IN 2005, the Kappan published a report of our research on student achievement in public and private schools, based on an analysis of the 2000 National Assessment of Educational Progress (NAEP). Like most people, we had assumed that the higher average scores in private schools meant that private schools were more effective — an assumption that undergirds much of the current thinking surrounding education policies and reforms. But to our surprise, the data on a nationally representative sample of 30,000 students in fourth and eighth grades showed public schools to be outperforming private schools in mathematics achievement after student background factors were considered.¹

We subsequently examined this issue with the even more comprehensive 2003 NAEP data, covering a representative sample of almost 345,000 students. We found similar patterns, with public schools outperforming private schools in mathematics achievement after student background factors were considered.² Later, our results were confirmed in a report published by the U.S. Department of Education.³ However, other researchers and some policy advocates then weighed in on this new “public/private school debate,” challenging the data and methodologies used to address this question and calling for longitudinal examinations of public and private school effectiveness.⁴

Our purpose here is twofold. First, we briefly outline the renewed debate on public and private school achievement, considering the state of current knowledge, political schisms, and the implications for current policies and proposals. Second, we report on a new study, not of student achievement at one point in time, but on student gains over time in public and private schools, using data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K). The results of this study are both intriguing and illuminating for the crucial question of the effectiveness of public and private schools.

THE CONTENTIOUS TERRAIN OF RESEARCH ON PUBLIC AND PRIVATE SCHOOLS

Until the Kappan piece was published, the specific...
question of achievement in public and private schools had been relatively dormant for many years. Yet the issues underlying that question have been very much at the forefront of public policy discussions. Although generations of parents chose private schools largely for religious reasons, with the emergence of proposals for voucher programs that provide state subsidies for parents to enroll their children in private schools, policy makers and economists became more interested in achievement in different types of schools. Of course, researchers, parents, and policy makers have known for a long time that private schools tend to post higher test scores, on average, than public schools. But it was also recognized that private schools, on average, serve more advantaged students — those who already exhibit characteristics associated with school success.

So the question was whether private schools, themselves, causing greater gains in student achievement or whether their scores just reflected their more advantaged student population. If it turned out to be the former, this would suggest that distinctive policies, processes, and practices in private schools were shaping such gains and that either those attributes needed to be replicated in public schools or, if that were not possible (as many theorists have argued), then students should be encouraged to attend private schools.

For the last two decades or so, most people (ourselves included) had assumed that the public/private question was answered. Even after accounting for differences in the populations served by public and private schools, respected and rigorous research still found a significant and positive “private school effect” on student achievement — with some researchers pointing to factors such as superior organizational attributes, community, and social capital in private high schools in order to explain the extra boost in achievement. Now, major reform efforts, such as charter schools, vouchers, and No Child Left Behind, proceed on the assumption that private organizations are inherently more effective at boosting academic achievement. Indeed, these assumptions are woven into the fabric of American thinking on schools, so that many middle-class and even poor families strive to get their children into private schools based on the belief that these are necessarily “better,” while many affluent families never even consider public schools.

Since the mid-1990s, voucher studies have been held up as further proof of the beneficial private school effect. Several such studies have found that students given vouchers to attend private schools had greater academic gains than did students in public schools. However, we would expect a child who is moved to a more affluent environment to absorb some of the academic attitudes and aspirations of his or her peers, regardless of whether the school is public or private — a “peer effect.” Moreover, these are typically small-scale studies of local contexts, comparing a few private schools that have agreed to participate in a program (and have been chosen by families) to public schools that are included in the study only because they are thought to be failing, as demonstrated by the fact that families have chosen to leave them. This suggests a biased sample of schools. Such voucher studies, then, tell us little about public and private schools overall, despite the fact that generalized assumptions about public and private school effectiveness are at the heart of proposals for vouchers and privatization programs.

On the other hand, in the last few years, a handful of large-scale studies drawing on nationally representative data have begun to question earlier assumptions about a private school effect. In particular, the NAEP studies (beginning with the 2005 Kappan article) have demonstrated that demographic factors explain the differences in public and private school achievement at grades 4 and 8. Furthermore, after considering those differences, students in public schools are performing at levels equal to or surpassing their demographically comparable peers in private schools.

Although this recent work raises fascinating questions about an inherent superiority of private schools,
there are good reasons to be cautious about overinterpreting this research. As we noted in our earlier reports, NAEP is cross-sectional, representing student achievement at a particular point in time. Although the NAEP research used statistical techniques to control for the many background variables known to influence student achievement, thereby better isolating the effects of particular types of schools, we cannot draw definitive causal conclusions about the relative effectiveness of schools. This is because NAEP data do not gauge student growth over time and so cannot firmly determine if a particular type of school caused greater gains in student achievement.

Indeed, despite the limitations noted in the NAEP studies, critics attacked the studies along with their data source as a useless gauge of public and private school achievement. For instance, voucher proponents Paul Peterson and Elena Llaudet claimed: “Without information on prior student achievement, one cannot make judgments about schools’ efficacy in raising student test scores. Thus, NAEP data cannot be used to compare the performance of private and public schools.”

Peterson and Llaudet also argued that the NAEP analyses were unfairly biased toward public schools because researchers included school-reported variables, such as student disability, eligibility for subsidized lunch, and English proficiency, which are not reported as regularly in private schools.

Despite these warnings about the cross-sectional nature of NAEP, Peterson and Llaudet conducted their own NAEP analysis, showing that private schools scored at least as well as demographically similar public schools. However, as Gerald Bracey noted in the Kappan, they accomplished this by excluding most of the demographic background information that the other NAEP studies had used. For example, they excluded important variables on computers and books in students’ homes, under the questionable assumption that substantial numbers of schools might have provided those resources to students.

Overall, despite large-scale studies that raised serious questions about the alleged inferiority of public schools, voucher advocates have continued to insist on the inherent superiority of private schools. As Greg Forster of the Friedman Foundation wrote:

If there’s one thing education research has shown, it’s that private schools do a better job than public schools. . . . This new study, conducted by researchers at the University of Illinois, is getting media play now because it was picked up by the journal of Phi Delta Kappa. . . . A much more likely explanation for the latest study’s results is that when students enter private schools, they tend to have test scores a little lower than other students of their race and socioeconomic status.

While many might think it an odd claim to guess that there is some preponderance of lower-performing kindergartners in private schools compared to public schools, Forster raises what is at least a logical possibility that underlies all critiques about NAEP’s cross-sectional nature. That is, it could be that private schools enroll relatively low-performing students at the start but, if these schools are more effective, raise student achievement at a higher rate than do public schools. This is a question that can be addressed with data, but not with NAEP data. In order to better understand differences in private and public school effectiveness, multiple types of data and approaches are useful. While NAEP offers unrivaled sample sizes and detailed information about student and school achievement at a particular time, longitudinal data with measures of prior achievement allow us to compare student growth over time.

A NEW STUDY OF PRIVATE AND PUBLIC SCHOOL EFFECTIVENESS

In this study, we used the ECLS-K data to examine whether public school students do, indeed, begin kindergarten with higher achievement than their demographically equivalent peers in private schools, as hypothesized by some critics of prior NAEP analyses. Given that studies of NAEP revealed that public school fourth- and eighth-graders score at least as well as demographically similar private school students, the answer to how public and private school achievement compares in early kindergarten is important. Moreover, we also used the ECLS-K data to compare student achievement gains between kindergarten and fifth grade in public, Catholic, and other private schools. As in our past work, we focus here on mathematics. As Peterson noted, “Math tests are thought to be especially good indicators of school effectiveness, because math, unlike reading and language skills, is learned mainly in school.”

The ECLS-K is a longitudinal database of student achievement and comprehensive background information drawn from a nationally representative sample of over 21,000 students in public and private schools. ECLS-K, administered by the National Center for Education Statistics (NCES), first assessed a stratified random sample of children entering kindergarten in the autumn of 1998, which provides a measure of initial achievement. The most recent available data were gathered in 2004, in the spring of those students’ fifth-
grade year. There are two major strengths of this longitudinal data set: the richness of the data pertaining to each student, and the care with which the assessments were developed.

We used hierarchical linear modeling (HLM) to analyze the data on student and family characteristics, school type, and mathematics achievement from kindergarten through fifth grade. We studied students in public and private schools, including Catholic schools — still the most common type of private school.

To better discern school effects, we focused on students who stayed in the same type of school (but not necessarily the same school) over the course of the study. Our sample included 9,791 students in 1,531 schools (1,273 public, 140 Catholic, and 118 other private). HLM allowed us to control for demographic differences at both the student level and the school level. For example, we took into account whether an individual student was of low socioeconomic status (SES), and we also controlled for whether an individual student was surrounded by low-SES or high-SES students at school, thereby controlling for any peer effect.

The student-level demographic variables we included were:

- SES, which was a composite provided by ECLS-K, based on parental education, occupation, and income (mean of 0 and standard deviation of 1);
- race (black, Latina/o, Asian, “other,” or white);
- gender;
- disability status, based on parent reports;
- whether the child spoke a language other than English at home; and
- the age of the student at kindergarten.

The school-level variables we included were:

- average school SES, which was the average SES of the students sampled from the school (using the student SES variable);
- percentage of white and Asian students combined in the school, based on principal reports;
- a variable indicating whether a school is located in an urban or rural area; and
- a variable indicating whether a school is in the West, South, Northeast, or Midwest.

Table 1 shows averages of the key demographic variables by school type. The SES variable, expressed as defined above as a fraction of a standard deviation, was -0.11 for public schools, 0.44 for Catholic schools, and 0.63 for other private schools. From these SES figures and from Table 1, we can see that public schools clearly enroll more traditionally underserved students, including more black, Latino/a, and low-SES students, as well as more students with disabilities and more students whose home language is not English.

To determine whether initial kindergarten scores differed by school type after controlling for these demographic differences, we ran an HLM model with fall kindergarten achievement as the outcome and all the student and school demographic variables described above as predictors. Then, to compare growth over time, we used the students’ fifth-grade mathematics achievement as the outcome and controlled for students’ initial kindergarten achievement and demographics.

If mathematics achievement in kindergarten is greater in public schools than in demographically similar private schools, then this could explain why public school scores at grades 4 and 8 were relatively high in recent NAEP studies, as some have supposed. In addition, if our ECLS-K results show that achievement gains in public schools outpace those in public schools, then the findings would support policy makers’ efforts to promote private-style schooling options. However, if public school kindergarten achievement is no higher than that of demographically similar private schools and if the ECLS-K public schools are producing student gains at least on par with private schools, then it is quite possible that the relationship between school sector and achievement has weakened or shifted over the past two decades, since the seminal studies of the 1980s and early 1990s. Regardless of the ultimate outcome, the relationships illuminated by this study can challenge or provide confirming evidence regarding conventional wisdom and current policies.

**FINDINGS**

As one would expect, raw scores at both kindergarten and fifth grade are higher for private schools, since schools educating more affluent students tend to score

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<th>TABLE 1. Demographics of the Study Sample, by School Type</th>
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higher than schools serving more lower-income students. However, to have an accurate picture of school effects, one must take into account the demographic characteristics of those students, as we did in this study.

To help readers understand what score differences mean in ECLS-K, it is helpful to know that the standard deviation of schools’ mathematics scores was roughly 6 points at kindergarten and 17 points at fifth grade. So, statistically speaking, a difference of 2-3 points between schools would generally be considered a medium-sized effect at kindergarten and a small effect at grade 5. Another way to look at score differences is to note that students gained an average of some 15 points per year on the ECLS-K scale from the fall of kindergarten to the spring of grade 5. Hence, roughly speaking, a 2-3 point difference in scores corresponds to a couple of months of schooling.

Initial kindergarten achievement. After controlling for demographic differences, our HLM models indicated that public and Catholic kindergarten achievement was nearly identical, with HLM estimates of 21.6 and 21.7 points, respectively (see Figure 1). However, initial kindergarten achievement in “other private” schools (24.0 points) was significantly higher than that of public schools. As a measure of initial school achievement, this says nothing about the effects of the schools themselves, but instead reflects both the ability levels of those students and the likelihood that they came from families committed to education to the degree that they would pay tuition (and often transportation) costs for their children’s education. Most important, these findings disprove the conjecture that Greg Forster and others have put forward to explain public schools’ superior performance on NAEP: that students entering private schools as kindergartners tend to have “test scores a little lower than other students of their race and socioeconomic status.” In fact, these ECLS-K results indicate the opposite: that the incoming achievement of students in public schools is equal to or lower than that of demographically similar peers in private schools.

K-5 growth. Figure 2 shows fifth-grade achievement by school type after controlling for both demographics and initial school achievement. After accounting for differences in student/school demographics and initial kindergarten scores, we found that public school students outperformed Catholic school students by the fifth grade and rivaled the performance of students in other private schools. The difference of 6 points between Catholic and public schools was statistically significant and indicates that public school students had gained almost an extra half year of schooling.

A final important factor that our HLM analysis revealed is how much variation in achievement is ac-
accounented for by the various school and demographic predictors. It is worth noting how little variation school type really accounts for in students’ growth in achievement, contrary to the assumptions of voucher advocates. Specifically, while all of the variables in our model together explained 62% of the achievement differences between schools, school type alone accounted for less than 5% of these differences, with demographic considerations accounting for a much greater share.

**ISSUES IN STUDYING SCHOOL EFFECTS**

These data provide strong, longitudinal evidence that public schools are at least as effective as private schools in boosting student achievement. This ECLS-K analysis is particularly compelling because it answers questions regarding students’ starting points and growth over time. In addition, the parent-reported background information in ECLS-K addresses objections raised by Peterson and others about whether public schools were unfairly advantaged in the NAEP studies because of school-reported lunch eligibility, disability, and English-language-learner status.

In fact, one could reasonably argue that public schools are unfairly disadvantaged in any statistical analysis such as this, because we still cannot control for the unobservable factors that make some parents willing to provide time, tuition, and transportation for their child’s education while other demographically similar parents do not.

One limitation of this ECLS-K study when compared to the NAEP study is that the smaller sample sizes force us to consider “other private” schools as one category, while with NAEP we were able to distinguish Lutheran, conservative Christian, and the remaining private schools. Our NAEP results indicated that this is a very diverse group of schools, with Lutheran schools performing on par with public schools, while conservative Christian schools performed lower than all other school types. Hence, it is worth cautioning readers that there is much variation within the ECLS-K “other private schools” category.

**NEW LIGHT ON THE EFFECTIVENESS OF PUBLIC AND PRIVATE SCHOOLS**

To a student in math class, it probably matters little what the school’s governing structure looks like. Still, there is much debate in policy and research circles about reforming the structures of schools in order to improve academic achievement. Our findings suggest that not only is this assumption overhyped, but in light of efforts to reform public education through models of choice and competition drawn from the private school sector — probably mistaken.

These nationally representative data are compelling in challenging assumptions about the relative effectiveness of public schools when compared to private schools. While proponents and critics of vouchers may argue about this issue, we personally see private schools as an integral part of the American system of education. Indeed, there are many valid reasons why parents choose private schools and why policy makers may push for school choice. But assertions regarding academic achievement may not be the best grounds for making such arguments. Claims that simply switching students from one type of school to another will result in higher scores appear to be unfounded.

In fact, this study contributes to a small but growing body of research within the nonpartisan research community questioning assumptions that private schools cause greater gains in student achievement. Earlier thinking on this issue was based on studies of achievement in high schools, for students beginning school in the 1960s. Recent cross-sectional and now longitudinal data are pointing in a different direction. In view of the inherent limitations of relying on any single type of methodological approach, the fact that we are seeing similar patterns in different types of data — and from comprehensive and trusted datasets — suggests that old assumptions about the inherent superiority of private schools — the “private school effect” — may no longer hold true.

Still, it is important to consider the directions for further research in this area. Much of the thinking behind voucher reforms identifies the key to raising achievement as simply moving students from public to private schools. Our research demonstrates that the effects of such policies are negligible and may even be negative.

Indeed, proponents of vouchers have never accepted the burden of proof to explain what supposedly happens within private school classrooms that would boost a student’s learning. That is, much policy rhetoric and research (including some of our own) on this topic tends toward the “black box” view, portraying schools as some type of magical treatment. This approach assumes that inputs and outcomes can be measured to determine the best type of “box” but pays little attention to what happens inside. We believe that the next wave of insights into the question of school effectiveness can best be gained by moving away from a simple focus on school type and instead examining what happens within schools. And we would argue for the value of different types of research to help us better...
understand this complex issue.


13. Peterson and Llaudet, op. cit.


16. Data pertaining to selected students and their classrooms and schools were obtained from comprehensive teacher surveys, school administrator surveys, parent interviews/surveys, trained observers, and the students. Parents answered an extensive array of questions about their families, including various indicators of socioeconomic status (occupation, income, resources in the home). In the early grades, trained observers administered math and reading assessments to students in a one-on-one setting.

17. The ECLS-K assessment items were created in consultation with various sources and experts, including state/national standards and assessment, elementary school teachers, reading experts, and multicultural experts. The mathematics items assess a broad range of content, ranging from basic counting and place value to solving problems involving measurement and fractions. The items were thoroughly field-tested, and their construct validity was further confirmed by verifying that student performance on the items consistently correlated with their performance on existing assessments. See Judith M. Pollack et al., *Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Psychometric Report for the Fifth Grade* (NCES 2006-036) (Washington, D.C.: National Center for Education Statistics, 2005); and Karen Tournageau et al., *Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), Combined User’s Manual for the ECLS-K Fifth Grade Data Files and Electronic Codebooks* (NCES 2006-032) (Washington, D.C.: National Center for Education Statistics, 2005). The design of the ECLS-K assessments addresses the possibility of floor and ceiling effects by allowing all students to have the same chance to make gains on the assessment, regardless of their initial achievement.


19. A student was defined as having a “disability” if a parent reported on at least one survey or interview that his or her child “obtained a diagnosis of a problem from a professional” (with possibilities including a learning problem, activity problem, behavior problem, speech problem, hearing problem, or vision problem) or that the child received therapy services or participated in a program for children with disabilities. Although this definition might be broader than some might like, this parent-reported variable alleviates concerns that critics previously raised that the IEP (individualized education program) variable in NAEP unfairly biased results in favor of public schools (given that only public schools are required to have IEPs for their students with disabilities).

20. To account for the fact that some students are fluent in English even though they speak another language at home; we excluded students in this category if they scored in the top 10% of the English-language test.

21. This method is better than having students’ grades from kindergarten through fifth grade serve as the outcome variable, because it addresses the concern that students with higher initial achievement tend to make larger gains on the ECLS-K assessment.

22. We also ran this kindergarten analysis with the full ECLS-K sample and confirmed that the results for the total sample are very similar to what we obtained with the focal K-5 sample. Specifically, all Catholic kindergartners scored .8 points higher than comparable public school students, while all “other private” school students scored a statistically significant 1.2 points higher than their public school peers.

23. Forster, op. cit.

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For further information, contact:

Phi Delta Kappa International, Inc.
408 N. Union St.
P.O. Box 789
Bloomington, Indiana 47402-0789
812/339-1156 Phone
800/766-1156 Tollfree
812/339-0018 Fax

http://www.pdkintl.org