential impact for charter schools compared to traditional public schools
Buddin and Zimmer (2006)	Los Angeles and San Diego	Value-added measures with fixed effects	Elementary: no effect in Los Angeles, gained less in San Diego Secondary: small, mixed effects
Hanushek et al. (2007)	248 charter schools in Texas	Value-added measures with fixed effects	Negative impact for charter school students in Grades 4–8 relative to time in traditional public school
Hoxby et al. (2009)	42 oversubscribed charter schools in New York City	Lottery oversubscription study	Positive effects for charter school students
Hoxby and Rockoff (2005)	3 oversubscribed charter schools in Chicago	Lottery oversubscription study	Positive effects for charter school students
Sass (2006)	190 charter schools in Florida	Value-added measures with fixed effects	Learning gains less for charter school in Years 1 and 2 and positive by Year 5
Witte et al. (2007)	130 charter schools in Wisconsin	Value-added measures with fixed effects	Positive average impact for charter school students
Zimmer et al. (2009)	231 charter schools in 7 states	Value-added measures with fixed effects	No impact distinguishable from traditional public schools in 5 states and charter school students showing less gains in 2 states

## State and Local Research Findings

The estimated impact of the studies highlighted in Figure 1 varies widely:

- Studies that use the randomization of the lottery oversubscription process to study student achievement in urban settings (New York, Chicago, and Boston) all find positive effects (Abdulkadiroglu et al., 2009; Hoxby et al., 2009; Hoxby & Rockoff, 2005).
- Studies that use value-added methods with and without fixed effects have results that vary by state and often by grade level. For example, Zimmer et al. (2009) find that when analyzing middle and high school student data in Denver, Milwaukee, Philadelphia, San Diego, and Florida, no effects are found, meaning that charter school performance is not statistically different than traditional public school performance. With middle school data, the same study showed no significant effects in Ohio but small negative impacts in both mathematics and reading in Texas and small negative impacts in reading in Chicago.
- Excluding lottery oversubscription studies, positive charter results were found in the following locations:
  - Idaho charter elementary schools (Ballou et al., 2008)
  - Wisconsin (Witte et al., 2007)
- Charter school students achieved less, on average, than their public school counterparts in the following locations:
  - Texas (Booker et al., 2007; Hanushek et al., 2007; Zimmer et al., 2009)
  - North Carolina (Bifulco & Ladd, 2006)
  - Florida (Sass, 2006)

## Qualitative Research

The large variability in charter school achievement findings across multiple studies illustrates the need to determine the specific characteristics and practices high-performing charter schools are likely to display and use. What practices drive student achievement in high-performing charter schools and what characteristics of high-performing charter schools facilitate those practices?

A recent qualitative study conducted in Boston explored these issues. After a rigorous lottery oversubscription study showed large positive effects for Boston's oversubscribed charter schools (Abdulkadiroglu et al., 2009), a follow-up qualitative study was conducted by a separate team of researchers to determine the specific aspects of successful schools that are correlated with high student achievement (Therriault, Gandhi, Casasanto, & Carney, 2010). The researchers surveyed 84 Boston principals from high-, middle-, and low-performing schools and conducted site visits and case studies in order to build information about how the schools operated. The study particularly focused on how much autonomy or control schools had in key areas.

A key finding was that autonomy with two particular elements—scheduling & time, and staffing—appeared to make the largest difference for achievement. This finding applied to all high-performing schools, including traditional public schools and charters, although autonomy

on these elements was more frequently found in charter schools. Because of its nature, this type of research does not establish direct causal links between school characteristics and high-achievement, but it is a useful tool for beginning to parse out the practices of successful schools that make them so.

## **Analysis Across State and Local Studies**

All of the state and local studies presented in this brief examine charter school performance in a particular state context. However, as discussed previously, charter schools vary significantly from school to school, district to district, and state to state. The studies presented herein do not consider the same number of charter schools or the same number of students over the same number of years, so they do not necessarily equally contribute to the question of broad charter school performance. A 2008 meta-analysis (Betts & Tang, 2008)<sup>4</sup> took this concept into consideration when analyzing rigorous charter school research available at that time. The analysis weighted study results according to the number of charter schools studied as well as the number of charter schools studied multiplied by the number of years for which data were included to estimate an average effect of charter schools. They found that, across the available research, charter schools seemed to be generally outperforming traditional schools in elementary reading and middle school mathematics, but charter high schools seemed to largely underperform in mathematics.

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<sup>4</sup> The meta-analysis included six of the above studies (Ballou et al., 2008; Betts et al., 2006; Bifulco & Ladd, 2006; Hoxby et al., 2009; Hoxby & Rockoff, 2005; Sass, 2006) and several older ones.

## Conclusion

A growing body of literature on the effectiveness of charter schools in improving student achievement is available. The quality of the studies varies significantly with some studies more adequately addressing the issue of selection bias than others. Although no one study is without limitations, some strong and innovative research designs have been employed to examine this question, and some initial findings are beginning to emerge.

The research literature suggests that charter schools can have a positive effect on student achievement, but the effect is far from uniform. Many crucial elements—leadership, operations and financial management, teacher effectiveness, school culture and peer effects, strength of curriculum, parent and community support—come together in complex ways to make any school “work” or not. By design, charter schools vary widely on these and other dimensions, and the academic achievement of their students varies widely as well. Some schools appear to be more effective than others at driving student achievement. Charter schools also seem to work better for some students than others, and effects are not consistent over time. All of this information suggests that the question, “Do charter schools work?” is too broad. Instead, further investigation is needed to gain a better understanding of the conditions under which charter schools are successful and the conditions that hinder student achievement.

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# Student Achievement in Charter Schools: A Guide to Interpreting Recent Research

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