



National Alliance for Public Charter Schools

Charter School Achievement: What We Know

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Public Impact

for the National Alliance for Public Charter Schools

3rd Edition, October 2006

Executive Summary

To provide a full and fair picture of how charter schools are actually performing, the National Alliance for Public Charter Schools commissioned an extensive review of the available research on charter school achievement.

The following report summarizes and evaluates 58 comparative analyses of charter school and traditional public school performance, including a study-by-study look at central findings and methodological strengths and weaknesses. All of these studies fell into one of two categories: 1) snapshot pictures of one or more points in time; or 2) longer-term measures of change over time. In addition, they all met four basic criteria for rigor and relevance: they are recent (2001 or later), compare charter vs. traditional public school performance, use serious (though often flawed) analytical methods, and examine some significant segment of the charter sector. This report is an update of a report issued in July 2005, revised to include several additional studies that have been released since that time.

Key Findings

Here are the key findings of the 58 studies:

Study Quality: The quality of available research varies widely.

The stronger studies typically offer information about how much value charter schools are contributing to their students; study an adequate number of students and schools to be meaningful; use sound comparisons when assessing relative performance of traditional public schools vs. charter schools; and “disaggregate” analysis to show how well different kinds of students and schools are doing. Many of the studies fall short on one or more of these standards.

Snapshots: The results are mixed and of limited use.

Of the 58 studies, 25 look only at a snapshot of performance at one or more points in time. Ten show charter schools generally underperforming traditional public schools. The other fifteen

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show comparable, mixed or generally positive results for charter schools. These studies, however, fail to examine how much progress students and schools are making over time, and they are thus of limited use in drawing conclusions about the effectiveness of charter schools.

Change Over Time: The results, while far from conclusive, are encouraging.

The other 33 studies make some attempt to look at change over time in student or school performance. Fifteen actually follow individual students over time, the ideal way to examine change. The rest use other methods, such as looking at changes in school-wide or grade-wide performance. Of these 33 studies:

- Sixteen find that overall gains in charter schools were larger than other public schools
- Seven find charter schools' gains higher in certain significant categories of schools, such as elementary schools, high schools, or schools serving at risk students
- Six find comparable gains in charter and traditional public schools
- Four find that charter schools' overall gains lagged behind

Twelve studies examine whether individual charter schools improve their performance with age (e.g. after overcoming start-up challenges). Of these, nine find that as charter schools mature, they improve. Two find no significant differences between older and younger charter schools. One finds that older charter schools perform less well.

Recommendations

A number of conclusions about the state of charter school research – and how to improve it – emerge from this review:

1. We need better research about how well students in charter schools are performing.
2. We need more and better research about why some charter schools perform so much better than other charter and non-charter schools.
3. We need much more attention focused on evaluating chartering as a policy. Knowing how well charter school students on average are performing does not answer the most important questions policymakers have about where to go with their charter policies.
4. Charter schooling represents an experiment worth continuing – and refining to improve quality further over time.

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Accountability is a cornerstone of the charter school idea. In return for autonomy over key aspects of school operations, charter schools agree to be held accountable for results – to have their performance measured and to face the consequences if they fail to live up to expectations. As public schools, all charter schools participate in state assessment programs. They administer tests to all of their students, report the results, receive labels, and become subject to whatever sanctions arise from inadequate performance. The No Child Left Behind Act makes clear that charter schools, like all public schools, must make “Adequate Yearly Progress,” or else.

As a result, more and more data have become available over time about how well individual charter schools are doing when it comes to student achievement on standardized assessments.¹ Along with more data has come a raft of academic studies, state evaluations, and other efforts to answer the question “How well are charter schools doing?” The charter sector has been subject to an unprecedented level of scrutiny and transparency related to school performance. Just as individual schools are to be held accountable for results, the very idea of charter schools is being asked to prove itself, as well it should.

Reviewing all of these emerging studies of achievement in charter schools, however, is enough to make one’s head spin. As studies accumulate, each with its own unique methodological take on the basic question, contradictory findings proliferate. In fall 2004, for example, we were treated to two nationwide analyses of charter school achievement, one purporting to show that charter schools outperformed district schools, and one purporting to show the reverse. And these two were just the latest in an increasingly rapid volley of studies that show charter schools to be working well, or not.

At some level, mixed results are inevitable. The charter sector is host to a vast diversity of schools, utilizing all manner of educational and organizational approaches. The charter is but a shell, into which the operators place an instructional and management program. Asking about the quality of “charter schools” as a group is a bit like asking about the quality of “new restaurants” or “American cars” – any overall generalization will mask the great diversity within.

In short, there is really no simple answer to the question “how are charter schools doing?” At any point in time, some will be doing well, and some poorly. What we really want to know is how well *chartering*, as a policy, is working for a state. Is it producing new and better schools? How are the schools being chartered different from district schools? Are good charter schools expanding and being copied, while poor schools close or stagnate? Is the quality of chartering getting better over time? Is the presence of chartering inducing non-charter public schools to improve?²

In light of that set of questions, comparing the test scores of charter vs. district public schools cannot provide all of the answers. But it can shed some light on important issues of performance and progress by the students enrolled in this new form of public school. This report aims to help those interested in charter schools make sense of the dizzying array of studies about charter achievement in two ways:

- **Setting out some criteria** that observers can use to judge how sound a particular study's comparison of charter vs. district schools is; and
- **Summarizing and providing commentary** on many of the most recent comparative analyses of charter and district achievement. This summary includes an overview of some trends and patterns that appear across studies, as well as a study-by-study look at central findings and methodological strengths and weaknesses.

What Makes a “Good” Study of Achievement in Charter Schools?

Research methodology is a highly complex field, and this report does not endeavor to touch on all the intricacies of method that might arise in a study of charter achievement. Instead, it outlines a set of high-level, essential criteria that ought to be applied to any study that seeks to compare charter and district achievement. When analyzing any particular study, it will be important to go beyond these basic criteria to look at specific methodological issues related to the particular study's approach.

- **Value-added Analysis.** For a given charter school, what we really want to know is whether students are better off for having attended it. The best way to find out is to examine the learning of individual students over time, seeking to determine how much “value” schools are “adding” to student learning. It is quite common in educational studies to compare two groups of schools or students based on a snapshot of their performance at a point in time. For example, many studies compare the percentage of charter school vs. district school students “making grade level.” Such comparisons can be very misleading because they fail to take into account changes in student performance over time. Consider two middle schools, both with 70% of their children at grade level at the end of an academic year. Suppose, though, that in one of the schools, only 15% of the children entered the school at grade level. In the second school, 80% did. These schools appear identical on the simple snapshot measure, but in fact their performance is dramatically different. Researchers can mitigate these challenges by comparing schools and students that are as similar as possible, but doing so is challenging (see bullet point about “sound comparisons,” below).

Ideally, then, a study would follow students over time in charter and district schools – ideally randomly assigned to attend them – and determine how much growth or gain students were experiencing. Such longitudinal analyses have their own methodological challenges, but if done well they shed more light on the central questions: how much are students learning in their schools. The longer the study can follow a given student, the better.³

Many studies of school performance look at change over time, but are not able to follow individual students. For example, a study might examine the change in the percentage of a school's students meeting grade level standards from one year to the next. These approaches are inferior to following individual students; change from one year to the next in a school's overall performance reflects, in part, changes in composition of the student body – not just growth by individual students. While these studies are not true measures of “value added,” they provide more insight than simple snapshots.

- **Adequate Sample.** Does the study include a sufficient sample of charter schools/students to allow for generalization? Studies that are restricted to a small number of schools, a subset of grade levels, or a subset of the student population are less valuable than studies that seek to look at all charter school students in the relevant jurisdiction. Often, sampling is necessary due to lack of data or the immensity of data-gathering that would be required to look at all students and schools. In such cases, the question becomes whether the approach to sampling introduces bias into the results.
- **Sound Comparison.** Does the study compare charter school schools'/students' performance to that of a relevant group of district schools/students? Does it use appropriate controls or other methods to make the comparison valid? The “gold standard” in this regard is random experimental design, in which students are randomly assigned to a “treatment” group (admitted to the charter school) or a “control” group (not admitted). Such a design minimizes the chance that charter school attenders are somehow different from non-attenders in ways that influence achievement, such as their motivation, the level of challenge they bring to the school, or the engagement of their families.

There are several limits on the use of randomized studies in this area. First, such studies are expensive to run relative to approaches that rely on statistical analysis of publicly available data. Second, not all states require their charter schools to run lotteries. Third, even in states that require lotteries, only oversubscribed schools run them. Leaving undersubscribed schools out of an analysis because they do not have lotteries undermines the study's generalizability. Finally, students who are unsuccessful in a lottery may attend a district school, a private school, or another charter school. To the extent that the aim of the study is to compare charter and district performance, decisions by students to attend private and other charter schools muddy the waters considerably.

More commonly, researchers will use large databases of information about test scores, student demographics, and school characteristics to carry out comparisons. They will seek to compare charter school students' performance to that of students who are similar demographically and/or who are attending schools that charter school students would likely have attended in the absence of charter schools.

As the University of Washington's Paul Hill has noted, such comparisons are fraught with peril, and no study can provide the perfect comparison.⁴ However, some will be better than others, working harder to compare charter school and students to the most relevant counterparts possible, in light of the available data. Sound comparative methods

are especially important for studies that provide just a snapshot of performance at a point in time.

- **Appropriate Disaggregation.** A related question is whether the study adequately differentiates between the performance of different kinds of schools and students. The charter sector is likely to be diverse and serve multiple student populations. Schools are chartered by different kinds of entities; have different levels of funding; take different approaches in their learning programs and organizational arrangements. Student populations differ by race, income, special needs, degree of initial academic challenge, and other factors. Since different kinds of schools and students may experience different success rates, it is vital for a study to analyze different groups separately where possible in addition to whatever kind of aggregate analysis is conducted.

One particularly important kind of disaggregation in research about charter schools is examining the performance of schools at different points in their life-cycles. Early-stage charter schools may have a different performance pattern than more mature charter schools, and studies should endeavor to sort out these differences.

The Studies: Emerging Patterns & Questions

Dozens of studies looking at charter schools have been issued since the first charter school opened in 1992. This review examines 58 analyses that meet several criteria.⁵ All of the included studies:

- **Are recent.** They were all released between 2001 and September 2006. The charter sector has grown and changed enormously since then, making earlier studies less relevant to today's charter school policy debates.
- **Include comparisons** of charter school students' achievement on standardized tests with that of students in district schools. As argued above, other kinds of studies are critical to understanding how well chartering is working. But the focus here is on test-based measures of charter school student achievement.
- **Use serious methods.** While the methodological quality of the studies varies greatly, all the research reviewed here represents reasonable attempts to analyze data about student achievement in charter and district schools. This is admittedly not a very high bar. While more higher quality research, such as the planned federally funded study that will use random assignment to gauge charter school value-added, are needed, this report gleans what it can from the research that exists, however imperfect. In addition, reviewing flawed studies helps highlight strengths and weaknesses in today's research and point the way to better evaluations in the future.
- **Examine a significant segment of the charter sector.** All but four of the studies included examined national data, multi-state data, or statewide data. One study (Metis Associates) was included because it examines all charter schools in Kansas City, MO, a city with one of the largest charter school "market shares" of any city. Another (Hoxby & Rockoff) looks at Chicago charter schools operated by a single management organization.

It was included because it is the only study to date that uses randomized experimental design to attribute value-added to charter schools. A third (Henig et al) examines charter schools in the District of Columbia, which has a chartering process similar to many other states. A fourth study (Chicago Public Schools) examines recent performance in Chicago's charter schools) and compares them to neighboring traditional schools.

Many other analyses were reviewed but ultimately excluded. Notably, the report does not include studies that provide only simple comparisons of a state's charter school and district test scores, without conducting statistical analysis to create a reasonable comparison. For example, the analysis does not include the January 2005 *Boston Globe* story showing that the percentage of students passing the state tests in urban charter schools higher than in district schools.⁶

The included studies differ from one another in many ways, but probably the most important is what kind of outcome they examine. It is possible to divide the studies into three groups as shown in Table 1:

- **Panel studies.** Sixteen of the studies follow individual students over time to see how their test scores change from year to year (left column of Table 1). These student “panel” studies are the most likely to identify the schools’ “value-added.”
- **Snapshot studies.** A second group of 25 studies (right column of Table 1), by contrast, only look at a snapshot of one or more points in time. While some of these studies attempt to control for student background characteristics, most are not as powerful as the panel studies in gauging how much value the schools are adding. Snapshots may reveal more about the starting levels of students entering the schools than they do about how much learning the schools are producing. The better the controls, the more likely snapshots are to shed light on value-added.
- **Other change studies.** Finally, 17 studies (middle column) look at change over time, but through some method other than following individual students over time (for example, looking at changes in average school-wide scores from year to year). While these studies contain more information about the effects of the schools than do most of the snapshots, they are not as powerful as the panel studies. Change over time in school-level averages could well be due to changes in what students attend schools rather than how much learning the schools produce.⁷

A more complete description of each study and its methods is in Table 2. The Appendix contains the full references, including web links where available.

Table 1. Different Approaches to Comparing Charter and District Achievement

16 Panel studies (following individual students over time)	17 other change studies (e.g., looking at changes in school average results over time)	25 snapshot studies (looking at results in one or more points in time)
Ballou, Teasley, and Zeidner (ID) Bifulco & Ladd (NC) Booker et al. (TX) Florida Department of Education (FL) Florida Office of Program Policy Analysis and Governmental Accountability (FL) Gronberg & Jansen (TX) Gronberg & Jansen (TX) Hanushek, Kain, & Rivkin (TX) Hoxby & Rockoff (Chicago) Massachusetts Department of Education (MA) Miron (DE) Miron et al (DE) Noblit & Dickson (NC) Sass (FL) Solmon & Goldschmidt (AZ) Zimmer et al. (CA)	Bettinger (MI) Carr & Staley (OH) EdSource (CA) Greene, Forster, & Winters (multi) Henig et al (DC) Loveless (multi) Metis Associates (KC, MO) Miron (CT) Miron & Horn (CT) Miron & Nelson (MI) Miron, Nelson & Risley (PA) NY Board of Regents (NY) Raymond (CA) Rogosa (CA) Shapley et al (TX) Slovacek et al. (CA) Zimmer et al. (CA)	Bates & Guile (OR) Bifulco & Ladd (NC) Chicago Public Schools (Chicago) Colorado Department of Education (CO) Colorado Department of Education (CO) Eberts & Hollenbeck (MI) Finnigan et al. (multi) Florida Department of Education (FL) Gronberg and Jansen (TX) Henig et el (DC) Hoxby (national) Legis. Office of Ed. Oversight (OH) Loveless (multi) MA Department of Education (MA) Nelson, Rosenberg, & Van Meter (national) Nelson & Miron (IL) Noblit & Dickson (NC) Plucker et al (GA) Raymond (CA) Roy & Mishel (national) Stevens, Jean (NY) U.S. Department of Ed. (national) Was & Kristjansson (UT) Witte et al. (WI) Zimmer et al. (CA)

Looking at all of these studies as a group, here are some observations that emerge about student performance in charter schools:

Diversity of outcomes. Like their instructional and organizational designs, schools’ results vary widely from one to the next. Some charter schools score at or near the top of the heap in their cities and states; it is these schools that show the great promise of chartering as a mechanism for creating new, excellent schools. Others lie at the bottom of the heap; the existence of these schools suggests the need for stronger up-front chartering and ongoing accountability, but it is also just a natural phenomenon in any open system. Other charter schools fall within the “normal” range of performance for schools in their states. In this context, any attempt to discuss

“the average charter school” is destined to mask this wide diversity. More illuminating would be an analysis of what proportion of charter schools fall in the top quintile of schools, the second quintile, and so on, and what happens to schools over time in these categories. Do the best schools expand and replicate? Do the worst get better or close?

Evidence of added value. Of the 58 studies reviewed, 25 look only at a snapshot at one or more points in time, and these return a mix of results. Ten show charter students generally underperforming district schools (Bifulco & Ladd; Eberts & Hollenbeck; Finnigan et al.; Henig et al.; Gronberg & Jansen; Legislative Office of Education Oversight in Ohio; Loveless; Nelson et al.; Noblit & Dickson; and U.S. Department of Education). However, most of these studies tell us little about whether charter schools are “adding value.”

Thirty-three made some attempt to look at change over time in student or school performance. Sixteen of these actually followed students over time. The other 17 examined growth by looking at changes in school-wide or grade-wide scores. What do these studies tell us about the gains students are making in charter schools?

- Sixteen studies find that *overall gains in charter schools were larger* (Booker et al.; Carr & Staley; EdSource; Florida Dept. of Ed.; Greene et al.; Gronberg & Jansen (2005 study); Hoxby & Rockoff; Loveless; MA Department of Education; Metis; Miron, DE; Miron et al, DE, Miron & Horn; Miron, Nelson & Risley; NY Board of Regents; and Slovacek et al.).
- Seven studies find charter schools’ gains higher than in district schools for *certain categories* of charter schools. Examples include at-risk schools in Texas (Gronberg & Jansen); elementary schools in Arizona (Solmon & Goldschmidt); elementary and middle schools in Connecticut (Miron); high schools in California (Raymond) and high school students who were the furthest behind in Florida (FL Office of Program Policy Analysis and Government Accountability).
- Six studies find *comparable gains* (both Zimmer et al change analyses and Rogosa, all in CA; Bettinger, Hanushek et al. and Sass, once they account for the age of the charter school).
- Four find that charter schools’ gains *lagged behind* those in districts generally – the two NC studies (Bifulco & Ladd and Noblit & Dickson), Henig et al (DC), and Miron and Nelson (Michigan).

So while the change-over-time picture is somewhat mixed, in general it is very encouraging about the gains students are making in charter schools. Only in North Carolina, Michigan, and DC do these analyses show that district students are out-gaining charter students overall. Most of the other studies show charter students or schools out-gaining their district peers, at least in some significant categories of schools.

Schools gaining ground over time? Several of the studies (Ballou et al, Bifulco & Ladd; Miron & Horn; Miron et al.; Booker et al.; Hanushek et al.; Sass; Shapley et al, Gronberg & Jansen) explicitly examine a more specific question: do charter schools get better as they age?⁸ Do schools improve as they overcome initial start-up issues? Bifulco & Ladd finds that they do not: gains experienced by charter school students in NC are still lower even in more mature schools.

In Idaho, Ballou et al find that newer charter schools appear to be more effective than schools that have been in operation longer. Miron et al. finds only small differences based on first year of operation. The other studies find that as charter schools mature, they do better. Booker, Hanushek et al., Gronberg & Jansen (2001 and 2005), Sass, and Shapley et al specifically find that rates of individual student growth in charter schools rise as schools get older.

Recommendations

A number of recommendations emerge from this review. First, we need **better research on how well students in charter schools are performing**. Specifically, we need many more studies that track individual students over time, ideally in a randomized experimental setting, but at the very least using sophisticated methods to attribute value-added. These studies will provide the best information about how well individual schools are working for children.

We would also benefit from research that looks at other outcomes, such as dropout/completion rates in high schools, post-graduation outcomes like college persistence, attendance rates, satisfaction levels, performance in subjects other than reading and math, and how well charter schools perform on aspects of their accountability plans other than standardized test scores. Also important is the question of “productivity.” Charter schools typically receive lower funding than districts do – what does this mean for the level of outcomes produced for each dollar provided to charter vs. district schools? These other measures are especially important if standardized test comparisons suggest that charter and district performance is similar, as they do in many of the examined studies.

Second, we need more and better research on **why some charter schools perform so much better** than other charter schools and non-charter schools. Moving beyond average performance, we see a significant number of charter schools that appear to perform far better than other schools. In all likelihood, many of the same factors that research has shown differentiate schools generally are at work in the charter sector. But there may be unique characteristics of leadership, organization, or program that are particularly valuable in the charter sector. Authorizers, policymakers, educators, and parents would benefit from understanding these.

Third, we need much **more research attention on evaluating chartering as a policy**. Knowing how well the average charter school student is performing does not answer most of the key questions that confront policymakers, like whether and how to expand the number of charter schools; how to change the way authorizing works; how to change charter schools’ funding and regulatory regimes; and how to stimulate the supply of more high-quality charter schools. Evaluating these dimensions is time-consuming and costly, but necessary if research is going to provide policymakers with useful, actionable information about how to make chartering work better as a strategy for improving public education.

The results to date **suggest important areas for action** by policymakers and practitioners. The existence of high quality charter schools and high growth rates for charter schools, at least in many states and studies, suggests that chartering holds promise as an approach to getting better schools. What we have is an experiment worth continuing – and refining. The existence of poor

quality charter schools makes clear that we have more to learn about how to generate success with this policy. Together, these findings suggest a challenging agenda for policymakers and practitioners: to tap the full promise of chartering by continuing to expand the number of charter schools, while getting smarter about authorizing, accountability, and supply-creation. If we can do that, we can hope that a greater preponderance of tomorrow's charter schools will match the outstanding quality of today's best.

Table 2. Summary of Charter Achievement Studies, 2001 to present

Panel Studies (following individual students over time)						
Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Ballou, Teasley, & Zeidner (various institutions, conference paper)	ID	2006	Consider gain scores of CS vs. district students using two methods, one hinging on students who switch sectors and whose gains in the two settings can thus be compared, and one that more simply compares gains in the CS vs. district sector.	<ul style="list-style-type: none"> ▪ Analysis of switchers favors CS, while simpler gains analysis does not. ▪ Elementary students in CS have made greater gains than they would have made had they remained in traditional public schools (though the difference in higher grades is reversed or insignificant). ▪ The smallest drop in gain scores occurred among students who moved from the district schools to CS. The largest drop occurred among students who moved in the opposite direction. 	<ul style="list-style-type: none"> ▪ Use both longitudinal and cross-sectional data to examine CS achievement 	<ul style="list-style-type: none"> ▪ Switcher analysis: students who switch sectors may be significantly different from other students, biasing results. ▪ Simple gains comparison: controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Bifulco & Ladd (Duke University)	NC	2004	Compares average individual test score gains of charter students with those of district students and with the same students' gains in district schools	<ul style="list-style-type: none"> ▪ Students in CS make considerably smaller achievement gains ▪ Even more mature CS showed smaller gains 	<ul style="list-style-type: none"> ▪ Follows five cohorts of students for multiple years ▪ Uses sophisticated statistical model to attribute value-added to CS ▪ Compares student gains in charter schools to their own gains in district schools ▪ Analyzes whether results vary by age of school 	<ul style="list-style-type: none"> ▪ Though overall sample is very large, CS effect identified based on ~6,000 students who attended both charter and district schools long enough to calculate gains. ▪ Students who switch sectors may be significantly different from other students, biasing results.
Booker et al. (various institutions)	TX	2004	Compares average individual test score gains in CS and district schools using five cohorts of students	<ul style="list-style-type: none"> ▪ Students lose ground initially when moving to CS but gain ground over time ▪ School performance improves as CS progress beyond first year of operation 	<ul style="list-style-type: none"> ▪ Follows five cohorts of students for multiple years ▪ Uses sophisticated statistical model to attribute value-added to CS 	<ul style="list-style-type: none"> ▪ Though overall sample is very large, paper does not indicate number of students in different categories of "movers," which is central to analysis ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Florida Dept. of Ed.	FL	2004	Compares gains of CS and district students – overall and within subgroups – between 01-02 and 02-03	<ul style="list-style-type: none"> ▪ On 3 of 4 tests analyzed, CS students out-gained district students (no difference on 4th test) ▪ CS students started out behind, but would close gap on those three tests in 4-9 years ▪ No CS subgroup had lower gains on any test ▪ In 9 of 20 subgroups, CS gains were larger. ▪ CS advantage was most pronounced for students with disabilities and gifted 	<ul style="list-style-type: none"> ▪ Examines individual student gains over time ▪ Uses Hierarchical Linear Modeling and controls for numerous student characteristics ▪ Analyzes gains of subgroups of students 	<ul style="list-style-type: none"> ▪ No discussion of statistical significance of differences ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Florida Office of Program Policy Analysis and Government Accountability	FL	2005	<ul style="list-style-type: none"> ▪ Compares gains of CS and district students – overall and within subgroups – between 2002-03 and 2003-04. ▪ Comparison schools selected based on similar characteristics including learning levels and student demographics. 	<ul style="list-style-type: none"> ▪ CS students are more likely to be academically behind when they entered their schools, compared to students remaining in district schools. ▪ CS students were slightly less likely to meet grade-level standards compared to students in district schools. ▪ Once in CS, however, students achieved comparable learning gains in math and reading as similar students in district schools. ▪ Students who were furthest behind made more progress in charter high schools than students in district high schools. 	<ul style="list-style-type: none"> ▪ Examines gains over time ▪ Discusses statistical significance and differences 	<ul style="list-style-type: none"> ▪ Does not provide complete tables ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Gronberg & Jansen (Texas Public Policy Foundation)	TX	2001	Compare changes in an index of test scores in CS and district schools, both at-risk and non-at-risk	<ul style="list-style-type: none"> ▪ At-risk CS show a positive effect relative to district schools; non-at-risk schools show opposite effect ▪ Students often exhibit one year drop in scores when moving to a CS ▪ CS achieve a given level of performance at a lower cost level than comparable districts 	<ul style="list-style-type: none"> ▪ Follows individual students over time ▪ Uses sophisticated statistical model to attribute value-added to CS ▪ Examines at-risk and non-at-risk CS independently 	<ul style="list-style-type: none"> ▪ Authors do not report complete tables, use typical statistical tests or explain variables and findings clearly ▪ Only looks at one-year changes despite using 4 yrs. of data ▪ Funding comparisons problematic b/c authors use district-level expenses for district schools, ignoring wide intra-district variability ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Gronberg & Jansen (Texas Public Policy Foundation)	TX	2005	Using a matched sample strategy and test score observations, student performance on state assessments (TAKS) and the effect of charter competition on district student performance are examined	<ul style="list-style-type: none"> ▪ Academic gains for elementary and middle school students who remain in CS for several years are significantly higher than their matched counterparts in district schools. ▪ Students enrolled in at-risk CS have larger achievement gains than their matched counterparts in district schools ▪ CS are more successful with lower achieving students than higher achieving ones. ▪ Achievement of high school students in CS is lower than their matched counterparts in district schools 	<ul style="list-style-type: none"> ▪ Using matching methodology, tracks individual students over time ▪ Uses sophisticated statistical model to attribute value-added to CS ▪ Examines both at-risk and non-at-risk CS 	<ul style="list-style-type: none"> ▪ In exploration of TAKS score growth, only examines two years worth of data. ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Hanushek, Kain, & Rivkin (Stanford University)	TX	2002	Compares average test score gains of charter students with the same students' gains in district schools.	<ul style="list-style-type: none"> ▪ CS gains are initially lower, but no significant differences after 2 or 3 years of CS life 	<ul style="list-style-type: none"> ▪ Follows individual students for 4 consecutive years ▪ Uses sophisticated statistical model to attribute value-added to CS ▪ Compares student gains in charter schools to their own gains when they attended district schools before or after attending charter school 	<ul style="list-style-type: none"> ▪ Not clear how many students included in the key comparison – kids who attended both charter and district schools long enough to calculate gains. ▪ Students who switch sectors may be significantly different from other students, biasing results.
Hoxby & Rockoff (Harvard University & Columbia Business School)	Chicago	2004	Compares performance of students who are lotteried in and out of schools run by Chicago Charter School Foundation	<ul style="list-style-type: none"> ▪ CS students have higher math and reading scores, but only reading difference is statistically significant. ▪ Students who enter CS at early grades (K-3) have greater benefits than those entering later (who have lower achievement in some grades and subjects) 	<ul style="list-style-type: none"> ▪ Uses randomized experimental design, the “gold standard” of school effects research ▪ Uses other sophisticated statistical controls to identify impact of CS 	<ul style="list-style-type: none"> ▪ Examines only three schools operated by one organization, the Chicago Charter School Foundation ▪ Thus far only includes limited analysis of change over time in student test scores

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Massachusetts Department of Education	MA	2006	Compares state assessment performance (English Language Arts and math) of CS and their counterpart sending districts (CSD) and examines growth in scores over time for students continuously enrolled in CS and CSD.	<ul style="list-style-type: none"> ▪ CS students are performing as well as, and often better than, their counterparts in district schools. When there is a statistically significant difference in performance, it almost always favored the CS rather than the CSD. ▪ Higher performance in CS was even more prevalent among African and Hispanic students and low-income students. ▪ Six CS had growth scores in ELA that were significantly larger than their CSDs and six had scores significantly lower. 14 CS had growth scores in math that were significantly larger than their CSD. ▪ CS much more likely to be substantially above the state average. 	Uses hierarchical linear modeling to assess student achievement over time (quantifies the amount of growth attained by each student and school/district by examining all of the test scores for all of the students continuously enrolled)	<ul style="list-style-type: none"> ▪ Examines only English Language Arts and math performance. ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)						
Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Miron (Eval. Cntr. Western Michigan University)	DE	2004	Compares individual progress in CS and districts schools using matched cohorts	<ul style="list-style-type: none"> ▪ CS students in grades 8 and 10 are gaining in achievement faster ▪ At grade 5, the differences in achievement are negligible ▪ Some evidence that CS attract higher performing students in the upper grades 	<ul style="list-style-type: none"> ▪ Follows individual children over time ▪ Uses a quasi-experimental design to create demographically matching cohorts ▪ Uses advanced statistical model to measure change over time 	<ul style="list-style-type: none"> ▪ Students who had not taken the test at the designated time were not included (i.e. those repeating a grade or coming from a private school) ▪ Controls may not adequately account for unobserved differences in students.
Miron, Wygant, Cullen, & Applegate (Eval. Cntr. Western Michigan University)	DE	2006	Compares individual progress in CS and district schools using matched cohorts (charter students are matched according to background and demographic indicators with district students)	For second year in a row, CS are doing a better job of improving achievement than district schools. The most dramatic results are in grade 10, in which charter schools far outpace their traditional counterparts. For the middle grades, results favor CS, particularly in reading.	<ul style="list-style-type: none"> ▪ Uses advanced statistical model to measure change over time ▪ Follows individual children in CS and district schools over time in matched student design 	<ul style="list-style-type: none"> ▪ Controls may not adequately account for unobserved differences in students.

Panel Studies (following individual students over time)						
Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Noblit & Dickson (NC State Board of Education, UNC-Chapel Hill)	NC	2001	Compares gains over time by individual students	CS students lose ground over time, but differences small	Follows CS and some CS students for four years	<ul style="list-style-type: none"> ▪ Gain analysis sample is small, only 747 students in 23 schools; 60% from 4 schools. ▪ No controls for student differences.
Sass (Florida State University) (Note: Findings are preliminary and subject to revision.)	FL	2004	Compares growth of individual students in CS and district schools over three years	<ul style="list-style-type: none"> ▪ Average CS achievement is lower in new charter schools but CS gains reach parity in reading in 2 years and math in 4. ▪ Schools managed by for-profit entities perform no differently from other CS 	<ul style="list-style-type: none"> ▪ Follows individual students over time ▪ Uses sophisticated statistical model to attribute value-added to CS ▪ Uses data on 15,000 students who switched between CS and district schools to identify effects of CS 	<ul style="list-style-type: none"> ▪ FL administers two tests, one based on state standards and one based on national norms (variant of SAT-9). This analysis uses only the norm-referenced scores. Author argues this is strength; others say standards-based more meaningful ▪ Students who switch sectors may be significantly different from other students, biasing results.

Panel Studies (following individual students over time)

Authors/ Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Solmon & Goldschmidt (Goldwater Institute)	AZ	2004	Compares individual level growth in CS and district schools over three years	<ul style="list-style-type: none"> ▪ Overall CS students grew 3 percentile points faster annually ▪ Results varied by grade level. The charter advantage was at the elementary level; middle school gains were equal; in high schools district students gained more. 	<ul style="list-style-type: none"> ▪ Follows individual students over time ▪ Uses sophisticated statistical model to attribute value-added to CS ▪ Includes the universe of charter school students ▪ Disaggregates by grade level 	<ul style="list-style-type: none"> ▪ 3-year time frame does not allow comparison of gains individual students made while in district schools vs. gains the same students made in CS ▪ Controls may not adequately account for unobserved differences in students.
Zimmer et al. (RAND)	CA	2003	Compares individual student progress in CS and six districts	Mixed results, but overall differences are small, CS are “keeping pace.”	Follows individual children over time	<ul style="list-style-type: none"> ▪ Only examines 6 districts, though these have a large number of charter students ▪ Controls may not adequately account for unobserved differences in students.

Table 3. Summary of Charter Achievement Studies, 2001 to present

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Bettinger (Case Western Reserve University)	MI	2005	Compares change in 4 th grade average performance from year to year in CS and district schools	<ul style="list-style-type: none"> ▪ CS average scores do not improve any faster than district school average scores, and may decline 	<ul style="list-style-type: none"> ▪ Complex controls for school demographic composition, pre-charter performance, and other factors 	<ul style="list-style-type: none"> ▪ Analysis looks at change in average scores, not changes in individual scores ▪ Analysis limited to CS that opened 1996-97

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Carr & Staley	OH	2005	Compares gains made by low-performing charter and district schools on passage rates of Ohio Proficiency Tests (OPT) and Performance Score Indexes (PSI) from 2002-2004 in CS and district schools	<ul style="list-style-type: none"> ▪ CS in the big eight school districts made greater gains on the OPT, at statistically significant levels, than district schools in several subjects and levels. In some grades/levels, there were no statistical differences. In no case did CS perform worse than district schools. ▪ Charter schools made greater gains on PSI scores. 	<ul style="list-style-type: none"> ▪ Compares charter schools to home district schools, not just statewide averages, using regression analysis ▪ Uses controls for demographics and school based indicators 	<ul style="list-style-type: none"> ▪ Analysis looks at change in average scores, not changes in individual scores ▪ Analysis limited to 690 low-performing schools in Ohio's big 8 districts

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
EdSource	CA	2005	<ul style="list-style-type: none"> ▪ First half of study compares percentage of CS, broken down into conversions, start-ups, established, new, classroom-based and non classroom-based, and non-charter schools meeting 2004 API growth targets ▪ Second half of study compares percentage point increase of CS vs. district students scoring proficient or above and decrease in far below basic on math and English on CST from 2002-2004 in subset of CA schools ▪ Compares percentage of CS vs. matched district schools showing improvement ▪ CS and district schools are matched based on student demographics and starting points. 	<ul style="list-style-type: none"> ▪ Classroom-based schools, particularly in CS, consistently outperformed non classroom-based schools ▪ 57% of elementary CS met API growth targets, compared to 46% of non-CS; 81% vs. 54% in middle schools; 58% vs. 49% in high schools ▪ CS students in grades 3, 7, and 10 showed slightly greater improvement in both CST English and math ▪ A majority of CS serving grade 7 & 10 students showed greater improvement than district schools on math and English CST ▪ CS outperformed district schools in reducing percentage scoring “far below basic” on CST in all grades studied 	<ul style="list-style-type: none"> ▪ Use API growth targets, a measure of improvement over time ▪ In second half of study, maintained specific criteria for schools to be included in the study and used for analytical comparisons ▪ Paper includes analysis of other methods for comparison and works around their weaknesses 	<ul style="list-style-type: none"> ▪ For whole study, gains over time are school averages, not gains of individual students ▪ Many CS missing API data ▪ Only have CST data for grades 3, 7, and 10 in English and 3 and 7 in mathematics ▪ May be element of bias in design by only including “well established schools” for second half of study

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Greene, Forster, & Winters (Manhattan Institute)	Multi-state	2003	Focuses on CS serving a “general population” rather than schools targeting at risk, dropouts, etc. Compare year-to-year gains in average test score between CS and nearby district schools in 5 states	<ul style="list-style-type: none"> ▪ CS slightly outperform district schools across states (2-3 percentile points) ▪ CS students in TX and FL outperform district peers by 7-8 percentile points 	<ul style="list-style-type: none"> ▪ Compares “apples to apples” – CS serving a general population with nearby district schools ▪ Multi-state analysis more generalizable than single-state studies 	<ul style="list-style-type: none"> ▪ Results potentially sensitive to definition of “school serving general population” ▪ Different tests administered in different states ▪ No results reported for 6 of 11 initially included states; reason not explained
Henig et al. (Center for Washington Area Studies, GWU)	DC	2001	<ul style="list-style-type: none"> ▪ Compares CS and district schools that improve in the percentage of students scoring “Below Basic” on the SAT-9 between 1999-2000 	<ul style="list-style-type: none"> ▪ District schools were less likely to show declines in student scores ▪ 30% CS improved in reading, 58% declined; 40% district schools improved in reading, 15% declined ▪ 40% CS improved in mathematics, 38% declined; 69% district schools improved in mathematics, 6% declined. 	<ul style="list-style-type: none"> ▪ Looks at change over time 	<ul style="list-style-type: none"> ▪ Gains over time are school averages, not gains of individual students ▪ Limited ability to control for school demographic differences. ▪ As authors note, it is too early to draw any final conclusions

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Loveless (Brown Center, Brookings)	Multi-state	2003	Compares changes in average CS and district test scores in 10 states between 2000 and 2002	<ul style="list-style-type: none"> ▪ CS have lower scores than district schools, but larger gains ▪ EMO schools had lower scores than non-EMO and district schools but larger gains ▪ CA conversion charters had higher scores than start-ups and district schools, but similar gains 	<ul style="list-style-type: none"> ▪ Multi-state analysis more generalizable than single-state studies ▪ Analyzes changes over time in school average scores ▪ Breaks out EMO vs. non-EMO and (in CA) conversion vs. start-up 	<ul style="list-style-type: none"> ▪ Different tests administered in different states
Metis Associates	MO (KC)	2004	Compares change in average CS student score to average district and state score, 2000-2003	<ul style="list-style-type: none"> ▪ In all subjects and grades, CS students started out behind ▪ CS closed the gap in all subjects and grades with both district and state 	<ul style="list-style-type: none"> ▪ Analyzes change over time in student scores 	<ul style="list-style-type: none"> ▪ Analysis looks at change in overall average scores, not changes in individual student scores ▪ No controls for student and school characteristics

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Miron (ConnCAN, Evaluation Center, Western Michigan University)	CT	2005	<ul style="list-style-type: none"> ▪ Compares changes in averaged scale scores over time for grades 4, 6, and 8. ▪ Uses trend data for grade 10, comparing each consecutive 10th grades' averaged test scores. 	<ul style="list-style-type: none"> ▪ CS students gain in achievement faster in lower and middle grades ▪ 3 of the 4 cohorts for elementary and middle CS students showed gains in achievements in all subject areas ▪ CS 10th graders seem to gain more slowly, but based on small sample 	<ul style="list-style-type: none"> ▪ Analyzes change over time in school average scale scores ▪ Breaks out results by grade level 	<ul style="list-style-type: none"> ▪ Gains over time are school averages, not gains of individual students ▪ Few charter schools in state to use for comparison ▪ By nature of CT testing schedule, test data only available every other year ▪ Compares each individuals 10th grade between 2001 and 2004 (CT's 10th grade test is only given once to each 10th grade)

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Miron & Horn (Connecticut State Department of Education, Eval. Cntr. Western Michigan University)	CT	2002	<ul style="list-style-type: none"> ▪ Compares changes in school-level scores in CS and district schools over 5 years using two kinds of analysis ▪ “Trends” analysis compares changes in a single grade level over time (e.g. this year’s 4th grade vs. last year’s 4th grade) ▪ “Cohort” analysis attempts to follow a grade of students over time (e.g. this year’s 6th graders with 4th graders two years ago) 	<ul style="list-style-type: none"> ▪ Charter schools start out behind but make larger gains ▪ After two years, CS still lag districts on average ▪ After 4-5 years, CS outperform districts on average 	<ul style="list-style-type: none"> ▪ Multiple years of data ▪ Cohort analysis allows comparison of 6th grade scores with 4th grade scores two years prior; not all the same students, but mostly 	<ul style="list-style-type: none"> ▪ Trends study: comparing this year’s 4th grade with last year’s tells us nothing about how much learning took place – different students ▪ Cohort study: gains over time are grade level averages, not individual students.
Miron & Nelson (Chapter of Corwin Press book)	MI	2002	<ul style="list-style-type: none"> ▪ Compares changes in school-level pass rates in CS and host districts ▪ Compares relative changes in pass rates in EMO and non-EMO CS 	<ul style="list-style-type: none"> ▪ Host district changes exceed CS changes in all subjects and grades except 4th gr. math ▪ Non-EMO changes exceed EMO changes in all subjects and grades except 7th gr. math 	<ul style="list-style-type: none"> ▪ Multiple years of data 	<ul style="list-style-type: none"> ▪ Changes over time are changes in schoolwide pass rates, not gains of individual students

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Miron, Nelson & Risley (Pennsylvania State Department of Education, Eval. Cntr. Western Michigan University)	PA	2002	Compares CS test scores with those of a set of similar district schools	<ul style="list-style-type: none"> ▪ CS students score slightly lower than demographically and geographically similar district schools ▪ CS gain ground over time vs. similar district schools; would catch up to district schools in 3 years if continued this rate of growth 	<ul style="list-style-type: none"> ▪ Seeks to compare charter schools to similar district schools, not just all district schools using regression analysis ▪ Analyzes how relative CS scores change as they mature 	<ul style="list-style-type: none"> ▪ In some years very small number of CS participated in tests
New York State Board of Regents	NY	2003	Compares change in pass rates on state tests between CS and their host districts, 2002-03	<ul style="list-style-type: none"> ▪ CS often started out behind but had larger increases ▪ Of 39 comparisons, CS had larger increases in % passing than host districts in 34 cases ▪ In 14 cases % passing in CS rose by 25 points or more; none of the host districts saw increases that large 	<ul style="list-style-type: none"> ▪ Compares CS to host districts, not statewide 	<ul style="list-style-type: none"> ▪ Analysis compares 2003 4th graders with 2002 4th graders (for example). Since these are not the same students, analysis is not looking at student growth over time ▪ No disaggregation by student or school characteristics

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Raymond (CREDO, Hoover Institution, Stanford)	CA	2003	Compares CS and district test scores and school average gains over time.	<ul style="list-style-type: none"> ▪ Statewide, average scores in CS lower, but difference generally not statistically significant ▪ Compared to schools in own district, CS elem. and middle schools had similar gains ▪ High schools had significant larger gains 	<ul style="list-style-type: none"> ▪ Analyzes changes over time in school average scores ▪ Includes controls for many factors likely to affect school scores 	<ul style="list-style-type: none"> ▪ Gain analysis does not explain very much of the variance in gains from school to school
Rogosa (Stanford University)	CA	2003	Compares scores and gains of CS and district schools from 1999-2002	<ul style="list-style-type: none"> ▪ CS have lower average scores than district ▪ CS progress is comparable to district ▪ Separate analysis of disadvantaged students overall & within concentrated poverty schools 	<ul style="list-style-type: none"> ▪ Includes all CS and district schools with data during the period ▪ Analyzes changes over time in school average scores 	<ul style="list-style-type: none"> ▪ Gains over time are averages of all students in certain grade levels, not gains of individual students

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Slovacek, Kunnan, & Kim	CA	2002	Compares change in scores of all CS and district schools and of schools serving high-poverty populations, 1999-2001	<ul style="list-style-type: none"> ▪ CS scores increased slightly faster than district scores overall ▪ In schools with >50% poverty, the CS advantage was larger – a 23% rise vs. 19% ▪ In schools with >75%, CS advantage larger still: 28% rise vs. 24% 	<ul style="list-style-type: none"> ▪ Disaggregates by looking at schools serving different types of student population ▪ Analyzes change over time in school average scores 	<ul style="list-style-type: none"> ▪ Gains over time are school averages, not gains of individual students ▪ Analysis mis-coded some schools in ways that make a difference for the study's conclusions.

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Shapley, Huntsberger, Maloney, and Sheehan (Texas Center for Educational Research)	TX	2006	Compares state accountability ratings of charter and district schools across time (1999-2005).	<ul style="list-style-type: none"> ▪ State assessment passing rate comparisons for standard charter campuses and district schools favor district schools. ▪ State assessment passing rate comparisons for alternative education charter campuses and alternative district schools favor charters in most subjects. ▪ Continuous enrollment in CS has a significant positive effect on achievement. ▪ Controlling for students' prior academic and social backgrounds, consecutive years spent in a CS are a positive predictor of language arts and math scores. 	<ul style="list-style-type: none"> ▪ Disaggregates by looking at schools serving different types of student population ▪ Analyzes changes over time in accountability ratings 	<ul style="list-style-type: none"> ▪ Gains in ratings over time are school averages, not gains of individual students ▪ Scores over time are only available for charter schools.

Other Change Studies (e.g., looking at changes in school average results over time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Zimmer et al. (RAND)	CA	2003	Compares changes in CS and district school test scores over 4 years	No statistically significant difference in gains between CS and district schools	<ul style="list-style-type: none"> ▪ Looks at change over time ▪ Large sample 	Gains over time are school averages, not gains of individual students

Table 4. Summary of Charter Achievement Studies, 2001 to present

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Bates and Guile (Oregon Department of Education)	OR	2006	Compares AYP data and state assessment ratings of CS and statewide averages in 2004-05	<ul style="list-style-type: none"> ▪ Of the 39 charter schools that received an AYP rating, 56% received an overall Met AYP rating, compared to 65% of all rated Oregon schools ▪ CS outperform district elementary benchmark levels (grades 3 and 5), but lower achievement levels at the middle and high school levels 	<ul style="list-style-type: none"> ▪ Disaggregates data by grade level 	<ul style="list-style-type: none"> ▪ Data includes only 70 percent of Oregon's charter schools ▪ Analyzes achievement at a point in time rather than gains over time
Bifulco & Ladd	NC	2004	Compares levels of performance by CS and district students, using complex regression model	CS students under-perform similar district students by 0.16 standard deviations in reading and 0.25 in math	<ul style="list-style-type: none"> ▪ Includes a large sample of CS and district students ▪ Controls for important student background characteristics 	Analyzes achievement at a point in time rather than gains over time*

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Chicago Public Schools	IL (Chicago)	2006	Compares state assessment ratings and other academic indicators in 2004-05	<ul style="list-style-type: none"> ▪ CS performed better than neighboring district schools in reading, science and math. ▪ CS out-performed their relative neighborhood schools on 86 percent of the relative student performance measures. ▪ Most charter high schools had a higher percentage of students meeting or exceeding Illinois Learning Standards and higher graduation rates than their comparison neighborhood schools. 	<ul style="list-style-type: none"> ▪ Uses weighted averages 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time ▪ Does not control for student background characteristics.
Colorado State Dept. of Ed.	CO	2003	<ul style="list-style-type: none"> ▪ Compares percentage of CS and district school students statewide that score proficient or above. ▪ Compares percentage proficient within matched demographic bands (e.g. 80+% free lunch / minority) 	<ul style="list-style-type: none"> ▪ Overall CS students in grades 3-8 performed better than district students; 9-10 graders in CS performed worse. ▪ Within matched bands, similar results. 	<ul style="list-style-type: none"> ▪ Includes nearly all CS students statewide ▪ Disaggregates by race, income 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Colorado State Department of Education	CO	2006	<ul style="list-style-type: none"> ▪ Compares percentage of CS and district school students statewide that score proficient or above on statewide assessments. ▪ Compares percentage proficient within matched demographic bands 	<ul style="list-style-type: none"> ▪ Elementary public CS students did better academically than students in traditional public schools. ▪ Charter and non-charter students generally scored similarly within the middle school years in reading and math. Charter high school students performed below non-charter school students in writing, reading and math in the high school years. 	<ul style="list-style-type: none"> ▪ Includes nearly all CS students statewide ▪ Disaggregates by race, income 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time
Eberts & Hollenbeck (Upjohn Institute)	MI	2002	Compares 4 th and 5 th grade test scores of CS and district students over 5 years	<ul style="list-style-type: none"> ▪ CS students have lower test scores than district students by 3-10% 	<ul style="list-style-type: none"> ▪ Includes five years of data (but not longitudinal analysis) 	<ul style="list-style-type: none"> ▪ Only analyzes 4th and 5th grade scores ▪ Analyzes achievement at a point in time rather than gains over time ▪ Analysis does not explain very much of variance in scores

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Finnigan et al. (SRI)	Multi-state	2004	Compares percentage of CS and district schools meeting school-level state performance standards in five states (CO, IL, MA, NC, TX) in 2001-02	<ul style="list-style-type: none"> ▪ A higher percentage of district schools meet state performance standards in these 5 states 	<ul style="list-style-type: none"> ▪ Looks at 5 states ▪ Controls for background characteristics ▪ Uses more than one strategy to analyze data ▪ Uses state performance standards 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time (2001-02) rather than gains over time
Florida Dept. of Ed.	FL	2004	Compares average state scores and % proficient of CS and district students	<ul style="list-style-type: none"> ▪ Average CS student test scores are generally slightly lower than district averages, but differences typically “negligible” (<1%) ▪ Differences in 10th grade are larger, with CS students lagging by 3% ▪ Differences do not translate into differences in percentage proficient (~50% of charter and district students proficient) 	<ul style="list-style-type: none"> ▪ Compares large numbers of CS and district students 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time* ▪ No discussion of statistical significance of differences
Gronberg & Jansen (Texas Public Policy Foundation)	TX	2001	Compares average CS and district student test scores and % proficient	<ul style="list-style-type: none"> ▪ Average student test scores and % proficient lag substantially behind those of district students 	<ul style="list-style-type: none"> ▪ Examines four successive years of test score data 	<ul style="list-style-type: none"> ▪ Analyzes achievement at points in time rather than gains over time*

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Henig et al. (Center for Washington Area Students, GWU)	DC	2001	Compares the average percentages of CS and district students scoring "Below Basic" on the SAT-9	<ul style="list-style-type: none"> ▪ CS had nearly twice the percentage of students scoring "Below Basic" in both reading and mathematics ▪ CS are concentrated in 10 lowest performing schools in DC, yet only 1 CS is ranked among top 50 performing schools 	Breaks down schools using demographic information, but not in a statistical model	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time* ▪ As authors note, it is to early to draw any final conclusions
Hoxby (Harvard University & National Bureau of Economic Research)	Nation	2004	Compares % proficient at CS with that of nearest district school and nearest racially similar district school	<ul style="list-style-type: none"> ▪ CS students are 3-5% more likely to be proficient than students in neighboring schools ▪ The CS advantage tends to be greater in: <ul style="list-style-type: none"> ▪ Older CS ▪ CS in areas with high poor or Hispanic populations ▪ In states with charter laws that provide more autonomy and funding 	<ul style="list-style-type: none"> ▪ Includes schools serving 99% of nation's elementary CS students ▪ Compares CS to schools that students would be likely to attend in absence of CS ▪ Breaks down results by age of school, state, demographic characteristics of student population, and other variables 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time ▪ Analysis limited to a single elementary grade level in each state

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Legis. Office of Education Oversight	OH	2003	Compares scores and percent proficient in CS vs. district schools in 4 years. Only CS with at least 2 yrs. operation included	<ul style="list-style-type: none"> ▪ Statewide, district schools generally outscored CS but differences were slight ▪ Differences between demographically similar district and CS not generally statistically significant ▪ Statistically significant differences between matched schools generally favored district schools 	<ul style="list-style-type: none"> ▪ Part of analysis matches CS with district schools similar in grade span and demographics 	<ul style="list-style-type: none"> ▪ Analyzes achievement at points in time rather than gains over time ▪ Several charter schools omitted from study due to poor data ▪ Matching criteria not clearly specified
Loveless (Brown Center, Brookings)	Multi	2003	Compares average test scores in CS and district schools in 10 states in 2002	<ul style="list-style-type: none"> ▪ 62% of district schools with similar demographics out-score CS 	<ul style="list-style-type: none"> ▪ Analyzing multiple states makes findings more generalizable than single state studies ▪ Controls for some student demographic characteristics 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time* ▪ Different tests administered in different states

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Massachusetts Department of Education	MA	2006	Compares state assessment performance (English Language Arts and math) of CS and their counterpart sending districts (CSD)	<ul style="list-style-type: none"> ▪ In both English Language Arts and Mathematics, at least 30 percent of the charter schools performed statistically significantly higher than their CSD in each year with the exception of 2001. (10% did worse.) ▪ Higher performance in CS was even more prevalent among African and Hispanic students and low-income students. 	Examines performance by student characteristics.	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time* ▪ Examines only English Language Arts and math performance.
Nelson & Miron (Illinois State Board of Education, Eval. Cntr. Western Michigan University)	IL	2002	<ul style="list-style-type: none"> ▪ Compares percent passing states tests in CS and demographically similar schools statewide ▪ Compares percent at or above national norms in Chicago CS vs. composite group of district schools 	<ul style="list-style-type: none"> ▪ In statewide analyses, CS perform at or just below demographically similar schools. ▪ In Chicago analysis, CS have higher proportions scoring at or above national norms than comparison composites 	Chicago analysis compares CS performance to a composite of schools CS students would likely have attended	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than change over time ▪ Includes a small number of schools (8-13 in statewide analyses)

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Nelson, Rosenberg, & Van Meter (American Federation of Teachers)	Nation	2004	Compares 2003 NAEP national reading and math scores for 4 th and 8 th graders in charter vs. district schools (see also U.S. Department of Education, below, which analyzed same data).	<ul style="list-style-type: none"> ▪ CS students had significantly lower achievement in 4th gr. math and reading and 8th grade reading ▪ Controlling for family income and school location, CS students still score significantly lower in 4th grade. ▪ Controlling for race there are no significant differences between CS and district students 	National study using highly-regarded NAEP test scores – a common national test for all charter and non-charter students.	<ul style="list-style-type: none"> ▪ Small sample included only 4% of charter students, and only in 4th and 8th grade ▪ Analyzes achievement at a point in time rather than gains over time ▪ Unable to control for race, income, & other factors simultaneously due to data limitations
Noblit & Dickson (NC State Board of Education, UNC-Chapel Hill)	NC	2001	Compares percent proficient in CS vs. district schools	<ul style="list-style-type: none"> ▪ CS proficiency levels lower than district schools ▪ Black-white achievement gap larger in CS 	Breaks out analysis by race	Analyzes achievement at a point in time rather than gains over time*

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Plucker, Eckes, Ravert, Hansen, & Trotter	GA	2005	Compares CS and district AYP designations and elementary and middle school testing data in reading, English /language arts, and mathematics	<ul style="list-style-type: none"> ▪ Two years of AYP data shows that a greater percentage of CS met AYP than district schools. ▪ CS students are achieving at similar levels as students statewide and in comparison schools; in some cases performance results favor CS. ▪ Evidence of positive impact of length-in-attendance in CS on student achievement in Grade 4 (some effect in Grades 6,7,8) 	<ul style="list-style-type: none"> ▪ Use comparison schools for the CS based on geographic proximity and some student characteristics (each CS matched with up to three different comparison schools). ▪ Controls for ethnicity and gender. ▪ Examines statistical significance. 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time ▪ Does not track performance before and after enrollment in CS. ▪ No controls for economic status of students
Raymond (CREDO, Hoover Institution, Stanford)	CA	2003	Compares CS and district test score levels 1999-2002	<ul style="list-style-type: none"> ▪ CS elementary and middle schools had scores comparable to district schools statewide and in districts with charters. ▪ CS high schools had lower scores 	<ul style="list-style-type: none"> ▪ Analyzes elementary, middle, and high schools separately ▪ Compares CS both to schools statewide and schools in districts with charters (their “direct competitors”) ▪ Uses multiple years of data 	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time* ▪ Relative performance changes significantly from year to year, raising questions re: how well comparisons reflect true differences

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Roy and Mishel (Economic Policy Institute)	Nation	2005	Reevaluates Hoxby's 2004 national study using more controls for income and race and breaks down achievement in each state	<ul style="list-style-type: none"> ▪ Nationally, CS serve higher proportion of black and white students, but fewer Hispanics and low-income students ▪ When controlling for race and income, charter school advantage is statistically insignificant in reading and math. ▪ For most specifications, the statistically insignificant results also hold when only control for race. 	<ul style="list-style-type: none"> ▪ Uses national sample ▪ Uses advanced statistical model and demographic controls 	Analyzes achievement at a point in time rather than gains over time
Stevens, Jean (New York State Board of Regents)	NY	2006	Compares performance levels of CS and home district student performance in 2004-05 state assessments.	Majority of CS outperformed their districts. For example, 76% of charter schools outperformed their district on the 4th grade math exam and 67% of charter schools outperformed their district on the 8th grade math exam and 8th grade English Language Arts test.	Examines performance of students in individual charter schools with students in home district.	<ul style="list-style-type: none"> ▪ Analyzes achievement at a point in time rather than gains over time ▪ Does not discuss statistical significance.

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
U.S. Department of Education	Nation	2004	Compares 2003 NAEP national reading and math scores for 4 th graders in charter vs. district schools (see also Nelson et al., above, which analyzed same data).	<ul style="list-style-type: none"> ▪ CS students performed worse in math; no statistically significant difference in reading performance. ▪ CS and district students within racial/ethnic groups performed comparably in reading and math. ▪ CS students eligible for free lunch performed worse than district students in reading and math ▪ CS students with less experienced teachers and in CS that were independent of school districts performed worse. 	<ul style="list-style-type: none"> ▪ National study using highly-regarded NAEP test scores – a common national test for all charter and non-charter students ▪ Analyzes several school variables, like teacher characteristics, that may be related to student achievement. 	<ul style="list-style-type: none"> ▪ Small sample included only 4% of charter students, and only in 4th and 8th grade ▪ Analyzes achievement at a point in time rather than gains over time (though it does compare younger and older CS) ▪ Does not control for race, income, & other factors simultaneously
Was & Kristjansson	UT	2005	Compares CS and district scores on state assessments for 2004 and examines special education students and minority students performance in CS and district schools.	Results are mixed: elementary and middle CS students (in grades 3, 5, and 7) scored better than district students on the Science, Math, and Language Arts portions of the state's assessments, however in grade 10, district school students exhibited higher scores.	<ul style="list-style-type: none"> ▪ Uses several Hierarchical Linear Models. ▪ Discusses statistical significance. 	Analyzes achievement at a point in time rather than gains over time.

Snapshot Studies (looking at results in one or more points in time)						
Authors / Publishing Organization	State	Year	Basic Description of Approach	Key Findings	Strengths	Weaknesses
Witte et al. (University of Wisconsin – Madison)	WI	2004	Compares probability of meeting state standards in CS and district schools in 4 th and 8 th grade in 2000-01 and 2001-02	<ul style="list-style-type: none"> ▪ Results are mixed, but CS students are generally more likely to meet standards than district students ▪ Charter advantage is all in schools older than one year 	<ul style="list-style-type: none"> ▪ Controls for race, income and other characteristics ▪ Compares “new” and “old” charters separately. 	<ul style="list-style-type: none"> ▪ Small sample of charter schools (15-27 depending on analysis) ▪ Analyzes achievement at a point in time rather than gains over time
Zimmer et al. (RAND)	CA	2003	Compares CS and district student-level scores statewide over 5 years	<ul style="list-style-type: none"> ▪ Overall CS performance is comparable to district schools ▪ Start-up CS using classroom instruction score higher ▪ Schools using non-classroom (cyber) score lower ▪ Conversion CS using classrooms have mixed results 	<ul style="list-style-type: none"> ▪ Controls for range of demographic factors ▪ Large sample ▪ Disaggregates by conversion vs. start-up and classroom based vs. non-classroom 	Analyzes achievement at a point in time rather than gains over time*

* Note: studies marked with asterisks in snapshot grid indicate that this part of the study does not analyze change over time, while another part of the study does. See Panel/Other Change Sections of the grids for more details.

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Endnotes

¹ Of course there are other measures of success besides student achievement on standardized tests that matter, including the satisfaction of parents and students and how well schools are performing on a range of other measures specified in their charters. Still, few doubt the importance for students of attaining the basic skills measured by standardized tests.

² Ted Kolderie, *A Case for Evaluating the Institutional Innovation Separately* (St. Paul, MN: Education/Evolving, 2003), available: <http://www.educationevolving.org/pdf/evaluating.pdf>.

³ Scholars are actively debating the best methods to use for this analysis. In May 2006, the Charter School Achievement Consensus Panel, a group of nine researchers convened by the National Charter School Research Project, concluded that no one research method or approach is problem-free, and that the results of studies focused on one kind of charter school cannot be generalized to all charter schools. The researchers suggest that the research community consider the pattern of results from multiple studies instead of relying on a single study for definitive results. (See

http://www.ncsrp.org/downloads/NCSRP_AchievementWP_web.pdf.) In September 2006, Caroline Hoxby of Harvard University and Sonali Murarka of the National Bureau of Economic Research co-authored a paper that concludes following individual students who switch from district to charter schools is not a useful method for generating evidence on charter school effects. Instead, the paper argues that studies using randomized experimental design – are the most valuable, - the "gold standard." (See http://www.vanderbilt.edu/schoolchoice/conference/papers/Hoxby-Murarka_2006-DRAFT.pdf).

⁴ Paul T. Hill, "Assessing Student Performance in Charter Schools." *Education Week Online*, posted January 12, 2005. <http://www.edweek.org/ew/articles/2005/01/12/18hill.h24.html>.

⁵ Forty-one distinct studies were reviewed. Several studies contained more than one of the three kinds of analyses discussed here (panel, other "change" analyses, and snapshots). In these cases, each distinct analysis is considered one of the "studies" discussed and is listed separately in Tables 1 and 2. For example, Zimmer et al. includes all three kinds of analysis and thus appears in all three columns of Table 1.

⁶ Maria Sacchetti, "Charter students score well on tests. But foes cite ESL, special-ed ratios." *Boston Globe* online, January 9, 2005.

http://www.boston.com/news/education/k_12/mcas/articles/2005/01/09/charter_students_score_well_on_tests/

⁷ Some of the panel and change studies listed snapshot data by way of background but did not seek to analyze them statistically (e.g. Metis Associates), and therefore they are not listed in the snapshot column.

⁸ Some of the snapshot studies also compare older vs. newer charter schools (e.g. U.S. Department of Education, Witte), but they do not track schools over time and thus do not provide direct evidence about whether individual charter schools are getting better with age.