

# Better Data, Better Decisions

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Informing School Choosers to  
Improve Education Markets

**Jon Valant**

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A M E R I C A N   E N T E R P R I S E   I N S T I T U T E

## Foreword

School choice sits at the center of the education reform agenda. Buoyed by bipartisan political support and seen as a primary vehicle for economic mobility, charter schooling has expanded across the country. Select urban school districts—such as Washington, DC, and post-Katrina New Orleans—now have a majority of their K–12 students in schools of choice. Large-scale studies suggest that charter school performance is at least as good, if not better, than traditional public schools.

The most recent national study from Stanford University’s Center for Research on Education Outcomes found that charter school students perform comparably in math and better in reading than their peers in traditional district schools. Both President Obama and Secretary of Education Arne Duncan have touted charter schools, while Senators Lamar Alexander (R-TN) and Tim Scott (R-SC) have pushed their own school choice legislation this year. It is, in many ways, a good time to be a proponent of school choice.

But often lost in the growing national enthusiasm around school choice is the recognition that merely providing more options to parents will not create the kind of market that advocates envision. No matter how plentiful or how good one city’s charter schools might be, if parents do not know about them or lack the time and resources to make an informed decision about which school is best for their child, then school choice policies will do little to improve student outcomes. Evidence suggests that school choosers may not know very much about their options and may choose schools on the basis of characteristics that may have nothing to do with academic success. In other words, it is time for reformers and policymakers to pay as much attention to the demand side of school choice as they have to the supply of good schools.

To help address this issue of the demand side of school choice, AEI Education has released a number

of new reports to help better understand how parents make decisions about schools and how parents can be a political resource to lobby for school reform. In the following report, Jon Valant adds to this growing discussion with an empirical look at how governments and other third-party organizations can help inform families about their school choice options.

Valant, a postdoctoral fellow in the Department of Economics at Tulane University and the Education Research Alliance for New Orleans, describes what we have learned about how people interpret and use information to choose products in general, how families use information when it comes to choosing a school, and how governments and other organizations should design and disseminate school profiles and performance reports. The following are among his findings.

**The “Boundedly Rational” Consumer.** Whereas classical economics presupposes that consumers are rational actors who are perfectly informed about their options and choose the best one for them, in real life, people are “boundedly” rational, meaning there are limitations to how much information they can collect and process in making a decision, and people often limit their search to a couple alternatives. Individuals also suffer from inherent biases and rely heavily on family and friends, even though their situations may differ from those of their social networks.

When it comes to education, research shows that people are more responsive to A–F letter grades than performance labels (such as “advanced” or “basic”) on a school report card. Parents also rely heavily on social networks, as opposed to formal sources such as the government, in making a school decision. As such, they are likely to be influenced by fellow parents’ narrative comments about school quality. As Valant found, including narrative comments on a school report card was “stunningly influential”: a parent who saw two positive

comments about a school graded that school almost a full letter grade higher than a parent who saw two negative comments.

**School Performance Reports Influencing School Choosers' Behavior.** Despite the emphasis on social networks, school reports can have a real impact on parent and student behavior. Valant's field experiments in Milwaukee; Philadelphia; and Washington, DC, found that parents who receive information on school performance (such as through a GreatSchools booklet) "consider more schools (expand their consideration sets), align their beliefs about school quality with the quality assessments in the booklet, feel better about their abilities to choose, and . . . further prioritize academics during their searches. This, in turn, led them to pursue higher-rated schools."

**Accurate, Accessible, and Accommodating Performance Reports.** Reformers and organizations that want to help parents make informed decisions about schools should tailor their reports to include information that is accessible and clear, while not sacrificing reliability. Or, in Valant's phrasing, the reports should

strive to be "accurate, accessible, and accommodating." Often, this involves tradeoffs: being accurate might mean providing more information, but this comes at the cost of accessibility. One solution: progressive disclosure, which first presents the consumer with basic information and then subsequent opportunities for more specialized details. This strategy encourages leading with basic school information such as location, grade levels, and an academic rating and then expanding to include more information on class offerings and student outcomes.

Valant's research is new and has profound implications for governments, third-party entrepreneurs, and others wishing to help parents make informed school choices. It is a must-read for school choice advocates and those making policy in states and districts. For more information, please contact Valant ([jvalant@tulane.edu](mailto:jvalant@tulane.edu)) or myself ([andrew.kelly@aei.org](mailto:andrew.kelly@aei.org)). For additional information on AEI Education, please visit [www.aei.org/policy/education/](http://www.aei.org/policy/education/).

—Andrew P. Kelly  
Resident Scholar, Education Policy Studies  
American Enterprise Institute

# Better Data, Better Decisions: Informing School Choosers to Improve Education Markets

*By Jon Valant*

Today more than ever, school choice is a centerpiece of American school reform efforts. Policies enabling families to choose from an assortment of charter, private, magnet, and traditional public schools are plentiful in the United States, with advocates describing these policies as a pathway to—and sometimes even a panacea for—school improvement.

A common argument for school choice policies appeals to the potential efficiencies that derive from market-based choices. The essential argument goes like this: Most parents profoundly love and know their own children, which provides parents with a strong desire and ability to find schools that are good for their children. In general, parents should choose high-quality schools that suit their children well so when schools are subjected to market pressures, schools must either offer sufficiently high-quality, desirable programs or succumb to low enrollment.

Unfortunately, getting school choice to work as intended is not quite so simple. There are many ways in which increasing school choice could fail to have its desired effects. For example, if a child cannot get to a school because of transportation hurdles, his or her family could have fewer choices. If a school lacks the autonomy to offer an educational program distinct from nearby schools, then families might have “choices” that are not all that different from one another.

Perhaps the greatest obstacles to fulfilling the promise of school choice, however, are the school choosers themselves. Choosing a school for a child is difficult. Questions about what schools should do and how we should

assess performance can perplex education researchers, reformers, and policymakers. Yet the market-based logic for school choice relies on school choosers to answer these questions sensibly, even though many choosers have limited information about schools, limited training in conducting a school search, and limited resources to commit to the process. If few school choosers are up to this task, then school choice markets might not produce their hypothesized benefits.

Today, many governments and third-party organizations offer support to school-choosing families by providing the public with information about schools and helping families navigate their options. A recent proliferation of school performance data—sparked by test-based accountability and a broader societal embrace of data-driven decision making—has supplemented these efforts. School “report cards” and online parent reviews, for example, are cornerstones of today’s information-dissemination efforts, despite each being largely a 21st-century phenomenon.

These dissemination efforts are fraught with challenges. Creating high-quality, reasonable measures of school performance—which is not the focus of this paper—is certainly not the least of them. Yet even if we were somehow equipped with perfect metrics, the work of informing school choosers would be far from complete, because providing the public with information and ensuring that the public is truly informed are not one and the same.

Even a hypothetically ideal school report card will only have its desired effect insofar as people obtain, interpret, and appropriately use the information they derive from it. And unfortunately, people are flawed as information consumers and decision makers. Our cognitive abilities are limited, we are vulnerable to a wide

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Jon Valant (jvalant@tulane.edu) is a postdoctoral fellow in the Department of Economics at Tulane University.

range of biases, and we have only so much time and effort to invest in school searches.

In this paper, I describe how successfully informing the school-choosing public requires understanding which information best describes school quality and how people interpret information and utilize it as they make decisions. I provide theory on how people make decisions, before discussing what school-choosing families desire in schools, where they go for information, how information affects their attitudes and behaviors, and how adults and children might respond differently to the same information. I conclude with implications for the design and dissemination of school profiles and performance reports.

### The Boundedly Rational School Chooser

Neoclassical economics offers a model of human decision making that has proven resilient, partly for its elegance and simplicity. It describes an “economic man” who is perfectly aware of and informed about his alternatives and committed to scoring each in terms of the utility he expects from it. He then examines his alternatives and selects the highest-scoring option.

If this model accurately described school-choosing families, then informing them to fulfill the promise of market-based efficiency would be straightforward. Governments could make as much information as possible available and then step back to allow the market—powered by families’ carefully reasoned school choices—to do its work. Families would naturally prefer the schools that best serve their children, which would help align schools’ incentives with families’ interests.<sup>1</sup>

Many families exhibit rational behaviors in the school choice process, but these behaviors are perhaps more accurately described as “boundedly rational” than perfectly rational. Herb Simon described human rationality as bounded by limitations in our knowledge and computational capacity.<sup>2</sup> Decision making happens in contexts in which people lack relevant information about their options, have finite time to commit to collecting that information, and are limited in their abilities to process and use what information they have.

As a result, we tend to prioritize simplifying decision-making processes, even if this simplicity demands tradeoffs in how carefully and comprehensively we inform ourselves before acting. Research demonstrates that people tend to consider few of the alternatives available to them (rather than assessing every possible action); rely heavily on heuristics, or shortcuts, while gathering and processing information (rather than fully exploring each option); and ultimately make a decision upon finding an option that seems good enough (rather than selecting the single best option available).<sup>3</sup>

Examples of these behaviors abound in everyday life. Psychologists have found that people rely on numerous heuristics to reduce the complexity of information processing. For instance, the availability heuristic describes a human tendency to estimate the probability of an outcome based on the ease with which supporting instances come to mind. Most people incorrectly believe that more English words have an “r” as their first letter than their third letter, since it is easier to recall the former than the latter.<sup>4</sup>

To extend this to school choice, it might be easier to recall a friend’s passionately told, vivid story about a child’s terrible experience than a collection of mundane but positive stories, which gives that one vivid story disproportionate influence on one’s overall impression of school quality. In fact, vivid stories can induce another type of mental shortcut, an affect heuristic, in which one’s emotions in a given moment can structure one’s perceptions of the likely risks and rewards of different decisions.

Political scientists, meanwhile, have documented a central role for heuristics in political decision making, with citizens often simplifying their voting decisions by relying on shortcuts such as party identification, cues from trusted public figures, and word-of-mouth suggestions from family and friends.<sup>5</sup> All of these phenomena reflect a tendency for people to manage the limits of their knowledge, resources, and cognitive abilities by relying on shortcuts and rules of thumb to process information and make decisions.

Boundedly rational behaviors have been observed in school choosers as well. Many families seriously consider very few schools—often not more than one—despite having many more options available.<sup>6</sup> Much of their decision making, conscious or not, happens as

these modestly sized consideration sets are constructed. And these consideration sets typically do not result from vigorous research processes involving numerous school visits, careful review of school data, and a deliberate scoring of one's options with respect to how they satisfy key criteria. Rather, school-choosing families typically turn first to friends, neighbors, and family members whose voices are familiar and relatable and whose insights often come without the school chooser having to search for them.<sup>7</sup>

If asked when and how he or she settled on a school, a school-choosing parent might struggle to identify the particular moment or process, just as we might struggle to pinpoint our decisions about whether to attend college, where to live, and what type of religious or political views to hold. We often make these decisions unceremoniously, even unconsciously, as we go about our everyday lives.

Moreover, when school choosers do approach their decision making more deliberately, they might seek, interpret, and incorporate information in irrational or undesirable ways. For example, recent research shows that the public assesses schools differently depending on the presentation of information. When school performance data are presented as letter grades, people seem to perceive greater variation in school quality than when the same data are presented in terms of proficiency percentages or performance labels such as “advanced” or “basic.”<sup>8</sup>

Of course, boundedly rational school choice behaviors are understandable in the context of imperfect decision makers handling difficult choices amid the many simultaneous demands of their lives. But while our decision-making behaviors are often flawed, they tend to be flawed in predictable ways. An ideal school performance information system accounts for these behaviors and makes use of them.

### What School Choosers Want from Schools

Before delving into how people find and process information about schools, we should consider what families desire from the schools their children attend. These desires can shape how school choosers respond to information and which pressures they place on schools and school systems.

Most research on what families want from their children's schools is based on parent surveys. Findings from surveys of school-choosing parents are consistent: parents report being primarily concerned about academic quality.<sup>9</sup> Undoubtedly, academic quality is foremost in many parents' minds as they select schools. It is important to note, however, that what people say they value in schools might not be what they actually value.

One possible reason for this is what researchers call social desirability bias, or survey respondents' tendency to provide answers that they believe will be judged favorably. With today's educational rhetoric focused on academic achievement, respondents might feel social pressure to name academic quality as their most important criterion, even if other factors actually matter more to them.

Some research examines the relationship between school choosers' revealed preferences and stated preferences. A forthcoming study of New Orleans shows that families' enrollment decisions reflect preferences for academically higher-rated schools, but the factors shaping families' decisions are more distributed across academics, distance from home, and program offerings than their survey responses might suggest. These findings are consistent with research from Charlotte-Mecklenburg, North Carolina.<sup>10</sup> Other studies of revealed preferences have suggested that racial demographics might matter more than parents state in surveys.<sup>11</sup>

When thinking about publicly disseminating information about schools, it is also important to consider the possibility that values and preferences are malleable, and the preferences of a family tasked with choosing a school could be particularly susceptible to change. For many, choosing a school is an unfamiliar process, with ambiguity even about which selection criteria to use when making a decision.

If a parent engaged in choosing a school receives information from a credible-looking source, he or she might infer signals about the appropriate criteria to use, even if this signaling was not the information provider's intent. A study of organ donation and retirement-savings behaviors found that people tend to select the default option (what would happen if they do not act) partly because they believe that policymakers signal what people should want for themselves through those policymakers' selection of the default plan.<sup>12</sup>

Consequently, providing school-choosing families with school performance reports could lead those families to align their criteria with the information available in the reports. For example, a formal school performance report emphasizing state test results might signal to families that this is a useful indicator of school quality.

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Susanna Loeb and I saw evidence of this in an experiment with Philadelphia high-school-choosing parents. I describe this study in greater detail later, but in essence, we found that presenting parents with a booklet of high-school profiles and ratings (based largely on academic performance) increased the probability that parents reported academics as their most important criterion in selecting a school. These booklets might have changed not only what parents believed about the schools available to them but also which criteria they used to evaluate their options.<sup>13</sup>

### Where School Choosers Go for Information

The possibility that information affects school choosers' preferences highlights the importance of knowing where people go for information about schools. Researchers have described two basic types of information sources: social and formal.<sup>14</sup> Social sources include one's friends, family, neighbors, and coworkers. Formal sources include governments, mass media, and community organizations.

Social sources are consistently found to be central to school-choosing parents' information gathering, which can happen at times when families are not actively shopping for schools. Through everyday interactions with those in one's social network, a parent might unknowingly develop a small set of schools that he or she will

ever seriously consider. This information often comes easily, through anecdotes and casual conversation.

Of course, the quality of information available through a parent's social networks depends on which networks that person can access. Firsthand information from uninformed sources—or sources offering misleading portraits of schools—can be more damaging than helpful. And evidence suggests that the quality of information available through social networks is correlated with socioeconomic status, with more privileged families having access to higher-quality information, generating concern about yet another obstacle for the most disadvantaged school choosers.<sup>15</sup>

Recently, governments and third-party organizations have intensified their efforts to increase and improve the publicly available formal information about schools. The No Child Left Behind Act of 2001 mandated that each state produce an annual state report card that is “concise” and “presented in an understandable and uniform format” with information on student achievement, graduation rates, teacher qualifications, and more.<sup>16</sup> It also mandated that local education agencies (LEAs) produce a report for the LEA as a whole (for example, a school district) and for each school that the LEA serves.

Details on what exactly to present and how exactly to present it were vague, especially at the LEA and school levels, leading to a proliferation of report card designs of varying depth and presentation. Some states have incorporated letter grade ratings into these reports, offering a summative assessment of each school's performance. Others have eschewed simplified ratings, opting instead to present data in raw form and let readers draw their own conclusions.

Third-party organizations have supplemented these government reports with their own data and evaluations. The most nationally prominent organization is GreatSchools, which operates a heavily trafficked website featuring profiles of US schools and supplements that work with additional services for parents of school-age children. (See the “An Overview of GreatSchools” text box.)

Many other third-party organizations operate at city or state levels, offering information about local schools with considerable variety in both organizational structure and content offerings. For example, Great Philly Schools, which operates through a partnership of several Philadelphia nonprofits, offers performance ratings

## An Overview of GreatSchools

GreatSchools is a 501(c)(3) not-for-profit organization that seeks to support parents as they choose schools and engage in their children's education. First launched in 1998, the GreatSchools.org website contains profiles of individual schools and tools and information designed to support parents' efforts to nurture children's learning.

The website began as a local guide for Silicon Valley schools but now contains profiles of more than 250,000 schools nationwide. These profiles feature academic ratings (including a color-coded 1–10

GreatSchools rating based on test scores, changes in scores over time, and college readiness measures), community reviews, and plentiful data on students, teachers, and school offerings.

In 2013, the website registered 52 million unique visitors, and it ranked as the 345th-most-trafficked website in the United States as of September 30, 2014 (according to quantcast.com). In 2013, GreatSchools launched GreatSchools Local, a program offering locale-customized information through partnerships with city and state governments.

of individual Philadelphia schools, along with other information about individual schools and more general educational issues in Philadelphia.

The New Orleans Parents Guide, which operates as its own nonprofit organization, produces a website and printed guide with detailed organizational, performance, programmatic, and demographic information on schools, without also providing its own school-quality ratings. Meanwhile, the *Los Angeles Times'* California School Guide provides test scores, demographic information, and user comments for schools across its state.

Third-party providers have some appeal as information sources for families. Their nongovernmental status detaches them—at least in part—from the problematic incentives and politics involved when governments assess and report on their own schools. For example, districts and states might wish to avoid harshly evaluating their own schools in ways that discourage enrollment, especially when facing competition from local private or charter schools. Nongovernmental organizations are potentially less invested in this way.

Moreover, the public might be more inclined to believe third-party organizations than their governments. This is an era of broad distrust in government, although Americans view their local and state governments more favorably than their federal

government.<sup>17</sup> Nongovernmental organizations could be better messengers than their government counterparts. I examined this possibility through a series of online experiments with a nationally representative sample of American adults. (See “The Online Experiments” text box.)<sup>18</sup>

Respondents were significantly more likely to trust an independent nonprofit organization with providing public school academic ratings than their state government. Adults randomly assigned to answer about a nonprofit source reported a mean level of trust of 3.07 on a scale ranging from 1 (not at all) to 5 (completely). That compared to a mean level of trust of 2.61 for adults randomly assigned to answer about their state governments (a statistically significant difference). Put differently, 77 percent reported a trust level of 3 or greater for nonprofits, while only 60 percent reported the same for their state governments.

This trust gap between nonprofits and governments appeared among respondents with children 18 years or younger and among every tested subgroup based on gender, race and ethnicity, and educational attainment. In the public's eyes, nongovernmental organizations may be more credible messengers than governments, even if they are conveying the same message about school performance.



## The Online Experiments Study

This study examined how parents and the broader American public incorporate two types of school-quality information—parent comments and numerical government ratings—into their judgments of school quality.

Most of the analyses come from an online survey of 1,000 US adults, administered through the survey research firm YouGov. YouGov employed matching (to the American Community Survey) and weighting strategies to create an analytical sample approximately representative of the US adult population. Participants provided their home zip codes and then were presented with profiles of two local schools. Each profile had a 1–10 (integer) academic rating based on the percentage of students in that school scoring proficient or better on state tests.

One school's profile showed two brief positive comments from parents and the other showed two brief negative comments from parents. Respondents then judged each school's quality, based on all that they knew about the school, on an A+ through F scale. The purpose of asking about actual schools in respondents' actual neighborhoods was to simulate an authentic setting in which people have information and beliefs about local schools.

Whether a particular school had positive or negative comments in its profile was determined via randomization. This provided a strong basis for causal inference. Differences between how respondents

rated schools with positive versus negative reviews were directly attributable to the comments.

To assess the causal effects of numerical academic ratings, I used a regression discontinuity design that exploited the way GreatSchools rounded its academic ratings. Respondents saw an integer rating that was calculated from an unrounded underlying rating. Essentially, this method identified the effect of seeing a 1-point-higher academic rating on respondents' opinions of schools by comparing the grades that respondents assigned to schools with ratings that barely rounded up (for example, a 6.5 that rounded to appear as a 7) to the grades assigned to schools with ratings that barely rounded down (for example, a 6.49 that rounded to appear as a 6).

Other work with this sample explored which information sources respondents reported trusting and how they viewed schools with different ratings of achievement levels, value-added gains, and school climate. I then conducted follow-up experiments with a sample from Amazon's Mechanical Turk. In these experiments, participants rated hypothetical school profiles based on the different types of school-quality information presented. These experiments focused on the possible explanations for parent comments being more influential than numerical government ratings, assessing, for example, preferences for information source (parents or government) and style (narrative comments or numerical ratings).

### Information's Effects on School Choosers' Attitudes and Behaviors

Academic research on school choice sometimes casts parents' decisions about which information to use as a cost-benefit question. The logic: parents are trying to get the best information they can (maximal benefit) for the least possible investment of time and resources (minimal cost). If a government or education reform organization wanted to influence where people go for information about schools, then it has two basic options: change the perceived benefits or costs of

getting that information.

In recent years, we have seen efforts to both increase the benefits of obtaining formal information about schools and decrease the costs of doing so. On the benefits side, measures of school performance have become increasingly sophisticated and credible while the information provided in online school reports has grown richer. On the costs side, many of today's school performance reports are more accessible and memorable than ever. Governments and third-party organizations publicize their reports, which often feature a single summative measure of school performance.

For example, at least 16 states currently assign their schools an A–F letter grade.<sup>19</sup> The rationale is firmly grounded in what cognitive psychology has learned about information overload: when the information that people digest exceeds their ability to process it, their ability to retain the information and make a high-quality decision can suffer. Simplified ratings such as A–F letter grades offer a potentially helpful, clear signal through the “data smog” that could otherwise undermine decision making.<sup>20</sup>

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Studies examining the effects of disseminating simplified school performance reports have generally found that these reports can affect parents’ school selections. For example, researchers studying Charlotte-Mecklenburg schools randomly assigned some families choosing schools to receive basic information about schools’ performance on state assessments. They found that families receiving a one-page form with the test-score averages of their home and transportation-zone schools were more likely to actively request a school other than their local, guaranteed-entry school and choose higher-scoring schools than those who received no test score information. Including information about the odds of being admitted made little additional difference.<sup>21</sup>

Susanna Loeb and I examined how information affects school choosers by conducting a set of field experiments in Milwaukee; Washington, DC; and Philadelphia. In Milwaukee and DC, we randomly assigned some families to receive GreatSchools booklets with individual school profiles—including simplified ratings of school performance (star ratings or color-coded high, average, and low ratings)—and more general information about conducting a school search in those cities. We also offered additional services from GreatSchools, including workshops for school choosers and training

for school staff. We found that families choosing middle schools enrolled their children in higher-performing schools because of the treatment, while families choosing high schools did not. These effects were evident in both Milwaukee and DC. (See “The Field Experiments Study” text box.)

In Philadelphia, we stepped back to examine how information affects school choosers’ more proximate decision-making processes. We conducted an experiment with attendees of a high-school fair, in which randomly selected treatment group members (both parents and students) read through a school information booklet before filling out a survey about their school choice plans. Control group members filled out the same survey without first seeing the booklet.

We found that the booklet led the adults in our sample to consider more schools (expand their consideration sets), align their beliefs about school quality with the quality assessments in the booklet, feel better about their abilities to choose, and, as discussed previously, further prioritize academics during their searches.

This, in turn, led them to pursue higher-rated schools, as treatment group parents expected to apply to and enroll their children in higher-rated schools than control group parents. Interestingly, eighth-grade students who participated in this study responded very differently from parents, and high-school choosers (many of whom were likely students) responded very differently from middle-school choosers in Milwaukee and DC. (I will revisit this point shortly.)

So, it seems that simplified school performance reports from governments and third-party organizations can change school-choosing parents’ attitudes and behaviors. However, it is unlikely that simply making these formal reports more accessible—reducing the cost of acquiring good information—would lead school-choosing families to stop drawing on their social networks. Information from social networks often comes at low cost, but it also offers benefits that are difficult to obtain from formal school profiles.

For example, even if parents are imperfect critics of their children’s schools, their scope of vision can include aspects of schooling that formal information reports do not adequately capture. A parent might observe how constructively an administrator interacts with students

## The Field Experiments Study

This study examined how the provision of information affects school-choosing families' school choices and decision-making processes. We conducted randomized experiments in three cities: Milwaukee; Washington, DC; and Philadelphia.

In Milwaukee and DC, where families have many school choices, we randomly assigned some families to receive extra information about the schools available to them and then assessed how that information affected which schools they chose. In each city, the treatment consisted of a GreatSchools booklet with profiles of the individual schools and information about conducting a school search, and modest support from GreatSchools staff.

The booklet profiles included GreatSchools' overall evaluation of each school's performance, presented as a star rating or color-coded high (green), average (yellow), or low (red) rating. The additional support included GreatSchools-staffed workshops and a telephone hotline for interested families.

Families were assigned either to a treatment group that received these additional resources or to a control group that did not. Treatment assignment occurred at the sending-school level, meaning, for example, that all fifth-grade families in a kindergarten–fifth-grade school received the same treatment assignment. The sample consisted of families moving from elementary to middle school and middle to high school.

In Philadelphia, we tested how school performance information affects school choosers' more proximate decision-making processes. We conducted

a randomized experiment at the 2013 Philadelphia High School Fair. Approximately 4,000–6,000 people attended this fair, where they could meet with representatives from approximately 100 district, charter, and private schools.

The study included both adults (n=286) and students (n=400) who visited the fair. We included adults and students because students are involved in choosing their own high schools and might handle the process differently from adults. We also wished to examine the possibility that the disparate middle- and high-school findings in Milwaukee and DC could be attributed to students being more involved in choosing high schools than middle schools.

As attendees arrived at the fair, they were offered \$5 to participate in a study. Participants were then randomly assigned to either a treatment or control group. The treatment group spent approximately 5–10 minutes with a booklet of information about school choice in Philadelphia and profiles (with ratings) of the local schools.

After finishing with the booklet, treatment group members completed a survey about their attitudes, beliefs, and plans for their school search. Control group members completed an identical survey without first seeing the booklet. Since randomization determined participants' assignment to the treatment or control group, we could attribute treatment-control differences in the survey responses to the effects of reading the booklet.

being disciplined, how willingly a teacher spends time on a topic that is untested but important, and how kindly students treat one another on the playground. This is potentially rich, relevant information even if it is difficult to systematically measure and report in formal school profiles.

The form that information from social networks takes can also appeal to school-choosing families: It comes from familiar, trusted voices and often from people who know the particular child looking for a

school. Moreover, a friend's words about his or her own children's experiences can carry relatable emotions and perspectives that structured, formal school profiles cannot. Researchers have found anecdotes to be extremely persuasive, especially when they feature an identifiable character or victim.<sup>22</sup>

As part of the online experiments study, I examined the relative influence of brief parent comments and numerical government ratings on parents' and the public's opinions of schools. I provided respondents with

each type of information about their local schools and then asked them to assess the schools' quality. Each respondent graded two schools on a scale from A+ to F. For one school, he or she saw two generally positive comments from parents, and the school's actual 1–10 GreatSchools academic rating. For the other school, he or she saw two generally negative comments from parents, and the 1–10 academic rating.

I used random assignment to determine whether respondents saw positive or negative comments about a particular school. As a result, if respondents graded schools with positive comments differently from schools with negative comments, I could attribute those differences directly to the effects of the comments. To assess the causal effects of numerical academic ratings, I used a regression discontinuity design that utilized the way that GreatSchools rounded its academic ratings.

Indeed, parents and the broader public graded schools higher because they saw better formal academic ratings. Seeing an academic rating that was 1 point higher on the 10-point scale led respondents to grade schools approximately 5–15 percent of a full grade better on a standard 0–4.333 GPA scale. These academic ratings made a meaningful impact, as a 1-point change in this academic rating is a relatively small jump in the context of the full scale.

The parent comments, however, were stunningly influential. Seeing two positive parent comments rather than two negative parent comments led respondents to grade schools approximately two-thirds of a full grade higher (on average, about the difference between a C+ and a B). Even though these comments were brief, appeared alongside formal academic ratings, came from unidentified sources on the Internet, and described schools that many respondents knew well, they fundamentally reshaped the way parents and other adults evaluated school quality. Follow-up testing showed that the parent comments were powerful mainly because respondents preferred their source (parents rather than government) and style (narrative comments rather than numerical ratings) to what they saw in the ratings.

Having examined how parents and the broader public respond to information about schools, I turn next to a key, often overlooked group: the students themselves.

## The Student-Chooser Challenge

I have alluded to evidence that school-choosing parents and students respond differently to receiving information. Recall that in Philadelphia, our booklet with school profiles had an assortment of seemingly positive effects on parents, who responded by expanding their consideration sets, aligning their beliefs about school quality with the formal reports' assessments, feeling more confident about their choices, choosing to focus more on academics, and eventually targeting higher-rated schools.

Yet we saw none of these effects on students (mostly eighth-graders involved in choosing their own high schools). Although we had more students than parents in our sample, there were virtually no statistically significant differences in the survey responses of treatment and control-group students. Providing eighth-grade students with booklets did not lead them to pursue higher-rated schools or bring their assessments of schools into alignment with these formal reports.

In fact, this is consistent with a possibly counterintuitive finding from our Milwaukee and DC field experiments. In both cities, families choosing middle schools responded to our information treatment by enrolling in higher-rated schools, but families choosing high schools responded by enrolling in lower-rated schools.

We believe this is at least partly because of the more central roles that students play in choosing their high schools than choosing their middle schools. Parents and students likely responded differently to the same information. Moreover, we distributed booklets through schools (typically to students), which could have encouraged eighth-grade students to take more active roles in choosing their own schools by providing them with materials that made choosing schools easier or signaling that students should be involved in choosing.

Very little empirical evidence exists regarding students' involvement in choosing their own high schools. We have heard from many research partners, district and nonprofit, that students are deeply involved in choosing their own schools, perhaps especially in urban areas with extensive opportunities for school choice.

In Philadelphia, we surveyed a reasonably representative share of the attendees at the city's largest

high-school fair, asking respondents who in their families would be most involved in choosing a school (specifically, a parent, guardian, or other adult; the student; or the parent(s) and student equally).

Both the adults and students in our sample reported a true sharing of responsibilities. Among adults, 16 percent said that the parent(s) or adult(s) would be most involved, 8 percent said the student would be most involved, and 76 percent said that the two would be equally involved. Among students, 9 percent said that the adult(s) or parent(s) would be most involved, 28 percent said the student would be most involved, and 61 percent said that both would be equally involved.<sup>23</sup>

If, as we believe, students play important roles in choosing their own high schools, then carefully informing the public about schools includes being attentive to what students seek in schools and how they respond to information. Among our Philadelphia sample, the majority of students (57 percent) and adults (76 percent) reported academic achievement as their most important factor in choosing a school. However, a much higher percentage of students than adults reported being primarily concerned about one of the aspects that would seem to make school enjoyable: “fun school to attend,” “sports programs,” or “other programs (arts, clubs, etc.)” Approximately 28 percent of the students in our sample selected one of these options, compared to only 3 percent of adults.

This might also help explain the counterintuitive responses of high-school choosers in Milwaukee and DC. A 13-year-old thinking about where to spend the next four years might see a highly rated, high-scoring school as anything but fun. Adolescents have different priorities from their parents, must manage the day-in and day-out demands of their schools, tend to discount the long-term benefits and costs of their behaviors at high rates, and are at a developmental stage that carries heightened senses of vulnerability and social unease.<sup>24</sup> A highly rated school that looks stellar to mom and dad might look intimidating, unpleasant, and not worth the struggles to the student.

There are seemingly two strategies—not necessarily mutually exclusive—for informing school-choosing families about schools when students are deeply involved in the choice process. The first is to construct

children-specific materials and supports that serve their needs and help them participate constructively in the process. More research is needed on how these resources might look, but data-heavy school profiles in lengthy booklets could be the wrong place to start. Helping students appreciate the tangible, long-term expected benefits of an academically successful high-school experience might be valuable, as might school visits or video tours that make unknown, highly effective schools more familiar and less frightening.

On the other hand, a second strategy is to encourage a paternalistic hand from a parent. Many of us who remember our 13-year-old selves likely appreciate, or would have welcomed, the guidance and protection of loving parents engaged in a school choice process. Organizations might consider targeting school choice materials directly to parents or encouraging parents to structure the decision-making processes within their families such that children have a voice in the decision without being able to unilaterally choose schools unlikely to serve them well. There are good reasons for children to be involved in selecting their own high schools: they know themselves intimately and their attitudes can define whether a school choice proves successful. But how they should be involved and how we should support their involvement are questions requiring careful thought.

### **Considerations for Designing and Disseminating School Information Reports**

To recap, I have argued that the school choices that families make and the processes that lead to those choices are not always as rational as we might like. School choice markets might work optimally if perfectly informed families fully considered all of the schools available to them and then chose the best ones, using the right criteria (whatever those may be).

But that does not describe reality. Humans choose schools, and thus school choice processes are subject to the many biases, tendencies, and mistakes that accompany human decision making. An ideal system for informing the public about schools incorporates these realities into its design. Both education reformers and researchers have learned and are continuing to learn

about the best ways to do so. In this section, I describe a few of these lessons and what they suggest for how to design and disseminate school information reports.

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*By identifying schools that could appeal to parents, GreatSchools provides targeted opportunities for parents to expand their consideration sets without incurring steep costs.*

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**Broaden Consideration Sets.** Supporting school-choosing families begins with encouraging them to conduct a school search in the first place. As discussed previously, many families work from modestly sized consideration sets, often as small as one school. These consideration sets might be developed unconsciously, perhaps long before a choice must be made. Many choices are therefore made without a sincere review of the available alternatives, and sometimes before the family can reasonably assess which school would be best for its child.

GreatSchools actively seeks to expand the consideration sets of those who use its website. Many parents reach the GreatSchools website by searching the Internet for a single school. The GreatSchools response has been to not only offer information about that school but also provide information about nearby and similar schools alongside it.

The rationale is that when website visitors are presented with schools that they are likely to find appealing, they have an easy opportunity to begin a school comparison and selection process that they might otherwise never have started. By identifying schools that could appeal to parents, GreatSchools provides targeted opportunities for parents to expand their consideration sets without incurring steep costs in trying to collect information.

**Strive to be Accurate, Accessible, and Accommodating.** Informing the public about school performance is fraught with challenges. It involves presenting imperfect measures of school quality, based on debatable and unsettled criteria for evaluating schools, to an

audience that is unlikely to understand and interpret that information exactly as intended. Necessarily, there are tradeoffs involved in producing information that accurately and reasonably describes school performance while presenting that information in useful ways.

When considering these tradeoffs, accuracy should be compromised only with great caution, since an inaccurate but persuasive school performance report is likely more harmful than helpful. Accuracy can refer to both highlighting school characteristics that seem plausibly related to school quality and describing in reasonable ways performance with respect to those characteristics.

Take first the selection of which characteristics to report. Earlier, I discussed the apparent malleability of school choosers' criteria for evaluating their options. When a credible organization releases school profiles highlighting a particular set of school characteristics (for example, test scores, extracurricular offerings, and demographic profiles), it sends a signal that these are appropriate factors to consider when judging schools. When searching for information, school choosers learn not just about the particular schools available but also about how to conduct the search. Those designing school profiles should recognize this potential mechanism for influencing choices.

Perhaps even more importantly, after selecting which school characteristics to highlight, one should be attentive to using metrics and data-collection procedures that reasonably assess schools according to these characteristics. An obvious example is how academic performance is reported.

A growing literature describes the dangers of using proficiency levels (what proportion of a school's students score proficient or better on state tests) as a measure of school performance.<sup>25</sup> Most problematically, using proficiency levels risks attributing differences in scores across schools to school performance, when those differences actually reflect differences in which students the schools educate.<sup>26</sup> However, concerns about the varying quality of school-profile indicators reaches far beyond test scores. For example, many of today's school profiles rely on self-reported data from schools.

Schools exposed to intense market pressures have incentives to advertise themselves effectively, since their existence depends on their attractiveness to prospective families. Even an honest, well-intentioned

school leader might tout attributes of his or her school in a way that creates false impressions of school performance (for example, by using a forgiving formula for calculating graduation rates or advertising student clubs that are effectively nonexistent). Parents might be skeptical of claims in schools' promotional materials but let their guard down when reading independent, formal school profiles.

An inaccurate (or misleading) school profile is clearly problematic. However, even an accurate profile can only be influential insofar as people obtain, understand, and utilize the information. Accessibility is important. In designing school performance reports, one must weigh the value of providing comprehensive information against the risk that comprehensive information can overload readers and undermine their decision-making abilities.

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*For many school choosers, the information available through social networks is more plentiful than any other type of information.*

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One approach is to provide a clear, strong signal of school quality that is capable of piercing through the data smog. Many governments and third-party organizations have turned to a single rating that summarizes school performance. Comparing schools on multiple dimensions at once can be cognitively challenging, especially if one must navigate a set of lists, charts, numbers, and other data. A single performance rating, or perhaps a few such ratings, makes these comparisons much easier.

Of course, summarizing performance in such simple terms presents challenges. For one, no single rating can do justice to the richness and complexity of successfully educating children, and any one rating is necessarily limited. Second, the selection of which type of rating system to use can affect how people perceive school quality. For example, as described previously, school performance reports using letter grades seem to produce greater variation in Americans' assessments of school quality than reports using proficiency percentages or performance labels.<sup>27</sup>

GreatSchools strives to achieve both accuracy and accessibility in its school reports, partly by accommodating the varied needs of its users. One of the principles underlying the design of the GreatSchools website is progressive disclosure, a widely used design principle that aims to offer plentiful information to those who desire it without cognitively overloading its varied audiences. It does so by initially presenting users with only the most basic information and then providing opportunities to click for richer, more specialized detail.

There is enough information on the initial page for the reader just passing through to leave with a sense of the key takeaways: for a weather forecast, today's high and low temperature and the probability of rain; for a news article, a headline and story summary. For a reader seeking more information, this first page organizes key thoughts and presents a roadmap for where to look for detailed information. In the school profile context, one might wish to provide basic school information (for example, location and grade levels offered) along with key evaluative measures (such as an academic rating) before progressively disclosing richer information about the school's offerings and performance.

**Recognize the Value (and Risk) of Narrative Comments.** We have seen that performance ratings can change people's impressions of schools and reshape their school-choosing behaviors. The same is true of comments from parents with children in school. The online experiments described earlier demonstrated the powerful influence that parent comments can have on people's opinions of their local schools.

For many school choosers, the information available through social networks is more plentiful than any other type of information. And while concerns exist about the quality of information available, social networks routinely offer information that is both valuable and persuasive.

Some organizations are working to incorporate parents' perspectives into their school profiles, although doing this successfully is difficult. One challenge is presenting perspectives in a way that reasonably represents the broader parent community's views. Many sites now enable users to share Yelp-style opinions of individual schools, with users able to rate schools and share narrative comments.

In principle, this is wise. Parents have valuable, unique perspectives of their children's schools, and publicly disseminating these perspectives can provide useful information to school-choosing families. This could be especially helpful for families lacking access to well-informed networks or moving to a new community.

In practice, though, it is difficult. Organizations such as GreatSchools have worked hard to encourage more parents to share their opinions on individual school profiles and have collected a massive trove of comments along the way. Yet even for a website with the visibility of GreatSchools, getting more than a few parents to review each school has been challenging.

Furthermore, those who voluntarily write reviews are likely unrepresentative of the broader community. People tend to share opinions after particularly good or bad experiences, making their shared opinions unlikely to generalize to more typical experiences with schools.

Schools also have incentives to encourage their most satisfied families to provide ratings. While a school might have only the best intentions in campaigning to get parents to share their happiness online, differences in how schools and parents handle this can produce misleading comparisons on websites. Information that is both misleading and persuasive poses a particular threat of undermining families' decision-making processes.

There are some strategies that are mindful of these concerns about representativeness while still capturing some of the value of parent comments. One strategy might be for an organization to partner with districts or schools that carefully administer parent surveys. Data from these surveys would likely be of great interest and value to school-choosing families if the surveys were well designed and administered (for example, with well-designed items and high response rates).

A second strategy might be to incorporate one of the desirable features of parent comments—their narrative style—into formal school performance assessments. Findings from my online experiments indicated that people were considerably more persuaded by a brief comment from an expert government observer than an official numerical rating. An organization with the capacity to visit schools and include observational write-ups in school profiles could generate valuable, rigorous, persuasive information for school choosers.

Two organizations in Detroit offer intriguing models for this kind of work. A group of parents committed to finding good Detroit schools for their children created The Best Classroom Project as a grassroots initiative to learn and share information about schools. Group members visit schools, fill out an agreed-upon observation rubric, and then report back in meetings that outline future visits. Their rubric contains information on a range of topics, from whether the school has a nurturing environment and strong sense of community to its music and art offerings, bullying policies, and teacher turnover rates.

One resource that The Best Classroom Project has used to identify which schools to visit has been Excellent Schools Detroit, a more formally structured organization providing resources to Detroit families, including an online scorecard showing how the organization assesses each school's performance. Each school receives an overall grade, A–F, which is a composite measure drawing from the school's performance in academic status, academic progress, and climate.

Schools receive letter grades in each of these categories, with the academic status grade based on test results and graduation rates, the academic progress grade based on whether student performance has improved over time, and the climate grade based on teacher surveys, student surveys (grades 6–12), changes in those survey responses over the past year, and findings from a community review.

For that review, Excellent Schools Detroit sends trained teams of community members into schools for unannounced visits in which they assess school climate based on three rubrics (High Expectations for Learning, Parent and Community Partnerships, and Safe and Caring Learning Environment). These community reviews account for half of the climate grade, which itself counts for 30 percent of the school's overall grade.

As such, community observations make an important contribution to each school's overall assessment, with the rubrics bringing structure and rigor to the observations. Moreover, by standardizing the presentation of the status, progress, and climate evaluations (each with a letter grade), the Excellent Schools Detroit community reviews can stand alongside more formal measures of school performance without overpowering them.



**Know the Audience(s).** “Know the audience” has been a central theme of this paper, as I have argued that publicly disseminating information about schools is best done with knowledge of what people desire from schools, where they go for information, and how they respond to the information they receive. In particular, though, this applies to considering how different people might have different needs with respect to information about schools.

Students, for example, seem to have different priorities and respond to information differently than their parents. There is still much to learn about how best to work with students who are thinking about which high school to attend, or whether to sidestep students altogether in hopes of persuading parents to take more active roles in the choice process.

If working directly with students, there could be value in communicating the long-term benefits of attending a high-quality school. There could also be value in attempting to make high-quality schools look manageable and desirable to students—perhaps through tours, videos, or conversations—since a 13-year-old might be naturally inclined to equate high ratings with stress, intimidation, and academic overload.

If working directly with parents, it could be helpful to inform parents not just about their options but also about how to approach a school choice process more generally. For example, parents might wish to prestructure their children’s choices, giving them a voice but only among schools that the parent believes would be good options.

GreatSchools has noticed other types of heterogeneity in the needs of its varied audiences. For example, Internet access is becoming increasingly universal in the United States, but rates of Internet usage vary sharply across subpopulations. A 2013 Pew Research Center survey found that approximately 98 percent of white and 98 percent of black adults with a household income of at least \$75,000 use the Internet or email, compared to only 74 percent of white and 75 percent of black adults with a household income less than \$30,000.<sup>28</sup> This type of observation has led GreatSchools and likeminded organizations to print school information guides in areas where Internet usage rates are low. They typically distribute these guides through community organizations, schools, and libraries.

GreatSchools also reports that at least 30 percent of its website traffic comes from people who are looking for schools as part of a residential relocation. This group might not be able to glean helpful information through its existing social networks and might be unable to see, visit, and experience many schools before enrolling. For this group, richer information about schools’ climates could be especially helpful.

## Conclusion

By supporting school-choosing families’ efforts to make informed choices, governments and other organizations can both help families make good decisions for their particular children and help school choice marketplaces function in ways that serve society more generally. Successfully informing the public is not easy. Schools are complicated institutions tasked with serving many goals, and good measures of their success in achieving these goals can be elusive. Even a school profile that reasonably summarizes a school’s performance and offerings might be misinterpreted or untouched by a public with limited time to commit to a school search, imperfect information-processing abilities, and little training and experience in choosing schools.

This paper has argued that successfully designing and disseminating information about schools requires attention to both presenting high-quality information and presenting it in ways that encourage people to use it and use it well. Questions about which goals schools should pursue and how their progress should be judged are fundamentally important though generally outside this paper’s scope.

Rather, I have focused on how families gather and use information about schools and how organizations might support them by providing accurate, accessible information that encourages families to conduct a school search in the first place, undergo a sensible decision-making process, and acquire rich information about their options without getting lost in the smog of excessive data.

There is still much to learn about how to inform the public about schools, with progress necessary on two fronts. First, we must continue to improve the ways we measure and report school performance. This

includes capturing information about schools' pursuit of goals beyond improving academic performance in tested subjects. It also includes constructing and refining measures that identify schools' true contribution to students' learning and well-being.

Second, we must continue to study how parents, students, and the public use the information provided to them. These studies will be particularly useful if they are attentive to possible heterogeneity in how people access, interpret, and make use of information about schools. The openness and curiosity of organizations engaged in this work has helped develop our knowledge in these areas, and their continued openness and curiosity will only help to further develop that knowledge.

## Notes

1. An important question—but not the subject of this paper—is whether school-choosing parents' desires are well aligned with broader societal desires and interests. For richer discussion, see David F. Labaree, "Public Goods, Private Goods: The American Struggle Over Educational Goals," *American Educational Research Journal* 34, no. 1 (1997): 39–81.

2. Herbert A. Simon, "Bounded Rationality," in *The New Palgrave: Utility and Probability*, ed. John Eatwell, Murray Milgate, and Peter Newman (New York: W.W. Norton & Company, 1990), 15–18.

3. For an overview of these concepts, see James G. March, *A Primer on Decision Making: How Decisions Happen* (New York: Macmillan, 1994).

4. Amos Tversky and Daniel Kahneman, "Availability: A Heuristic for Judging Frequency and Probability," *Cognitive Psychology* 5 (1973): 207–32.

5. See, for example, Richard R. Lau and David P. Redlawsk, "Advantages and Disadvantages of Cognitive Heuristics in Political Decision Making," *American Journal of Political Science* 45, no. 4 (2001): 951–71; and Arthur Lupia and Mathew D. McCubbins, *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* (Cambridge, UK: Cambridge University Press, 1998).

6. Courtney A. Bell, "All Choices Created Equal? The Role of Choice Sets in the Selection of Schools," *Peabody Journal of Education* 84, no. 2 (2009): 191–208.

7. Mark Schneider, Paul Teske, and Melissa Marschall, *Choosing Schools: Consumer Choice and the Quality of Ameri-*

*can Schools* (Princeton, NJ: Princeton University Press, 2002).

8. Rebecca Jacobsen, Andrew Saultz, and Jeffrey W. Snyder, "Grading School Report Cards," *Phi Delta Kappan* 95, no. 2 (2013): 64–67.

9. See, for example, Douglas N. Harris, Matthew F. Larsen, and Jill Zimmerman, *What Schools Do Parents Want (and Why)? Academics, Extracurricular Activities, and Indirect Costs in New Orleans Post-Katrina School Reforms* (forthcoming, Education Research Alliance for New Orleans); and Bretten Kleitz et al., "Choice, Charter Schools, and Household Preferences," *Social Science Quarterly* 81, no. 3 (2000): 846–54.

10. For the New Orleans study, see Harris, Larsen, and Zimmerman, *What Schools Do Families Want (and Why)?* For the Charlotte-Mecklenberg study, see Justine S. Hastings, Thomas J. Kane, and Douglas O. Staiger, *Heterogeneous Preferences and the Efficacy of Public School Choice* (May 2009), [www.dartmouth.edu/~dstaiger/Papers/WP/2008/HastingsKaneStaiger\\_Combined\\_200806.pdf](http://www.dartmouth.edu/~dstaiger/Papers/WP/2008/HastingsKaneStaiger_Combined_200806.pdf).

11. See, for example, Mark Schneider and Jack Buckley, "What Do Parents Want from Schools? Evidence From the Internet," *Educational Evaluation and Policy Analysis* 24, no. 2 (2002): 133–44.

12. Craig R. M. McKenzie, Michael J. Liersch, and Stacey R. Finkelstein, "Recommendations Implicit in Policy Defaults," *Psychological Science* 17, no. 5 (2006): 414–20.

13. This and subsequent references to the field experiments study derive from a forthcoming publication by me and Susanna Loeb titled, "Information, Choice, and Decision-Making: Field Experiments with Adult and Student School Choosers."

14. Schneider, Teske, and Marschall, *Choosing Schools: Consumer Choice and the Quality of American Schools*.

15. Mark Schneider et al., "Networks to Nowhere: Segregation and Stratification in Networks of Information about Schools," *American Journal of Political Science* 41, no. 4 (1997): 1201–23.

16. *No Child Left Behind Act of 2001*, Public Law No. 107-110 (2002), [www2.ed.gov/policy/elsec/leg/esea02/107-110.pdf](http://www2.ed.gov/policy/elsec/leg/esea02/107-110.pdf).

17. "State Governments Viewed Favorably as Federal Rating Hits New Low," Pew Research Center, April 15, 2013, [www.people-press.org/2013/04/15/state-governments-viewed-favorably-as-federal-rating-hits-new-low/](http://www.people-press.org/2013/04/15/state-governments-viewed-favorably-as-federal-rating-hits-new-low/).

18. This and subsequent references to the online experiments study derive from a forthcoming publication of mine titled,

“The Word on the Street or the Number from the State? How Parent Comments and Government Ratings Affect Americans’ Opinions of Schools.”

19. *State of Education: State Policy Report Card, 2014* (StudentsFirst), <http://reportcard.studentsfirst.org/assets/2014NationalReport.pdf>.

20. David Shenk, *Data Smog: Surviving the Information Glut* (San Francisco: HarperCollins, 1998).

21. Justine S. Hastings and Jeffrey M. Weinstein, “Information, School Choice, and Academic Achievement: Evidence from Two Experiments,” *Quarterly Journal of Economics* 123, no. 4 (2008): 1373–1414.

22. See, for example, Thomas R. Koballa Jr., “Persuading Teachers to Reexamine the Innovative Elementary Science Programs of Yesterday: The Effect of Anecdotal Versus Data-Summary Communications,” *Journal of Research in Science Teaching* 23, no. 5 (1986): 437–49; John B. De Wit, Enny Das, and Raymond Vet, “What Works Best: Objective Statistics or a Personal Testimonial? An Assessment of the Persuasive Effects of Different Types of Message Evidence on Risk Perception,” *Health Psychology* 27, no. 1 (2008): 110–15; and Tehila Kogut and Ilana Ritov, “The ‘Identified Victim’ Effect: An Identified Group, or Just a Single Individual? *Journal of Behavioral Decision Making* 18, no. 3 (2005): 157–67.

23. Note that differences between adult and student responses do not necessarily reflect within-family disagreement about who is making these choices. It is possible, for example, that the students who attended this fair were more involved in choosing their own high schools than their nonattending peers.

24. For research on children’s discounting of the long-term benefits and costs of their behaviors, see Laurence Steinberg et al., “Age Differences in Future Orientation and Delay Discounting,” *Child Development* 80, no. 1 (2009): 28–44; and Eric Bettinger and Robert Slonim, “Patience among Children,” *Journal of Public Economics* 91, no. 1–2 (2007): 343–63. For discussion of adolescence more generally, see Laurence Steinberg, “Cognitive and Affective Development in Adolescence,” *Trends in Cognitive Sciences* 9, no. 2 (2005): 69–74.

25. Douglas N. Harris, “From the Snapshot to the Full Picture: Measuring School Performance with Value-Added” (AEI, July 2009), [www.aei.org/files/2009/07/30/07-EduO-July09-g.pdf](http://www.aei.org/files/2009/07/30/07-EduO-July09-g.pdf).

26. It is not necessarily irrational for one choosing schools to consider both proficiency levels and the value-added gains attributable to schools. The former can provide information about a child’s likely peers at different schools, and peers can affect students’ academic, emotional, and social lives. How officials should approach this subject is a complicated question, since focusing on proficiency levels might provide incentives for schools to focus on attracting and retaining privileged students.

27. Jacobsen, Saultz, and Snyder, “Grading School Report Cards.”

28. Aaron Smith, “African Americans and Technology Use: A Demographic Portrait,” Pew Research Internet Project, January 6, 2014, [www.pewinternet.org/2014/01/06/african-americans-and-technology-use/](http://www.pewinternet.org/2014/01/06/african-americans-and-technology-use/).