NEW YORK CITY SCHOOL EVALUATIONS:

COMPARING PARENT, TEACHER, AND GOVERNMENT

ASSESSMENTS

An Honors Fellow Thesis

by

NATHAN BRADLEY FAVERO

Submitted to Honors and Undergraduate Research
Texas A&M University
in partial fulfillment of the requirements for the designation as

HONORS UNDERGRADUATE RESEARCH FELLOW

May 2012

Major: Political Science

NEW YORK CITY SCHOOL EVALUATIONS:

COMPARING PARENT, TEACHER, AND GOVERNMENT

ASSESSMENTS

An Honors Fellow Thesis

by

NATHAN BRADLEY FAVERO

Submitted to Honors and Undergraduate Research
Texas A&M University
in partial fulfillment of the requirements for the designation as

HONORS UNDERGRADUATE RESEARCH FELLOW

Approved by:

Research Advisor: Kenneth J. Meier
Associate Director, Honors and Undergraduate Research: Duncan MacKenzie

May 2012

Major: Political Science

ABSTRACT

New York City School Evaluations: Comparing Parent, Teacher, and Government Assessments. (May 2012)

Nathan Bradley Favero
Department of Political Science
Texas A&M University

Research Advisor: Dr. Kenneth J. Meier
Department of Political Science

This thesis contains two studies examining survey evaluations of public schools. Survey evaluation results provide a novel means of measuring program performance, which is of particular interest to public administration scholars and practitioners. At the same time, uncertainty regarding the accuracy and utility of perceptual survey-based measures has led to scholarly criticism. Studying survey evaluations of public schools has use beyond helping to answer measurement questions. How parents form and express opinions about public schools has important implications for democracy and education policy. School choice scholars have devoted considerable attention to questions about what parents know and what they care about.

The two studies contained in this thesis look at survey evaluations of New York City public schools from 2007 to 2009. Using a cross-sectional time-series approach, the evaluations are compared to government records of schools' characteristics and performance. The first study (Chapter II) focuses on the overall satisfaction expressed by

parents and teachers while the second study (Chapter III) picks apart multiple dimensions of satisfaction. The results from Chapter II support the notion that parents and teachers can perform intelligent, meaningful evaluations of their schools. At the same time, I encounter some difficulties in Chapter III when I try to use survey results to measure multiple dimensions of performance. I attempt to address one source of these difficulties, and the results seem to indicate that my method is somewhat successful at addressing the data problem.

ACKNOWLEDGMENTS

I would first and foremost like to acknowledge the tremendous support of my advisor, Dr. Kenneth J. Meier. He gave me the opportunity to start assisting with his research during my first year as an undergraduate and later put me in charge of the research project which spawned this thesis. Without the direction, encouragement, and resources Dr. Meier provided, I would not have completed this work. I am also grateful for the financial support provided by the Department of Political Science, the College of Liberal Arts, and the Honors and Undergraduate Research office. In addition, I will forever be indebted to my exceptional parents for giving me a wonderful childhood, a fantastic education, and their continued support and encouragement. Finally, I am very grateful for a wonderful group of friends, two of whom—Brynnan Fink and Talya Lazerus—are among my cohort of Honors Undergraduate Research Fellows. There is little that I could accomplish without the friendship, encouragement, and advice they provide.

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

Parent, teachers, and students all form opinions about their schools as they go about interacting with them on a regular basis. Survey instruments provide researchers with the opportunity to systematically study these opinions. Understanding how various stakeholders form and express opinions about public schools is important for at least two reasons. First, public administration scholars and practitioners are interested in finding innovative ways to accurately measure various aspects of performance in public organizations. Researchers must have an effective means of assessing program results if they wish to empirically study the best ways to organize and manage public organizations. Survey-based perceptual indicators of program performance offer a controversial alternative to traditional administrative records of an organization's inputs, outputs, or outcomes. In some cases, survey respondents may lack sufficient knowledge to provide meaningful evaluations of an organization (Stipak 1979a). Even when respondents prove knowledgeable, there is often uncertainty regarding what respondents think is important or how they translate their opinions into survey responses. Perceptual indicators may be vulnerable to certain biases, and little is known about what biases are likely to exist or what their statistical implications will be.

This thesis follows the style of *Journal of Public Administration Research and Theory*.

A second motivation for studying school survey evaluations comes from a desire to better understand what parents know and think about their local schools. The ways in which parents gather information and express opinions about their schools have important implications for democracy. Miller, Kobayashi, and Hayden (2009, p. 5-6) suggest that citizen surveys can serve as an important means of political participation since they provide governments with an opportunity to systematically gather citizens' opinions outside of an election.

In addition to the democratic implications of parent evaluations, several practical questions of education policy relate to how parents form opinions about schools. In particular, the literature on various forms of school choice has sought to understand how parents will make choices about where to educate their children, when given the opportunity to decide (see Schneider, Teske, and Marschall 2000; Buckley and Scheider 2007; Van Dunk and Dickman 2003; Howell 2006). These scholars are interested in finding out what parents do (and do not) know about local schools as well as which school attributes are of the greatest concern to parents.

The ways in which parents form opinions about schools may also have important implications for how parents interact with their schools. Schneider, Teske, and Marschall (2000, p. 54-55) argue that parents play an important role in their children's educations and that school officials should work closely with parents to improve educational outcomes. Parent involvement in schools may be linked to parent satisfaction, and

analyzing survey evaluation results may provide insights regarding what motivates higher levels of parent involvement.

The two studies contained in this thesis look at survey evaluations of New York City public schools from 2007 to 2009. The first study (Chapter II) compares the overall satisfaction of parents and teachers to government records of schools' characteristics and performance. I find that both parents and teachers produce evaluations that are significantly related to several administrative measures of performance. I also find that parents and teachers simultaneously influence one another in their assessments. These findings seem to suggest that parents and teachers are able to conduct intelligent and meaningful evaluations of school quality.

The second study (Chapter III) conducts exploratory analysis to see whether or not parents, teachers, and students express multidimensional opinions on survey evaluations. Using factor analysis, I find that while much of the variation in responses can be explained by a single dimension, some opinions on other dimensions are expressed. I then construct several perceptual measures of performance based on the survey evaluation responses and test the validity of these measures. I establish validity for some of the measures only after correcting for a halo effect.

CHAPTER II

SURVEY EVALUATIONS OF PUBLIC SCHOOLS: EXAMINING PARENT AND TEACHER SATISFACTION

Measuring the quality of government services is no easy task. Program administrators regularly develop metrics with which they attempt to quantify their success in providing various government services. These administrative measurements serve as accurate appraisals of a program's ultimate success only in so far as they account for the benefits received by the final customers. Previous research has documented the potential for disparities between the measurements administrators frequently use to judge the success of their programs and the satisfaction of actual service recipients (Brown and Coulter 1983; Stipak 1979b; Kelly 2003). Such disparities provide motivation for developing a better understanding of how different stakeholders evaluate the success of a program. Some groups of people may tend to produce appraisals that are especially vulnerable to certain biases or blind spots because different individuals observe different aspects of a program's operations or have different objectives. One way to begin exploring this issue is to look at the overlap that exists among the opinions of various observers.

This study compares administrative records to evaluations conducted by parents and teachers in the New York City public school system. Public schools provide a novel context within which to study how various actors evaluate government services. This study builds on literature discussing not only how citizens evaluate various urban

services but also what parents know and prefer regarding their children's schools and how individuals assess their own performance. My results provide evidence that common ground exists among how administrators, parents, and teachers evaluate schools. At the same time, each observer exhibits unique variation in its assessments. The question of what qualities characterize the unique judgments of different actors is left for future studies to answer.

Citizen evaluations of government services

Empirical studies

Several scholars have investigated how citizens evaluate government services. Many of these studies have focused on police services. Brown and Benedict (2002) reviewed over 100 articles that examined public opinions about police. They found consistent support for the significance of four independent variables. First, the studies strongly indicate that blacks have less favorable attitudes toward police than whites. Second, individual satisfaction with police appears to increase with positive police contact and decrease with negative police contact. Third, older individuals tend to be happier with police than younger individuals. Finally, the neighborhood in which a person lives seems to influence his or her perception of the police.

These findings suggest that demographic characteristics influence citizen evaluations of government services. What is less clear is whether or not service quality also affects citizen satisfaction. Brown and Benedict point out that most studies purporting to

establish a link between negative police contact and overall evaluations of the police relied upon respondents' assessments of whether their contact with police was positive or negative. Similarly, many studies measure police response time by asking survey respondents to estimate or evaluate the time it took for the police to respond to a request (Davis 1990; Furstenberg and Wellford 1973; Percy 1980; Poister and McDavid 1978; Priest and Carter 1999). Relying on survey items to produce data for both dependent and independent variables in the same equation can introduce common-source bias, which can create the false appearance of a relationship where none exists (Meier and O'Toole 2010b). In this case, personal opinions about the police could easily affect not only feelings of overall satisfaction but also how an individual describes specific police actions.

Percy (1986) compares citizen estimates of police response times to agency records of response times and finds that the two sources generally provide similar estimates. This study adds some credibility to citizen reporting but never directly addresses the question of common-source bias. While Percy's dataset includes measures of citizen satisfaction, the author never tests for a relationship between agency-recorded response time and citizen satisfaction. Brown and Coulter (1983), however, do conduct such a test with data from Tuscaloosa, Alabama. Their study looks at neighborhood-level data on police response times as well as the number of police dispatches, arrests, and crimes committed as recorded in municipal archives. Their results show no evidence of a relationship between any records of service provisions and citizen satisfaction.

Stipak (1979b) studied citizens' evaluations of not only police but also refuse collection, parks and recreation, and other services in the Los Angeles metropolitan area. Stipak also obtained local records of service characteristics, drawing from data on inputs, outputs, administrative workloads, and related community conditions. He found little evidence of a relationship between these records of service characteristics and citizen satisfaction. Similarly, Kelly's (2003) study of fire and police services across 50 cities revealed no relationship between administrative performance measurements and citizen satisfaction.

Two recent studies were able to find a positive relationship between citizen evaluations and other measurements of service quality. Licari, McLean, and Rice (2005) found that citizens evaluated street and park conditions similarly to trained evaluators in 99 small Iowa towns. Van Ryzin, Immerwahr, and Altman (2008) conducted a similar study across 59 community districts in New York City. They found that quality-controlled inspections of randomly-selected street sections produced cleanliness scores that were strongly correlated with citizen evaluations.

Explaining results

Scholars have offered various explanations for the instances in which studies found no relationship between citizen evaluations and other measurements of service quality. Some argue that these findings are at least partially the result of citizens' ignorance (e.g., Stipak 1979a). Stipak (1979b) suggests that citizens pay little attention to services as

long as the quality remains within some median range of typical service. Citizens might not perceive small differences in road quality, for example, even though large potholes could hardly go unnoticed. Additionally, citizens may have more difficulty evaluating infrequently-used services like police and fire protection than clearly-visible operations like maintaining streets or parks (Licari, McLean, and Rice 2005; Van Ryzin, Immerwahr, and Altman 2008; Stipak 1980).

Some explanations have emphasized the role of cognitive processes rather than information levels. Scholars have suggested that expectations may decrease the correlation between survey evaluations and other measurements of performance (Stipak 1980; Brown and Coulter 1983). People who consistently receive high quality services may have high expectations and therefore evaluate services more negatively than those with lower expectations. This would have the effect of dampening any relationship between service quality and citizen satisfaction. Other cognitive processes may further complicate attempts to correlate satisfaction with performance indicators. For example, citizens may compare the service quality they experience to other neighborhoods when conducting evaluations (Brown and Coulter 1983; Kelly 2005).

Some scholars have recently questioned the literature's assumption that when citizen evaluations fail to follow the trends of other performance measurements, the citizens are the ones who are wrong (Licari, McLean, and Rice 2005; Van Ryzin, Immerwahr, and Altman 2008). Schachter (2010) examines how this assumption is born out in the

terminology of the literature, which usually considers official public records of performance to be objective while referring to data from citizen surveys as subjective. This dichotomization implicitly assumes that demographic characteristics influence citizens in their evaluations but do not affect how administrators collect or design performance measurements. In reality, no measurement can be chosen without a subjective judgment of importance.

Several practical problems may undermine the usefulness of agency records of performance. Such measures are usually proxies which may or may not accurately reflect desired outcomes (Swindell and Kelly 2000; Van Ryzin, Immerwahr, and Altman 2008; Parks 1984). Agency performance indicators tend to focus on aspects of service provision that are easily quantified (Brudney and England 1982). Human error or even intentional falsification can introduce data errors, and administrators may make changes that improve their marks on performance measures, even if the changes fail to improve service outcomes (Schachter 2010). Thus, performance measurements may fail to accurately reflect the aspects of service delivery that actually matter to citizens (Percy 1986).

Parents' opinions on schools

The school choice literature has studied parents' educational preferences in order to gain a greater understanding of how parents make decisions in school choice programs. Surveys show that parents consistently cite academic characteristics, such as high test

scores or good teachers, as the most important factors when choosing or evaluating schools (Buckley and Scheider 2007, p. 103-104; Schneider, Teske, and Marschall 2000, p. 94-95; Tedin and Weiher 2004; Howell 2006; Henig 1996).

Scholars, however, have expressed skepticism over whether most parents actually judge schools on the basis of academic quality. For one thing, the desire to give socially acceptable survey answers may discourage parents from expressing their true preferences, particularly concerning the racial composition of schools (Schneider, Teske, and Marschall 2000, p. 106; Hastings, Kane, and Staiger 2005). Tedin and Weiher (2004) attempted to gain a better understanding of parents' true preferences by conducting an experimental survey in which they asked parents about a proposed charter school. The survey varied in its description of the proposed school's test score results and racial/ethnic composition. Parents gave the most positive feedback when the proposed school was described as having above-average test scores and when the respondent's race/ethnicity did not constitute a small minority of the proposed school's students. Another set of researchers created a website contain information about the public schools in Washington, DC, and tracked which information Internet users viewed (Buckley and Scheider 2007, p. 126-133). Early in their website visits, parents were most likely to look at information about student demographics and school locations, suggesting that parents care more about these attributes than survey results would seem to indicate. Parents also showed an interest in test scores and basic programs, but few viewed information about teachers.

Even if most parents are genuinely concerned about academics, many of them may lack sufficient information to accurately judge the quality of the schools their children attend. A survey in Montgomery County, Maryland showed that a third of parents—even among those whose children attended magnet schools—had never hear the terms "magnet school" or "magnet program" (Henig 1996). Schneider, Teske, and Marschall (2000, p. 152-157) asked parents in New York City and New Jersey about various characteristics of their children's schools, including student demographics and test scores. Many parents failed to accurately answer the questions, although the parents from the suburban New Jersey district fared better than the New York City parents. Van Dunk and Dickman (2003, p. 82-86) asked about some of the same school characteristics in a survey of parents who placed their children in private schools or participated in some sort of choice system in Milwaukee, Wisconsin. While one might expect such parents to be among the most knowledgeable because of their active role in choosing a school, the results showed that about half of the parents lacked accurate information about basic school characteristics. A survey of 10 school districts in Massachusetts found that while parents claim to know an impressive amount about the No Child Left Behind program, only half of them correctly identified whether their children attended underperforming schools (Howell 2006). Buckley and Schneider (2007, p. 137-138) found that parents in Washington, DC, tended to overestimate the test performance of their children's schools.

In light of these findings, it is somewhat surprising that a survey of low-income parents in Milwaukee and Washington, DC, found that over 80% of parents thought they had

sufficient information to make a school choice (Teske, Fitzpatrick, and Kaplan 2006). Schneider, Teske, and Marschall (2000, p. 170-172) suggest that parents who lack specific information about school characteristics may be able to learn something about a school by noting the visual appearance of the building. To test this theory, researchers inspected the physical condition of several school buildings. The results indicate that visual appearance does exhibit a modest correlation with both academic performance and school safety. Howell (2006) found some evidence that parents were able to make sound judgments about schools. Even though most parents in his study with children attending underperforming schools were unaware of the school's status, these parents expressed less satisfaction and more interest in transferring to another school than parents with children at higher performing schools. Furthermore, when asked about preferred schools to which they would like to transfer their children, parents generally named schools that had higher test scores than their children's current schools. In another study, Gibbons and Silva (2011) found that parent satisfaction with schools in England was strongly related to test scores. Using a single year of data, Charbonneau and Van Ryzin (2012) recently found that parent satisfaction with New York City schools was correlated with three official measures of school performance.

The implementation of several school choice systems provides another opportunity to learn about the preferences and information that parents have by examining the choices that parents make. A study of magnet schools in Montgomery County, Maryland, for example, found that parents typically requested transfers to schools where their children

would not be racially or socioeconomically isolated (Henig 1996). An economic analysis of the school choice program in North Carolina's Charlotte-Mecklenburg school district showed that most parents highly valued school proximity while preferences for test scores varied significantly (Hastings, Kane, and Staiger 2005). The study also found that parents usually preferred schools that were 70%-80% their own race. Another study of the Charlotte-Mecklenburg school district found that providing clear information about schools' test performance increased the number of parents who chose higher-scoring schools, especially for families who lived near such schools (Hastings and Weinstein 2008). The empirical results of these three studies indicate that parents make choices based on the information they have about school location, academic quality, and racial composition. One should bear in mind that parents who do not participate in school choice programs may have fewer incentives to be informed about their children's schools.

How employees evaluate their own organizations

Employees have a unique vantage point from which to assess an organization's performance. Participation in daily operations may allow employees to gain valuable insights into aspects of an organization that are difficult to observe as an outsider. At the same time, an employee's participation in the organization may produce certain biases that will influence assessments. If the effectiveness of an organization depends largely on the practices of its employees, I might expect the task of evaluating one's own workplace to resemble somewhat the act of conducting a self-assessment. Researchers

have studied self-assessment from several different angles, and their findings may prove helpful in understanding the relationship between employee evaluations and organizational performance.

Social psychology research indicates that individuals generally believe they are better than the average person, particularly in regard to subjective, socially-desirable attributes (Myers 2002, p. 95-97; Hoorens 1993). This tendency to overestimate one's own virtues and abilities, sometimes referred to as the above-average or "Lake Wobegon" effect, can lead to inaccurate self-reporting. For example, one study showed that school superintendents tended to overestimate their own institutions' performance (Meier and O'Toole 2010a), and another found that college students gave inflated self-reports of academic achievement (Maxwell and Lopus 1994). The latter study also indicated that students with low academic achievements were less likely to complete self-reports, accentuating the upward bias of self-reported achievement data. Similarly, Claridge et al. (2003) found that surgical educators who neglected to complete self-evaluations received relatively negative evaluations from trainees.

One way to learn more about self-assessments is to examine the level of common variation between individuals' evaluations of themselves and some external measure of performance. Several such comparisons have been made in at least three contexts. First, researchers have compared managers' assessments of performance in their own companies and organizations to outside measures of performance. Meier and O'Toole

(2010a) conduct a review of these management studies, most of which focus on the private sector. They conclude that the highest correlations between managers' assessments and outside measures of performance quality are around .6 (36% common variation). One study has produced a significantly larger correlation (.81) between managers' self-reporting and outside sources of information, but it considered estimates of purely factual information regarding sales and employment (Guthrie 2001). It is hardly surprising that higher correlations might be found for factual information than for subjective assessments of performance quality. According to Meier and O'Toole, the literature also indicates that focusing on a specific dimension of organizational performance (e.g., profitability) produces higher correlations than when performance is considered as a general concept.

Several studies of self-evaluations have taken place within the medical community. Davis et al. (2006) provide a systematic review of 20 comparisons between physician self-assessments and external assessments. The studies used a variety of means to externally assess the physicians, including observer ratings and physicians' performance on examinations. 13 comparisons found little or no support for a positive association between self-assessments and external measures while seven comparisons demonstrated a positive association. Claridge et al. (2003) provide the only one of these studies that focused specifically on teaching. Their comparison of self-evaluations from surgical educators (attending physicians) to external evaluations performed by resident trainees

revealed that 11 out of 18 (61%) self-evaluations differed significantly from the trainee assessments.

Several studies of self-assessment have focused on higher education. To examine these, I turn to Falchikov and Boud's (1989) meta-analysis of 57 quantitative studies that compared self-assessments by students to grades issues by faculty or other instructors. Most studies found that students gave themselves higher ratings than their instructors did, and correlation coefficients for the two sources of grades ranged from -0.05 to 0.82, with a mean of 0.39 (15% common variation). These findings reinforce what have already seen from management and medical studies: self-assessments tend to exhibit weak, inconsistent correlations with external measurements.

Thus far, I have looked at self-assessments as a potential indicator of performance, but some scholars have emphasized the role that beliefs about one's self can play in motivating actions. Psychologists have articulated the concept of perceived self-efficacy, which emphasizes that individuals have little reason to exert effort on a task unless they believe they are capable of producing some benefit (Bandura 1997, p. 2-3). Several studies focusing on teacher self-efficacy have demonstrated a correlation between the achievement scores of students and their teachers' confidence in their own ability to bring about student learning (Ross 1992; Watson 1991; Anderson, Greene, and Loewen 1988; Ashton and Webb 1986, p. 138-139; Armor et al. 1976, p. 23-24).

Bandura (1997, p. 247-251) expanded the discussion of teacher efficacy to the group level by suggesting that teachers' beliefs about the collective effectiveness of their own school's faculty will impact the students' learning environment. Bandura tested this hypothesis with an empirical study of 79 elementary schools and found a positive relationship between teachers' sense of collective efficacy and students' academic achievement (p. 480-481). Goddard, Hoy, and Hoy (2000) conducted a similar study that resulted in the same conclusion.

The causal nature of the relationship between teacher efficacy and student achievement is not necessarily clear. Bandura (1997, p. 250) suggests reciprocal causation, with both variables simultaneously influencing each other. Regardless of the underlying cause, it appears as though teachers' opinions about their individual and collective effectiveness are systematically related to student outcomes.

Theoretical expectations

The incentives for parents to be informed about the quality of schools may be particularly high in relation to other government services. Unlike some services which are only used occasionally by most of the population, parents send their children to school daily for most of the year. Not all schools are the same, and many parents may desire for their children to attend high-quality schools that will afford desirable opportunities in the future. Thus, I expect most parents to have at least some information about their children's schools and to form opinions about those schools. While a number

of factors (such as personal characteristics or false information) may influence opinions, I expect that parents will at least partially judge the quality of a school on the basis of its actual characteristics. If one is interested in using parents' opinions as an indicator of school quality, any variation that does not reflect genuine differences in school characteristics can be considered error. Thus, I express the factors influencing parents' opinions about schools with the follow equation:

$$\text{Opinion} = \text{School Characteristics} + \text{Error} \quad (1)$$

Government administrative records may measure some of the school characteristics that are important to parents. However, measuring school quality is no easy task, and it would certainly be impossible to effectively measure every conceivable school characteristic. At the very least, scarce resources force public administrators to focus on measuring a limited number of school characteristics. Thus, parents may attribute significance to some school characteristics that public records fail to measure. This could happen because parents place value on school characteristics that public administrators think are unimportant. Alternatively, administrators may feel unable to effectively or efficiently measure a particular characteristic even though they agree with parents on its significance. Examples of school characteristics that administrative records often ignore might include the quality of a school's counseling service or how well high school students learn basic research skills. With the distinction between measured and

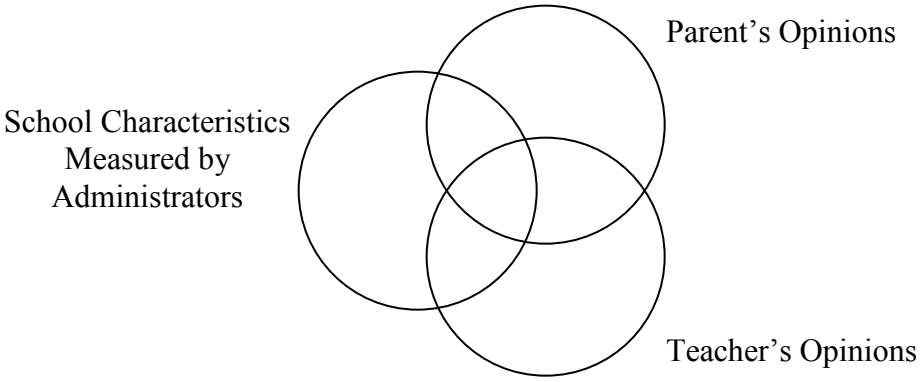
unmeasured school characteristics in mind, I modify my equation describing parents' opinions to the following:

$$\text{Opinion} = \text{Measured School Characteristics} + \text{Unmeasured School Characteristics} + \text{Error} \quad (2)$$

This study also considers the opinions of teachers. As individuals who participate in the daily operation of schools, teachers should know something about their schools' characteristics. Administrators and teachers probably see and value some of the same things, but one might also expect there to be some differences. Therefore, I can describe teachers' opinions with the same equation I use for parents.

Figure 1 depicts the relationship I expect to exist among measured school characteristics, parents' opinions, and teachers' opinions. Administrators measure some school characteristics that influence the opinions of both parents and teachers. Other characteristics that administrators measure matter only to parents or only to teachers, and some measured characteristics matter to neither group. Parents and teachers also take into consideration factors that are not measured by administrators. Some of these unmeasured factors affect both teachers and parents, while others are important to only one group or the other.

Figure 1
Relationship Among Various Sources of Evaluations



As I alluded to when creating the error term of my equation for parent and teacher opinions, misinformation may sometimes influence judgments. Administrators are not immune to human error; they too may fall victim to false impressions or poor judgments. I expect some of these errors affect only one group of individuals. For example, parents might falsely assume that a school is not effectively teaching basic reading and math skills because the school's principal communicates poorly with parents. Despite the parents' misunderstanding, this school's teachers and administrators will likely be unaffected by the error since they will not form their opinions based on the principal's interactions with parents. In other cases, misinformation will doubtless influence all observers. Nonetheless, I posit that agreement among multiple actors indicates a lowered probability that errors have significantly influenced assessments.

If my understanding of how parents and teachers form opinions is correct, I expect my empirical observations to confirm the following two hypotheses:

> **Hypothesis 1:** Parents and teachers will give more favorable evaluations to schools that perform well on city indicators of school quality.

> **Hypothesis 2:** Parent and teacher evaluations will show similarities that cannot be fully explained by measured school characteristics.

A survey presented parents in two New York City school districts with a list of school characteristics and asked which one was the most important to them (Schneider, Teske, and Marschall 2000, p. 93-94, 100). The most popular answer was teacher quality, followed by safety and high test scores. Based on this finding, I make a third prediction about parent evaluations:

> **Hypothesis 3:** Parent evaluations will be more closely aligned to indicators of teacher quality than to standardized test results.

Data and methods

Dependent variables

The New York City Department of Education (2011b) has conducted an annual survey of parents, teachers, and students since 2007. New York City has the largest school system in the country, with 1.1 million students, 80,000 teachers, and a 21 billion dollar budget. I examine the school-level results of parent and teacher surveys between the years of 2007 and 2009. In this chapter I consider data from 1164 schools, which yields a total of 3267 observations since data is not available for every school in every year.[1] All parents and teachers were invited to take the surveys, and the average response rates for the schools I examine were 43% for parents and 63% for teachers.

I measure my two dependent variables—overall parent satisfaction and overall teacher satisfaction—by creating factor indexes based on the results of several survey questions. These questions asked about various aspects of the school, including student learning, teaching, school expectations, and course variety. Most of the questions asked respondents to "strongly agree," "agree," "disagree," or "strongly disagree" with a statement. Two questions asked parents if they were "very satisfied," "satisfied," "unsatisfied," or "very unsatisfied" with an aspect of the school. For each question, the

[1] My dataset did not include special education schools, alternative schools, charter schools, early childhood schools, transfer schools, or Young Adult Borough Centers. Additionally, I excluded observations where fewer than three teachers or fewer than five parents responded to the survey. I also omitted observations when the variables derived from government records contained missing values or obvious data errors, such as percentages greater than 100. Sometimes New York City records did not distinguish between missing values and values of zero. In such cases, I assumed a value of zero was appropriate except when a value of zero seemed impossible or very unlikely (e.g., enrollment, number of administrators).

New York City Department of Education aggregated the responses by school and converted them into scores ranging from zero to ten. Using these scores, I conducted separate factor analyses for parents and teachers. I find a great deal of common variation, with eigenvalues of 4.96 and 4.98 for the 6-item analyses (Table 1). This suggests that respondents consistently expressed the same level of satisfaction, regardless of which aspect of overall school quality was identified in the survey question.

Control variables

Past research indicates that demographic variables affect citizen satisfaction and parent preferences (Brown and Benedict 2002; Brown and Coulter 1983; Schneider, Teske, and Marschall 2000, p. 105-107; Henig 1996). Citizen satisfaction may also be indirectly influenced by whether local governments are fragmented into many small jurisdictions or consolidated into fewer units (Lyons, Lowery, and DeHoog 1992, p. 43). For my study, I need not be concerned about the effect of government structure. Since all observations come from a single city, the government structure is constant across all cases.

Table 1
Factor-Analytical Results of Parent and Teacher Survey Items

Survey Item	*Factor Loading*
Parent Satisfaction:	
Agree with the statement: "The school has high expectations for my child."	.88
Agree with the statement: "My child's teacher(s) give helpful comments on homework, class work, and tests."	.92
Agree with the statement: "My child is learning what he or she needs to know to succeed in later grades or after graduating from high school."	.95
Agree with the statement: "My child's school offers a wide enough variety of courses and activities to keep my child interested in school."	.82
Satisfied with: "The quality of your child's teacher(s) this year."	.91
Satisfied with: "The education your child has received this year."	.96
Eigenvalue	4.96
Teacher Satisfaction:	
Agree with the statement: "My school has high expectations for all students."	.93
Agree with the statement: "Teachers in this school set high standards for student work in their classes."	.87
Agree with the statement: "This school makes it a priority to help students develop challenging learning goals."	.96
Agree with the statement: "This school makes it a priority to help students find the best ways to achieve their learning goals."	.96
Agree with the statement: "My school offers a wide enough variety of activities or courses to keep students at my school engaged."[a]	.84
Agree with the statement: "Teachers and administrators in my school use information from parents to improve instructional practices and meet student learning needs."	.91
Eigenvalue	4.98

[a] The following alternative language was used in 2007: "My school offers a wide enough variety of activities or courses to keep students engaged at my school."

My study makes use of school data, including demographic records, obtained from the public website of the New York City Department of Education (2011b) and the New York State Report Cards (New York State Testing and Accountability Reporting Tool 2011). The city makes available school-level data on enrollment,[2] students' racial/ethnic identity, students' gender, and how many students remain throughout the entire school year. The number of limited English proficiency students can be found in state records. The city also provides the number of recent immigrants, special education students, and overage students. I measure socioeconomic status with four indicators that allow me to approximate different levels of economic hardship; the city supplies the number of students in temporary housing and the poverty rate at each school while state records offer the percentage of students eligible for free lunch and reduced-price lunch.

Dummy variables indicate the academic year and whether each school offers instruction at the elementary, middle, and high school levels. Finally, I include variables that measure the survey response rates for parents and teachers.

School inputs

Six variables measure inputs into the New York City school system. Suspensions and administrative staff were measured using city records. I calculated ratios (expressed as percentages) for the number of suspensions per student and the number of administrators per teacher. A third variable measures class size. The state of New York provides a total

[2] I use a log transformation of the enrollment variable.

of nine measurements of average class size: one for all elementary school classes and separate measurements of math, English, science, and social studies classes for both 8th and 10th grade. I desired to create a single class size variable for all grade levels, so I converted the state measurements into z-scores within the nine categories. I then used the standardized values to calculate the 8th grade average and the 10th grade average across the four subject areas. Using these two averages along with the standardized elementary school class size, I calculated a final weighted average. The weights for the three variables were based on the share of students enrolled in elementary, middle, and high school grade levels at each school as documented in state records.

The final three input variables measure the experience, qualifications, and turnover of teachers. To form these three variables, I performed a factor analysis on 12 measurements of teacher characteristics. Table 2 shows the results of my factor analysis. High eigenvalues indicate that three factors are able to account for most of the variation in the 12 original measurements. Furthermore, each of the original variables has a high loading with exactly one of the three factors. The first factor is highly correlated with measurements of teacher experience and advanced degrees. The second factor exhibits a high correlation with measurements of teacher certification and other qualifications. The final factor is mainly correlated with the two turnover rate variables.

Table 2

Factor-Analytical Results of Teacher Characteristics

Teaching Characteristic (%)	*Factor Loadings*		
City Records:	**Experience**	**Qualifications**	**Turnover**
Individuals teaching more than 2 years in current school.	.84	.19	-.20
Individuals teaching more than 5 years anywhere.	.90	.16	-.05
Teachers with a master's degree or higher.	.72	.25	-.22
State Records:			
Teachers with fewer than 3 years of teaching experience.	-.88	-.18	.17
Teachers with a master's degree plus 30 hours or a doctorate.	.77	.18	-.16
City Records:			
Core classes taught by "highly qualified" teachers.[a]	-.04	.77	-.08
State Records:			
Core classes *not* taught by "highly qualified" teachers.[a]	-.20	-.90	.10
Teachers with no valid teaching certificate.	-.40	-.63	.13
Individuals teaching out of certification.	-.25	-.89	.13
Classes taught by teachers without appropriate certification.	-.19	-.91	.12
Turnover rate of teachers with fewer than 5 years of experience.	-.05	-.11	.95
Turnover rate of all teachers.	-.37	-.17	.83
Eigenvalue	3.85	3.65	1.80

[a] The New York City Department of Education claims to use the No Child Left Behind/New York State Education Department definition of "highly qualified" teachers. However, city and state records differ significantly in documenting of the percentage of core classes taught (or not taught) by "highly qualified" teachers. Because of the discrepancies, I include both the city and the state data when creating the factor indexes.

School outputs

In addition to measuring what goes into a school, both New York City and the state of New York attempt to gauge how successful schools actually are at educating their students. My first measure of school output is the attendance rate, which the city publishes in its annual Progress Reports. These records provide separate attendance figures for elementary/middle school students and high school students, but I desired a single variable that would reflect attendance rates across both levels of schooling. Thus, I standardized the two attendance rates individually and then took the average of the standardized variables after weighting them by the number of students enrolled at each level of schooling (as indicated in city records).

A second school output variable is derived from state records of student performance on standardized tests in the previous school year. For elementary and middle schools, I created an index based on 3rd-8th grade English and math scores. I first calculated the average scores as well as the proportion of scores that met proficiency goals for English and math. I then standardized these four variables and added them together to form the elementary/middle school performance index. High schools do not administer annual English and math exams, but they require students to pass several exams, including an English exam and at least one math exam, in order to receive their diplomas (New York City Department of Education 2011a). Using state records, I divided the total number of

English and math[3] scores that met regents diploma standards by the schools' total high school enrollment. I then combined English and math into a single category by adding standardized versions of the two ratios I just produced. This constituted my high school performance index. I combined standardized versions of the elementary/middle school and high school performance indexes into a single variable using a weighted average, just as I did with attendance rates (except here I based my weights on state records of enrollment rather than city records).

The third variable I use is an overall score from the city's Progress Reports. This score combines measurements of attendance (5%); parent, teacher, and student survey results (10%); student performance (25%); and a value-added measure of student progress in the last year (60%). This score represents the city's overall assessment of each school and takes into account several factors that I measure individually in my study.

A final school output variable comes from a separate set of reports that the New York City Department of Education produces. External evaluators visit schools for two or three days, during which they produce Quality Reviews. They use a rubric that contains sections on instructional and organizational coherence, data collection and analysis, goal setting and planning, capacity building alignment, and monitoring and evaluating structures. Each school receives one of four designations: (1) underdeveloped, (2) underdeveloped with proficient features, (3) proficient, or (4) well developed. I assigned

[3] Because multiple math exams were offered in some years, I had to sum the number of passing scores from each individual math exam to find the total number of passing math scores.

each observation a value from one to four based on the designation the school received that year, with higher numbers representing more favorable designations.[4] Because evaluators did not visit every school in every year, the Quality Review variable contained 879 missing values. I replaced the missing values with the average value of the variable so that these observations could still be included in my regression analysis. I also created the dummy variable Quality Review Dummy, which has a value of one whenever a Quality Review score is available. Using a logit model, I then tried to predict whether or not a quality review was conducted using all of my independent variables (see Appendix A). The results strongly indicate that a selection bias exists, so I make use of the dummy variable Quality Review Dummy in my models of parent and teacher satisfaction in order to account for this bias.

Crime

The New York State Education Department publishes an annual Violent and Disruptive Incident Report, which indicates the number of incidents reported at each school in the state of New York. The state uses this report to calculate a School Violence Index. This index assigns each type of violent incident a weight, which can be found on the New York State Education Department website (2011). For example, forcible sex offenses are given a weight of 60 while weapons possession is given a weight of 15. The number of offenses in each category is multiplied by its weight, and all of these products are then

[4] In 2008, a fifth category (outstanding) was also used. 20 schools in my sample receive this designation, and I assigned them a value of five.

summed. To produce the School Violence Index, this weighted sum is divided by the school's total enrollment.[5]

Findings

I analyze my data using OLS regression with fixed effects for years and standard errors clustered by school. My first parent model, with an adjusted R-squared of .578, demonstrates that the control variables can explain over half of the variation in parent school satisfaction (Table 3). Parent satisfaction is significantly and negatively related to the size of the school. Additionally, it appears that satisfaction increases slightly as the percentage of Hispanics or females increases. Increases in the share of Asian students are associated with decreases in satisfaction. Parents appear happier when more students remain at the end of the year and when more students are recent immigrants. Increases in limited English, special education, or overage enrollment correspond with decreases in satisfaction. Parents gave more favorable evaluations in 2008 and 2009 than they did in 2007, and they appear to view elementary schools more favorably than middle or high schools. Higher parent response rates are also associated with higher satisfaction. None of the measurements of socioeconomic status appear to be significantly related to parent satisfaction.

[5] I use a log transformation of the School Violence Index.

Table 3
Regression Output for Parent Models 1-3

	Parent Model 1		*Parent Model 2*		*Parent Model 3*	
	b	**se**	**b**	**se**	**b**	**se**
Enrollment	-.260***	(.031)	-.235***	(.034)	-.179***	(.032)
American/Alaskan Native	.001	(.033)	-.017	(.033)	.026	(.030)
Black	.001	(.001)	.001	(.001)	.003**	(.001)
Hispanic	.008***	(.001)	.007***	(.001)	.009***	(.001)
Asian	-.004**	(.001)	-.004**	(.001)	-.007***	(.001)
Female	.007**	(.003)	.006*	(.002)	.003	(.002)
Remain at Year End	.026**	(.008)	.022**	(.008)	.004	(.005)
Limited English	-.005*	(.002)	-.004*	(.002)	-.004*	(.002)
Recent Immigrants	.024**	(.009)	.017	(.009)	.006	(.007)
Special Ed.	-.021***	(.003)	-.015***	(.003)	-.007*	(.003)
Overage	-.035**	(.013)	-.023	(.012)	.010	(.009)
Temp. Housing	.004	(.003)	.004	(.003)	.003	(.003)
Poverty Rate	-.002	(.002)	-.002	(.001)	-.000	(.001)
Free Lunch	-.001	(.001)	-.001	(.001)	.000	(.001)
Reduced Lunch	-.004	(.003)	-.005	(.003)	-.008**	(.003)
Year 2008	.526***	(.022)	.553***	(.027)	.448***	(.026)
Year 2009	.734***	(.028)	.756***	(.032)	.493***	(.043)
Elementary School	.369***	(.062)	.222***	(.061)	.138*	(.055)
Middle School	-.209***	(.043)	-.178***	(.044)	-.180***	(.041)
High School	-.240**	(.074)	-.247***	(.074)	-.180*	(.071)
Parent Response Rate	.014***	(.001)	.013***	(.001)	.011***	(.001)
Suspensions/Student			-.015***	(.002)	-.009***	(.002)
Administrators/Teacher			-.002	(.002)	-.002	(.002)
Avg. Class Size			-.041*	(.017)	-.041*	(.016)
Teacher Experience			-.061**	(.021)	-.058**	(.019)
Teacher Qualifications			.014	(.016)	-.007	(.015)
Teacher Turnover			-.062***	(.016)	-.027	(.016)
Attendance Rate					.039***	(.007)
Student Performance					.179***	(.033)
Progress Report					.155***	(.018)
Quality Review					.182***	(.021)
Quality Review Dummy					.009	(.033)
(constant)	-1.904*	(.867)	-1.510	(.806)	-4.349***	(.818)
Adj R-sqr	.578		.599		.654	
N	3267		3267		3267	

* p<.05, ** p<.01, *** p<.001

The second parent model includes my measurements of inputs into the schools. The number of suspensions per student, the average class size, teacher experience, and the teacher turnover rate are negatively correlated with parent satisfaction. In the third model, I add my measures of school output and find that all four—the attendance rate, student performance, the Progress Report score, and the Quality Review score—are positively related to parent satisfaction. Under this model, teacher turnover loses its statistical significance.

Table 4 displays the remaining parent models. The fourth model incorporates the School Violence Index, which exhibits a strong negative relationship with parent satisfaction. All of the school outputs and three of the school inputs (suspensions per student, average class size, and teacher experience) retain their effects.[6]

[6] I also ran Parent Model 4 as a two-way fixed-effects model. Student performance, the Progress Report score, and the Quality Review score remained significant at the .001 level, and the School Violence Index was significant at the .05 level.

Table 4
Regression Output for Parent Models 4-5

	Parent Model 4		*Parent Model 5*	
	b	**se**	**b**	**se**
Enrollment	-.178***	(.032)	-.193***	(.030)
American/Alaskan Native	.024	(.029)	.030	(.030)
Black	.003**	(.001)	.004***	(.001)
Hispanic	.008***	(.001)	.009***	(.001)
Asian	-.008***	(.001)	-.008***	(.001)
Female	.003	(.002)	.002	(.002)
Remain at Year End	.003	(.005)	.005	(.004)
Limited English	-.004*	(.002)	-.004	(.002)
Recent Immigrants	.006	(.007)	.006	(.007)
Special Ed.	-.007*	(.003)	-.008**	(.003)
Overage	.010	(.009)	.005	(.009)
Temp. Housing	.004	(.003)	.005	(.003)
Poverty Rate	-.000	(.001)	.000	(.001)
Free Lunch	.000	(.001)	-.000	(.001)
Reduced Lunch	-.008**	(.003)	-.009**	(.003)
Year 2008	.447***	(.026)	.434***	(.023)
Year 2009	.512***	(.042)	.371***	(.035)
Elementary School	.134*	(.055)	.124*	(.056)
Middle School	-.166***	(.041)	-.119**	(.041)
High School	-.215**	(.071)	-.183**	(.069)
Parent Response Rate	.011***	(.001)	.010***	(.001)
Suspensions/Student	-.005*	(.002)	-.005*	(.002)
Administrators/Teacher	-.002	(.002)		
Avg. Class Size	-.042**	(.016)	-.044**	(.016)
Teacher Experience	-.061**	(.019)		
Teacher Qualifications	-.009	(.015)		
Teacher Turnover	-.022	(.015)		
Attendance Rate	.039***	(.007)	.041***	(.007)
Student Performance	.159***	(.033)	.177***	(.033)
Progress Report	.149***	(.018)	.158***	(.018)
Quality Review	.179***	(.021)		
Quality Review Dummy	.012	(.033)		
School Violence Index	-.337***	(.078)	-.342***	(.078)
Teacher Satisfaction			.156***	(.028)
(constant)	-4.140***	(.810)	-3.778***	(.816)
Adj R-sqr	.657		.649	
N	3267		3267	

* p<.05, ** p<.01, *** p<.001

In the final parent model, I wish to estimate the effect of teacher satisfaction on parent satisfaction. In order to assess the causal direction of the relationship between parent and teacher satisfaction, I conduct a two-stage least squares (2SLS) regression. For the first stage of this regression, I selected predictors of teacher satisfaction that one would expect to be uncorrelated with parent satisfaction. I chose the teacher response rate, administrative to teacher ratio, teacher turnover, teacher experience, teacher qualifications, and Quality Review scores as my predictors of teacher satisfaction. I used OLS with standard errors clustered by school to create my predicted values of teacher satisfaction (Table 5). The second stage of the regression is shown as Parent Model 5. I estimated the two stages of the model as separate regressions, so the standard error estimates are somewhat inflated (making it harder to establish statistical significance). Even so, I find that teacher satisfaction has a significant, positive effect on parent satisfaction.[7] This result supports my second hypothesis.

[7] I also ran Parent Model 5 as a two-way fixed-effects model. Student performance, the Progress Report score, and the teacher satisfaction index were significant at the .001 level. The School Violence Index was significant at the .05 level.

Table 5
First Stage of 2SLS for Teacher Satisfaction

	Teacher Satisfaction	
	b	**se**
Teacher Response Rate	.016***	(.001)
Administrators/Teacher	-.002	(.002)
Teacher Turnover	-.175***	(.017)
Teacher Experience	.109***	(.021)
Teacher Qualifications	.162***	(.020)
Quality Review	.426***	(.027)
Quality Review Dummy	-.150***	(.028)
(constant)	-2.239***	(.107)
Adj R-sqr	.362	
N	3267	

* p<.05, ** p<.01, *** p<.001

With regards to records of school outputs and crime, parent satisfaction appears strongly aligned with administrative measurements, supporting my first hypothesis. The results are more mixed when examining measurements of school input. My third hypothesis, however, is not well supported. Among the three measurements of teacher quality, only teacher experience retains statistical significance after adding school outputs to my regression. Even then, the relationship with parent satisfaction is opposite of what I expect, with parents seeming to prefer less experienced teachers. On the other hand, student performance and Progress Report scores—the two variables based on test score results—both show clear positive relationships with parent satisfaction.

Table 6
Regression Output for Teacher Models 1-3

	Teacher Model 1		*Teacher Model 2*		*Teacher Model 3*	
	b	**se**	**b**	**se**	**b**	**se**
Enrollment	-.171***	(.035)	-.208***	(.038)	-.159***	(.036)
American/Alaskan Native	-.004	(.033)	-.010	(.032)	.040	(.031)
Black	-.011***	(.001)	-.010***	(.001)	-.006***	(.001)
Hispanic	-.009***	(.002)	-.008***	(.002)	-.006***	(.001)
Asian	-.003	(.002)	-.003*	(.002)	-.006***	(.001)
Female	.008**	(.003)	.006*	(.003)	.004	(.002)
Remain at Year End	.027**	(.009)	.023**	(.008)	.002	(.005)
Limited English	-.005	(.003)	-.003	(.003)	-.002	(.002)
Recent Immigrants	.024*	(.010)	.015	(.010)	.009	(.008)
Special Ed.	-.018***	(.004)	-.014***	(.004)	-.006	(.003)
Overage	-.011	(.015)	-.001	(.013)	.010	(.014)
Temp. Housing	.001	(.004)	.001	(.004)	-.000	(.004)
Poverty Rate	-.002	(.002)	-.002	(.002)	-.001	(.002)
Free Lunch	-.002*	(.001)	-.002*	(.001)	-.002	(.001)
Reduced Lunch	-.002	(.004)	-.003	(.003)	-.007*	(.003)
Year 2008	.423***	(.026)	.401***	(.031)	.233***	(.033)
Year 2009	.527***	(.037)	.478***	(.040)	.193***	(.051)
Elementary School	.175**	(.066)	.009	(.065)	-.130*	(.062)
Middle School	-.206***	(.049)	-.121*	(.049)	-.074	(.046)
High School	-.344***	(.079)	-.311***	(.077)	-.318***	(.073)
Teacher Response Rate	.010***	(.001)	.011***	(.001)	.009***	(.001)
Suspensions/Student			-.016***	(.002)	-.010***	(.002)
Administrators/Teacher			.002	(.002)	.001	(.002)
Avg. Class Size			-.007	(.018)	-.006	(.017)
Teacher Experience			.020	(.023)	.034	(.020)
Teacher Qualifications			.060**	(.019)	.042*	(.017)
Teacher Turnover			-.090***	(.017)	-.049**	(.016)
Attendance Rate					.012	(.009)
Student Performance					.260***	(.033)
Progress Report					.213***	(.018)
Quality Review					.241***	(.028)
Quality Review Dummy					.115**	(.039)
(constant)	-1.319	(.926)	-.628	(.831)	-.874	(.990)
Adj R-sqr	.455		.479		.553	
N	3267		3267		3267	

* p<.05, ** p<.01, *** p<.001

My variables explain a slightly smaller proportion of the variation in teacher satisfaction than they do with parent satisfaction. The first teacher model has an adjusted R-squared of .455 (Table 6). One can see that teacher satisfaction is negatively related to the number of students enrolled as well as the percentage of black and Hispanic students. Teacher satisfaction is positively related to the percentage of students who are female, who remain at the school for the entire year, and who are recent immigrants. Teachers seem to be less happy when the number of special education students or the number of students eligible for free lunch increases. Like parents, teachers appear happier in 2008 and 2009 and when evaluating elementary schools. The teacher response rate is positively related to teacher satisfaction.

Table 7
Regression Output for Teacher Models 4-5

	Teacher Model 4		*Teacher Model 5*	
	b	**se**	**b**	**se**
Enrollment	-.157***	(.035)	-.156***	(.035)
American/Alaskan Native	.038	(.031)		
Black	-.006***	(.001)		
Hispanic	-.006***	(.001)		
Asian	-.006***	(.001)		
Female	.003	(.003)	.002	(.002)
Remain at Year End	.000	(.005)	-.001	(.005)
Limited English	-.002	(.002)	-.000	(.001)
Recent Immigrants	.009	(.008)		
Special Ed.	-.005	(.003)	-.003	(.003)
Overage	.010	(.014)		
Temp. Housing	.001	(.004)	-.001	(.004)
Poverty Rate	-.001	(.001)	-.005***	(.001)
Free Lunch	-.002	(.001)	-.002*	(.001)
Reduced Lunch	-.007*	(.003)	-.008**	(.003)
Year 2008	.230***	(.032)	.171***	(.033)
Year 2009	.218***	(.051)	.167***	(.050)
Elementary School	-.137*	(.061)	-.199***	(.059)
Middle School	-.054	(.046)	-.024	(.046)
High School	-.365***	(.074)	-.347***	(.075)
Teacher Response Rate	.009***	(.001)	.008***	(.001)
Suspensions/Student	-.005**	(.002)	-.005**	(.002)
Administrators/Teacher	.002	(.002)	.001	(.002)
Avg. Class Size	-.007	(.016)	-.011	(.016)
Teacher Experience	.030	(.020)	.055**	(.020)
Teacher Qualifications	.039*	(.017)	.048**	(.017)
Teacher Turnover	-.043**	(.016)	-.056***	(.015)
Attendance Rate	.011	(.009)	.005	(.007)
Student Performance	.231***	(.033)	.259***	(.030)
Progress Report	.205***	(.018)	.190***	(.018)
Quality Review	.236***	(.027)	.240***	(.028)
Quality Review Dummy	.120**	(.038)	.126***	(.038)
School Violence Index	-.467***	(.086)	-.435***	(.085)
Parent Satisfaction			.152***	(.032)
(constant)	-.587	(.977)	.034	(.846)
Adj R-sqr	.559		.557	
N	3267		3267	

* p<.05, ** p<.01, *** p<.001

When I add inputs into my model, I find that teacher satisfaction is positively related to teacher qualifications and negatively related to the number of suspensions per student and the teacher turnover rate. My third model shows that student performance, Progress Report scores, and Quality Review scores are positively related to teacher satisfaction. One can see in the fourth model that the School Violence Index is strongly and negatively related to teacher satisfaction (Table 7). Among the school inputs, suspensions per student, teacher qualifications, and teacher turnover retain significance under Model 4.[8] The final teacher model was estimated using 2SLS, as in Parent Model 5. I predicted parent satisfaction using the parent response rate, racial characteristics of the student population, recent immigrant status, and the share of overage students (Table 8). The predicted values of parent satisfaction were then used as an independent variable in Teacher Model 5 (Table 7). I find that parent satisfaction exerts a significant, positive influence on teacher satisfaction.[9]

[8] I also ran Teacher Model 4 as a two-way fixed-effects model. Student performance, the Progress Report score, the Quality Review score, and the Student Violence Index retained significance at the .001 level. Additionally, I tried estimating Parent Model 4 and Teacher Model 4 using seemingly unrelated regression (SUR), as Martin and Smith (2005) suggest. I found that the errors from the two models exhibit a relatively modest correlation of .28 and that the coefficients are stable. Thus, there is no evidence of specification error.

[9] I also ran Teacher Model 5 as a two-way fixed-effects model. Student performance, the Progress Report score, the Quality Review score, the School Violence Index, and the parent satisfaction index remained significant at the .001 level.

Table 8
First Stage of 2SLS for Parent Satisfaction

	Parent Satisfaction	
	b	**Se**
Parent Response Rate	.024***	(.001)
American/Alaskan Native	.041	(.037)
Black	.000	(.001)
Hispanic	.005***	(.001)
Asian	-.006***	(.001)
Recent Immigrants	.003	(.010)
Overage	-.070***	(.013)
(constant)	-1.069***	(.090)
Adj R-sqr	.446	
N	3267	

* p<.05, ** p<.01, *** p<.001

Thus, the results of the teacher models appear to align with my first and second hypotheses. While little evidence of significant relationships is found among attendance rates and records of school inputs, all other administrative measurements of school quality exhibit the expected relationships with teacher satisfaction.

Conclusion

This study of the New York City public school system reveals that parents and teachers show considerable agreement with several administrative measurements of school quality. Specifically, crime records, standardized test performance, evaluations conducted as part of a Quality Review, and the city's overall assessments of each school seem to be good indicators of how parents and teachers will evaluate a school. Attendance rates also appear to help explain parent satisfaction but not teacher

satisfaction. These results support the notion that there is common ground among parents, teachers, and administrators in what they value and observe in public schools. This overlap of opinions should be reassuring in that it seems to indicate some agreement among various stakeholders regarding what qualities are important and how successful individual schools are at producing or exhibiting such qualities.

At the same time, administrative records of school inputs do a rather poor job in helping to predict parent and teacher evaluations. Particularly noticeable is the fact that parents seem to be happier at schools whose teachers are *less* experienced. Perhaps this is because parents like the enthusiasm and contemporary teaching techniques of younger teachers, as one scholar has suggested (Henig 1996). This study provides little evidence that parents care about teacher qualifications or teacher turnover rates. As a result, one could question whether parents really know or care much about teacher quality. Another explanation is these measurements of teacher characteristics may be rather poor indicators of true teacher quality. It may even be that standardized test results are the most direct measurement of teacher quality that is available.

Three measures of school inputs are significant predictors of teacher evaluations, but one plausible explanation is that causality may be reversed with the teacher turnover variable. After all, teachers who hold poor opinions of their schools are probably more likely to leave after a short time. Thus, teachers' opinions of school quality may be causing much of the variation I observe in turnover rates.

Parents and teachers showed significant similarity in their evaluations that cannot be explained by any of the administrative measurements of school quality. While some may argue that this overlap of opinions is due to false impressions or poor judgments that affect both parents and teachers, it may instead indicate that parents and teachers have observed some aspects of school quality that administrators have failed to measure. Reciprocal causation appears to underlie this relationship, with both parents and teachers influencing one another. Perhaps further research will help reveal what specific factors parents and teachers are basing their opinions on when they make these common judgments.

When attempting to generalize my results, it is important to bear in mind that I examined parents in a system where various school choice options have been implemented. Some scholars have theorized that parents have higher incentives to be informed when they have the opportunity to choose schools (Schneider, Teske, and Marschall 2000, p.44). Thus, New York City parents may not be representative of the larger population of school parents in the US. Future research might consider the conditions under which parents are most likely to make informed judgments about school quality. At the very least, my study seems to indicate that ordinary school parents are capable of evaluating public schools based on actual school characteristics, some of which can be measured by school administrators.

CHAPTER III

MEASURING MULTIDIMENSIONAL PERFORMANCE: A CLOSER LOOK AT SURVEY EVALUATIONS

One distinctive feature of public organizations is their tendency to pursue particularly complex and diverse sets of objectives (Rainey, Backoff, and Levine 1976). If scholars wish to accurately evaluate the performance of such organizations, they must develop methods of assessment that reflect the multidimensional nature of these organizations' goals. Public schools provide an excellent case in point. People often think of school performance primarily in terms of academic learning, which is itself a complex, multifaceted concept. If one pauses to consider non-academic objectives, it is easy to see that the typical elementary school performs a broad range of functions, including providing students with safety, exercise, nutrition, counseling, and socialization. Success across dimensions may be correlated, but one can certainly find instances where organizations exhibit mixed patterns of performance. For example, a school that provides excellent classroom instruction in English composition might neglect to give parents ample opportunities to be involved in after-school activities.

Once one acknowledges the importance of taking a multidimensional approach to performance appraisals of public organizations, the key difficulty becomes finding effective ways to measure relevant aspects of performance. Researchers and practitioners often turn to administrative records of an organization's inputs, outputs, or outcomes.

Unfortunately, these measures are often unable to provide satisfactory information on key aspects of an organization's performance. An alternative approach is to create perceptual measures of performance by surveying an organization's clients or employees.[10] Survey evaluations offer the benefit of allowing researchers to inquire about aspects of performance that are very difficult to measure using traditional means, but scholars have often questioned the validity of program evaluations performed by citizens. In this chapter, I develop and examine a set of perceptual performance measures based on the results of parent, teacher, and student surveys conducted in New York City public schools. These measures are compared to more traditional administrative measures of school performance. I encounter and attempt to overcome some difficulties that can arise from using perceptual indicators. In the end, I find evidence that several of my perceptual measures contain useful information about school performance.

Measuring performance

Within the context of schools, the most common performance measures are based on standardized test results. Despite their widespread use, standardized tests often focus on simple aspects of learning and ignore realistic problem solving and critical thinking skills that students will need to exercise later in life (Haladyna 2002, p. 134). As a result, standardized test scores have received considerable criticism for overuse (e.g., Popham 1999; McNeil 2000, p. 246). Administrative records of schools often provide data on

[10] Cameron (1978) examined both perceptual measures and traditional administrative records of performance along multiple dimensions in institutions of higher education. The study produced some support for the validity of the perceptual measures.

teachers, such as education levels, certification, and experience. Existing studies, however, fail to establish any of these as consistently accurate indicators of teacher quality (Hanushek and Rivkin 2006; Greene 2005, p. 62-67; Wayne and Youngs 2003; Béteille and Loeb 2009).

As I discussed in Chapter II, scholars have offered mixed opinions regarding the usefulness of citizen evaluations of government programs. My findings in Chapter II, however, provide reason to believe that the level of overall satisfaction expressed in survey evaluations of schools provides valid information about performance, at least within the context of New York City's school choice system. I now consider whether or not these evaluations contain useful information about multiple dimensions of performance. The psychology literature provides insight into a problem that may arise when using perceptual ratings to measure multiple categories. Thorndike (1920) first used the term "halo" error to describe the following effect:

> "it appeared that the estimates of the same man in a number of different traits such as intelligence, industry, technical skill, reliability, etc., ect, [sic] were very highly correlated and very evenly correlated. It consequently appeared probable that those giving the ratings were unable to analyze out these different aspects of the person's nature and achievement and rate each in independence of the others. Their ratings were apparently affected by a marked tendency to think of the other person in general as rather good or rather inferior and to color the judgments of the qualities by this general feeling."

The halo effect went on to receive considerable attention in the psychology literature, and Cooper (1981) provides a fairly extensive survey of this literature. While the term "halo" effect originally referred to general impressions affecting ratings of specific categories, it also came to describe instances where respondents impose assumptions on their responses about how items covary. In either case, the result is the same–high correlations among categories that may not reflect reality.

Data

Just as in Chapter II, I examine New York City school survey results as well as various city and state records of school traits (New York City Department of Education 2011b; New York State Testing and Accountability Reporting Tool 2011; New York State Education Department 2011). Because most of the analyses in this chapter do not rely on state and city measures of school characteristics, fewer cases had to be dropped from the dataset due to missing data. As a result, I am able to consider 1567 schools and 4371 observations. In addition to parent and teacher survey evaluations I looked at in Chapter II, I now examine survey results from students in order to allow for more comparisons of multiple measures of the same traits. All students grades 6-12 were invited to take the surveys, and the average response rate was 80%. I converted school-level survey results for each of the main survey questions into scores ranging from zero to ten based on the scoring guide used by the New York City Department of Education.[11]

[11] A ten always indicates the most favorable response and a zero indicates the most negative response.

Creation of perceptual measures of school traits

Initial factor analyses

My exploration of multidimensional opinions of schools began with running several factor analyses of survey responses. First, I ran three separate factor analyses: one for parents, one for teachers, and one for students (Tables 9-11). I included nearly all of the survey questions in my analyses, which provided for a total of 31 items for parents, 57 for teachers, and 47 for students.[12] Each set of results reveals a very strong first factor that can explain at least half of the variation in the survey responses across schools. In the case of parents, this first factor can account for 67% of the variation across all questions. This indicates that, in the aggregate, parents generally expressed the same opinion about their school regardless of which specific survey question they were asked. A single factor is able to explain a slightly less variation for teachers (55%) and students (56%). A relatively weak loading on the first factor probably indicates either that (1) respondents hold more nuanced, multidimensional opinions or that (2) there is more randomness in their responses. In the case of teachers, I expect the former to be true; teachers have much greater opportunity than parents to directly observe the internal operations of a school on a daily basis, so it should be more difficult to describe teacher's opinions with a single dimension. Students, however, might exhibit more randomness in their responses than parent or teachers because of their youth and immaturity.

[12] I did not include questions that were omitted from the survey during one or more of the years that I examined. I also excluded questions which asked the respondents about their personal information, such as a student's grade level or a teacher's experience. For the parent survey, I omitted a question about the respondent's preferences for receiving information from the school as well as a question asking which improvement the respondent would most like the school to make.

Table 9

Unrotated Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loadings*			
I feel welcome in my child's school.	0.89	-0.16	-0.15	0.05
My child's school makes it easy for parents to attend meetings by holding them at different times of the day, providing an interpreter, or in other ways.	0.89	-0.18	-0.10	0.00
The school keeps me informed about my child's academic progress.	0.90	-0.21	-0.11	0.03
The school contacts me when my child breaks school rules.	0.81	-0.26	-0.13	0.06
The school contacts me to tell me about my child's achievements and successes.	0.90	-0.20	0.01	-0.06
There is an adult at the school whom my child trusts and can go to for help with a school problem.	0.85	-0.27	-0.08	0.07
The school has high expectations for my child.	0.86	-0.19	-0.17	0.06
The school clearly communicates its expectations for my child's learning to me and my child.	0.93	-0.19	-0.05	0.02
My child's teacher(s) give helpful comments on homework, class work, and tests.	0.90	-0.05	0.15	-0.08
My child is learning what he/she needs to know to succeed in later grades or after graduating from high school.	0.90	-0.16	-0.06	0.02
My child's school offers a wide enough variety of courses and activities to keep my child interested in school.	0.78	-0.19	-0.13	0.31
My child is safe at school.	0.89	0.22	-0.22	0.01
My child's school is clean.	0.83	0.13	-0.19	0.00
Discipline is enforced fairly at my child's school.	0.91	0.01	-0.28	-0.01
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.79	0.12	-0.17	-0.04
Students threaten or bully other students.	0.77	0.16	-0.36	-0.06
School staff are disrespectful to students.	0.83	0.18	-0.20	-0.11
The quality of your child's teacher(s) this year.	0.89	0.10	0.12	-0.05
How well your child's school communicates with you.	0.94	-0.12	0.03	-0.02
Your opportunities to be involved in your child's education.	0.93	-0.09	0.18	-0.01
The education your child has received this year.	0.93	-0.01	-0.01	0.01
How often have you: received information about what your child is studying in school?	0.87	0.03	0.35	-0.05
How often have you: received information on services for your child or for you, such as: tutoring, after school programs, or workshops you can attend to help your child?	0.78	-0.17	0.42	0.01
How often have you: been invited to a workshop, program, performance, or other event at your child's school?	0.76	0.06	0.45	-0.07
How often have you: talked with a teacher or other adult at your child's school to share with them important information about your child's learning?	0.71	-0.17	0.56	-0.14
There is racial or cultural bias by school staff.	0.79	0.26	-0.07	-0.14
There is conflict at my child's school based on race, culture, religion, sexual orientation, gender, or disabilities.	0.79	0.39	0.01	-0.18
Students use alcohol or illegal drugs during school.	0.62	0.55	0.22	-0.12
There is gang activity in my child's school.	0.71	0.58	0.03	-0.07
My child participates in the following courses during the regular school day.	0.29	0.47	0.02	0.67
My child participates in the following school activities before or after school.	0.34	0.03	0.26	0.68
Eigenvalue	20.82	1.75	1.49	1.16
Proportion	0.67	0.06	0.05	0.04
N	4369			

Table 10

Unrotated Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loadings*						
School leaders communicate a clear vision for this school.	0.89	-0.23	0.00	-0.19	-0.06	0.06	-0.02
School leaders let staff know what is expected of them.	0.87	-0.23	0.00	-0.24	-0.06	0.00	-0.06
School leaders encourage open communication on important school issues.	0.85	-0.34	-0.06	-0.14	-0.06	0.17	-0.02
Curriculum, instruction, and assessment are aligned within and across the grade levels at this school.	0.87	0.03	0.18	-0.11	-0.10	-0.11	0.02
The principal places the learning needs of children ahead of other interests.	0.85	-0.31	-0.05	-0.21	-0.07	0.15	-0.03
The principal is an effective manager who makes the school run smoothly.	0.86	-0.26	-0.09	-0.27	-0.03	0.10	-0.05
I trust the principal at his/her word.	0.83	-0.36	-0.09	-0.22	-0.05	0.18	-0.07
My school has high expectations for all students.	0.89	0.19	0.06	-0.02	-0.03	0.01	-0.02
My school has clear measures of progress for student achievement throughout the year.	0.88	0.14	0.15	-0.05	-0.07	-0.12	-0.01
This school makes it a priority to help students develop challenging learning goals.	0.93	0.04	0.09	-0.03	-0.04	-0.06	0.01
This school makes it a priority to help students find the best ways to achieve their learning goals.	0.94	-0.03	0.02	0.00	-0.02	-0.04	0.01
My school offers a wide enough variety of activities or courses to keep students at my school engaged.	0.78	0.03	-0.07	-0.04	0.12	-0.21	0.05
To what extent do you feel supported by: your principal?	0.85	-0.34	-0.10	-0.21	-0.06	0.17	-0.05
The principal has confidence in the expertise of the teachers.	0.81	-0.31	-0.11	-0.11	-0.08	0.17	-0.08
School leaders invite teachers to play a meaningful role in setting goals and making important decisions for this school.	0.82	-0.37	-0.07	-0.07	-0.10	0.19	-0.02
School leaders encourage collaboration among teachers.	0.84	-0.27	0.02	0.06	-0.14	0.14	-0.02
School leaders visit classrooms to observe the quality of teaching at this school.	0.76	-0.15	0.06	-0.19	-0.07	-0.13	-0.06
School leaders give me regular and helpful feedback about my teaching.	0.85	-0.21	0.06	-0.20	-0.08	-0.09	-0.04
School leaders place a high priority on the quality of teaching at this school.	0.90	-0.16	-0.02	-0.09	-0.10	0.04	-0.09
Teachers in this school use student achievement data to improve instructional decisions.	0.82	0.08	0.27	0.06	-0.12	-0.18	0.03
This year, I received helpful training on the use of student achievement data to improve teaching and learning.	0.80	-0.17	0.21	-0.11	-0.09	-0.21	0.08
The professional development I received this year provided me with content support in my subject area.	0.80	-0.08	0.19	-0.15	-0.15	-0.15	0.06

Table 10
Continued

Survey Item	*Factor Loadings*						
The professional development I received this year provided me with teaching strategies to better meet the needs of my students.	0.83	-0.16	0.13	-0.09	-0.13	-0.12	0.07
I have sufficient materials to teach my class(es), including: books, audio/visual equipment, maps, and/or calculators.	0.76	0.01	-0.08	-0.01	0.04	-0.01	-0.05
My instructional materials are in good condition.	0.80	0.05	-0.02	0.04	0.03	0.04	-0.02
Obtaining information from parents about student learning needs is a priority at my school.	0.89	-0.02	0.11	0.02	0.07	-0.03	0.07
Teachers and administrators in my school use information from parents to improve instructional practices and meet student learning needs.	0.90	-0.02	0.09	0.04	0.06	-0.03	0.07
My school communicates effectively with parents when students misbehave.	0.85	-0.18	-0.12	-0.02	0.22	0.03	0.07
I can get the help I need at my school to address student behavior and discipline problems.	0.87	-0.07	-0.23	-0.07	0.24	0.00	0.05
There is a person or a program in my school that helps students resolve conflicts.	0.60	-0.24	-0.19	0.02	0.27	-0.20	0.18
Teachers in this school set high standards for student work in their classes.	0.78	0.30	0.12	0.23	-0.05	-0.08	-0.01
This year, what percentage of your students had at least one parent attend your Parent-Teacher Conferences?	0.53	0.61	0.24	0.00	-0.14	0.21	0.06
How often have you: attempted to have a conversation with a parent but failed because you were not able to contact the parent or the parent did not respond or attend?	0.53	0.67	-0.17	-0.02	-0.18	0.03	0.00
How often have you: sent parents written information on what you are teaching and what students are expected to learn?	0.41	0.38	0.66	-0.12	0.05	-0.01	0.03
How often have you: sent home information on services to help students or parents such as: tutoring, after-school programs, or workshops adults can attend to help their children in school?	0.42	0.17	0.62	-0.21	0.04	-0.15	0.24
Students' use of alcohol and illegal drugs in school is a problem at my school.	0.48	0.66	0.22	-0.08	-0.13	0.22	-0.03
There are conflicts at my school based on race, culture, religion, sexual orientation, gender, or disability.	0.62	0.55	0.09	-0.08	-0.03	0.03	-0.08
Gang activity is a problem in my school.	0.59	0.64	0.04	0.01	-0.01	0.23	-0.02
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.61	0.30	0.02	-0.14	0.16	-0.24	0.10
Order and discipline are maintained at my school.	0.86	0.13	-0.23	-0.06	0.25	0.01	0.03

Table 10
Continued

Survey Item	*Factor Loadings*						
I am safe at my school.	0.84	0.12	-0.27	0.06	0.26	0.07	0.03
Crime and violence are a problem in my school.	0.74	0.46	-0.23	0.03	0.18	0.14	-0.01
Students in my school are often threatened or bullied.	0.75	0.38	-0.28	0.02	0.22	0.06	-0.05
Adults at my school are often disrespectful to students.	0.68	0.26	-0.20	0.28	0.05	0.03	-0.07
Most students at my school treat teachers with respect.	0.79	0.33	-0.25	0.09	0.18	0.06	0.04
Most parents treat teachers at this school with respect.	0.71	0.11	-0.29	0.24	0.20	0.00	0.09
My school is kept clean.	0.57	0.14	-0.02	-0.01	0.21	-0.04	-0.05
To what extent do you feel supported by: other teachers at your school?	0.65	-0.06	0.06	0.58	-0.18	-0.07	-0.05
Teachers in this school respect teachers who take the lead in school improvement efforts.	0.73	-0.27	0.00	0.52	-0.11	0.03	-0.02
Teachers in this school trust each other.	0.69	-0.20	-0.01	0.58	-0.15	0.01	-0.06
Teachers in this school recognize and respect colleagues who are the most effective teachers.	0.68	-0.21	0.02	0.60	-0.13	-0.06	-0.03
Most teachers in my school work together to improve their instructional practices.	0.79	0.00	0.14	0.38	-0.19	-0.08	-0.03
How often have you: had a conversation or corresponded with a parent of a student about the student's behavior?	-0.18	-0.38	0.60	0.17	0.25	0.24	-0.04
How often have you: communicated with students about their progress in class?	0.11	-0.26	0.33	0.15	0.47	0.08	-0.30
How often have you: communicated with parents about their children’s progress in class?	0.19	-0.21	0.67	0.14	0.48	0.16	-0.05
Which of the following courses or activities are available to students at your school - and when are they available during the day? Offered as a regular school activity/course.	0.17	-0.05	-0.13	-0.05	0.17	-0.63	-0.30
Which of the following courses or activities are available to students at your school - and when are they available during the day? Offered before or after school or during free periods.	0.08	-0.30	-0.08	0.16	0.07	0.05	0.79
Eigenvalue	31.30	4.66	2.81	2.34	1.45	1.25	1.03
Proportion	0.55	0.08	0.05	0.04	0.03	0.02	0.02
N	4301						

Table 11

Unrotated Factor Analysis of Student Survey Responses

Survey Item	*Factor Loadings*					
I feel welcome in my school.	0.93	-0.08	-0.10	0.06	-0.01	0.00
Students who get good grades in my school are respected by other students.	0.80	-0.39	-0.04	0.02	0.03	0.06
How AVAILABLE are teachers and other adults at your school to talk about: a problem you are having in class?	0.89	-0.05	0.09	0.00	-0.09	0.19
Teachers in my school treat students with respect.	0.89	-0.02	-0.22	-0.07	0.07	0.03
Most students in my school treat teachers with respect.	0.87	-0.31	-0.08	0.02	0.14	0.02
Most students in my school help and care about each other.	0.88	-0.29	-0.03	-0.01	0.18	-0.06
Most students in my school just look out for themselves.	0.65	-0.32	0.14	-0.14	0.24	-0.07
Most students in my school treat each other with respect.	0.86	-0.41	-0.07	0.03	0.09	0.00
Students threaten or bully other students at school.	0.67	-0.65	-0.05	0.01	-0.11	-0.10
Students get into physical fights at my school.	0.73	-0.59	0.05	0.03	-0.01	-0.14
Adults at my school yell at students.	0.65	-0.56	-0.28	-0.11	0.00	0.07
There is conflict in my school based on race, culture, religion, sexual orientation, gender, or disabilities.	0.77	-0.28	0.00	0.06	-0.19	-0.15
There is gang activity in my school.	0.78	-0.15	0.17	0.09	-0.01	-0.37
Discipline in my school is fair.	0.87	-0.08	-0.24	0.12	0.14	0.10
I am safe in my classes.	0.94	-0.14	0.07	0.10	-0.01	-0.05
I am safe in the hallways, bathrooms, and locker rooms at my school.	0.89	-0.29	0.04	0.07	-0.06	-0.14
I am safe on school property outside my school building.	0.85	-0.26	-0.08	0.16	0.01	-0.09
My school is kept clean.	0.80	-0.31	-0.18	0.05	0.03	-0.09
I stay home because I don't feel safe at school.	0.60	-0.12	0.44	0.19	-0.16	-0.14
Most of the teachers, counselors, school leaders, and other adults I see at school every day know my name or who I am.	0.61	0.06	-0.01	-0.31	-0.40	-0.24
The adults at my school look out for me.	0.89	0.12	-0.09	-0.07	-0.18	-0.02
The adults at my school help me understand what I need to do to succeed in school.	0.84	0.44	-0.06	-0.01	-0.08	0.01
My teachers encourage me to succeed.	0.84	0.44	0.00	-0.05	-0.09	0.01
I need to work hard to get good grades at my school.	0.44	0.67	0.22	0.07	-0.02	-0.12
My school helps me to develop challenging academic goals.	0.83	0.31	-0.14	0.00	0.00	0.04
Someone at my school helps me understand what courses I need to be promoted to the next grade or graduate.	0.68	0.40	-0.18	0.03	-0.22	0.20
My teachers expect me to continue my education after high school.	0.78	0.38	0.17	-0.03	-0.13	-0.04
How COMFORTABLE are you talking to teachers and other adults at your school about: a problem you are having in class?	0.83	-0.02	-0.09	-0.01	-0.20	0.27
How COMFORTABLE are you talking to teachers and other adults at your school about: something that is bothering you?	0.77	0.17	-0.27	-0.07	-0.10	0.24

Table 11
Continued

Survey Item	*Factor Loadings*					
How AVAILABLE are teachers and other adults at your school to talk about: something that is bothering you?	0.89	0.01	-0.02	-0.03	-0.09	0.19
Adults in my school treat each other with respect.	0.85	0.19	0.05	-0.07	-0.07	-0.09
My teachers enjoy the subjects they teach.	0.86	0.18	-0.03	-0.11	-0.03	-0.01
My teachers inspire me to learn.	0.75	0.56	-0.17	-0.02	0.05	0.01
My teachers give me extra help when I need it.	0.86	0.20	-0.04	-0.15	-0.06	-0.01
My teachers connect what I am learning to life outside the classroom.	0.87	0.23	-0.03	-0.07	-0.04	0.10
During this school year, which of the following activities did you participate in either before or after school or during free periods?	0.42	0.50	0.17	0.29	0.15	-0.16
My school offers a wide enough variety of classes and activities to keep me interested in school.	0.71	0.09	-0.24	0.32	0.30	0.22
Students use alcohol or illegal drugs while at school.	0.64	0.39	0.11	0.04	-0.09	-0.44
There is a person or program in my school that helps students resolve conflicts.	0.72	0.12	-0.08	0.17	0.22	0.19
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.80	0.16	-0.15	0.23	0.10	-0.08
How often have your teachers asked you to: Complete an essay or research project using multiple sources of information?	0.38	-0.08	0.75	-0.15	0.01	0.15
How often have your teachers asked you to: Complete an essay or project where you had to use evidence to defend your own opinion or ideas?	0.48	-0.29	0.59	-0.30	0.05	0.21
In how many classes in the past 2 weeks have you: worked by yourself (independently) during class?	0.10	-0.12	0.65	0.32	-0.29	0.31
In how many classes in the past 2 weeks have you: had whole-class discussions?	0.68	-0.01	0.37	-0.16	0.02	0.24
In how many classes in the past 2 weeks have you: participated in hands-on activities such as science experiments?	0.57	0.36	0.06	-0.28	0.42	-0.01
In how many classes in the past 2 weeks have you: worked in groups of 2 to 6 students?	0.53	0.15	0.34	-0.46	0.42	-0.13
During this school year, have you taken or had a chance to take a class in the following subjects?	0.28	0.11	0.47	0.55	0.22	-0.03
Eigenvalue	26.43	4.57	2.71	1.41	1.23	1.15
Proportion	0.56	0.10	0.06	0.03	0.03	0.02
N	2619					

For all three groups of respondents, the factor analyses produced more than one factor with an eigenvalue larger than the typical the cutoff value of 1. When many items are included in a factor analysis (as in the factor analyses I have conducted so far), random variation can quite easily produce significant factors. A relatively large number of significant factors–much like a weak first factor–probably indicates either more information (a greater number of dimensions) or more randomness. As I mentioned above, teachers are expected to hold more nuanced opinions of their schools than parents, so one might expect the analysis of teacher surveys to produce more significant factors (reflecting a greater amount of information). I expect student surveys to have a relatively large random component, so a factor analysis of their results might also produce a large number of significant factors. In fact, the analyses for parents, teachers, and students produced four, seven, and six significant factors, respectively, which is consistent with my conjectures.

I used varimax rotation to rotate the significant factors from each analysis. Looking at the rotated factors may yield some insight as to whether significant factors reflect multidimensional opinions or simply randomness. Additionally, one might find some guidance regarding how respondents conceptually group different aspects of a school. However, one must acknowledge the limitations imposed by factor analysis with varimax rotation, which assumes that the factors underlying the observed variation are uncorrelated. In the context of school performance, this assumption almost certainly does not hold. Instead, there is reason to believe that distinct dimensions of school

performance are often correlated. Schneider, Teske, and Marschall (2000, p. 170-172) found that the visual appearance of school buildings is modestly correlated with both performance on standardized tests and school safety. In my dataset, the state's School Violence Index has a correlation of -.52 with my measure of standardized test performance.

Despite the expectation that the actual underlying dimensions are correlated, I cautiously proceed with examining the rotated factor loadings. Table 12 shows the results for parents. Even after rotation, a majority of questions load most strongly on the first factor. This first factor is able to account for 40% of variation in parent responses, compared to 18% for the second factor. A rather eclectic combination of survey questions have high loadings on the first factor, including questions about contact with the school, academic expectations, and school safety. Four variables have their highest loadings on the second factor, and these variables correspond to questions parents were asked about interacting with the school. The third factor produces high loadings for four questions related to school safety. Two questions about participation in school courses and activities have high loadings on the fourth factor.

Table 12

Rotated Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loadings*			
I feel welcome in my child's school.	**0.81**	0.32	0.26	0.09
My child's school makes it easy for parents to attend meetings by holding them at different times of the day, providing an interpreter, or in other ways.	**0.79**	0.36	0.26	0.04
The school keeps me informed about my child's academic progress.	**0.82**	0.37	0.23	0.07
The school contacts me when my child breaks school rules.	**0.79**	0.31	0.14	0.07
The school contacts me to tell me about my child's achievements and successes.	**0.75**	0.48	0.26	0.00
There is an adult at the school whom my child trusts and can go to for help with a school problem.	**0.80**	0.37	0.14	0.09
The school has high expectations for my child.	**0.81**	0.29	0.23	0.09
The school clearly communicates its expectations for my child's learning to me and my child.	**0.81**	0.42	0.26	0.07
My child's teacher(s) give helpful comments on homework, class work, and tests.	**0.62**	0.57	0.37	0.04
My child is learning what he/she needs to know to succeed in later grades or after graduating from high school.	**0.77**	0.40	0.27	0.08
My child's school offers a wide enough variety of courses and activities to keep my child interested in school.	**0.76**	0.25	0.12	0.32
My child is safe at school.	**0.68**	0.19	0.61	0.14
My child's school is clean.	**0.66**	0.20	0.51	0.11
Discipline is enforced fairly at my child's school.	**0.81**	0.18	0.45	0.06
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	**0.62**	0.21	0.49	0.07
Students threaten or bully other students.	**0.68**	0.03	0.54	0.03
School staff are disrespectful to students.	**0.63**	0.20	0.58	0.02
The quality of your child's teacher(s) this year.	**0.56**	0.51	0.49	0.11
How well your child's school communicates with you.	**0.74**	0.49	0.32	0.07
Your opportunities to be involved in your child's education.	**0.64**	0.61	0.32	0.11
The education your child has received this year.	**0.71**	0.43	0.41	0.12
How often have you: received information about what your child is studying in school?	0.46	**0.70**	0.40	0.12
How often have you: received information on services for your child or for you, such as: tutoring, after school programs, or workshops you can attend to help your child?	0.45	**0.75**	0.16	0.12
How often have you: been invited to a workshop, program, performance, or other event at your child's school?	0.32	**0.74**	0.37	0.11
How often have you: talked with a teacher or other adult at your child's school to share with them important information about your child's learning?	0.32	**0.87**	0.16	0.00
There is racial or cultural bias by school staff.	0.50	0.28	**0.63**	0.03
There is conflict at my child's school based on race, culture, religion, sexual orientation, gender, or disabilities.	0.40	0.32	**0.73**	0.04
Students use alcohol or illegal drugs during school.	0.11	0.39	**0.76**	0.14
There is gang activity in my child's school.	0.27	0.25	**0.83**	0.19
My child participates in the following courses during the regular school day.	0.07	-0.03	0.34	**0.80**
My child participates in the following school activities before or after school.	0.18	0.27	-0.04	**0.74**
Variance	12.42	5.70	5.58	1.51
Proportion	0.40	0.18	0.18	0.05
N	4369			

Table 13
Rotated Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loadings*						
School leaders communicate a clear vision for this school.	**0.88**	0.19	0.20	0.19	0.02	0.07	0.02
School leaders let staff know what is expected of them.	**0.88**	0.18	0.18	0.15	0.00	0.13	-0.02
School leaders encourage open communication on important school issues.	**0.90**	0.08	0.19	0.21	0.04	-0.06	0.03
Curriculum, instruction, and assessment are aligned within and across the grade levels at this school.	**0.69**	0.45	0.16	0.25	0.03	0.25	0.04
The principal places the learning needs of children ahead of other interests.	**0.91**	0.11	0.17	0.16	0.02	-0.03	0.01
The principal is an effective manager who makes the school run smoothly.	**0.91**	0.12	0.23	0.09	0.00	0.03	-0.02
I trust the principal at his/her word.	**0.92**	0.04	0.18	0.14	0.02	-0.06	-0.02
My school has high expectations for all students.	**0.60**	0.50	0.34	0.28	0.00	0.11	-0.02
My school has clear measures of progress for student achievement throughout the year.	**0.62**	0.50	0.24	0.30	0.01	0.25	-0.01
This school makes it a priority to help students develop challenging learning goals.	**0.70**	0.41	0.29	0.32	0.03	0.19	0.03
This school makes it a priority to help students find the best ways to achieve their learning goals.	**0.73**	0.33	0.32	0.35	0.02	0.16	0.04
My school offers a wide enough variety of activities or courses to keep students at my school engaged.	**0.56**	0.23	0.40	0.22	-0.02	0.32	0.07
To what extent do you feel supported by: your principal?	**0.93**	0.05	0.20	0.15	0.01	-0.05	0.00
The principal has confidence in the expertise of the teachers.	**0.84**	0.05	0.20	0.23	-0.01	-0.08	-0.03
School leaders invite teachers to play a meaningful role in setting goals and making important decisions for this school.	**0.87**	0.04	0.15	0.28	0.03	-0.10	0.04
School leaders encourage collaboration among teachers.	**0.78**	0.15	0.14	0.40	0.05	-0.06	0.04
School leaders visit classrooms to observe the quality of teaching at this school.	**0.72**	0.21	0.12	0.16	0.01	0.24	-0.03
School leaders give me regular and helpful feedback about my teaching.	**0.83**	0.20	0.13	0.19	0.02	0.22	-0.01
School leaders place a high priority on the quality of teaching at this school.	**0.82**	0.23	0.21	0.29	-0.01	0.07	-0.05
Teachers in this school use student achievement data to improve instructional decisions.	**0.56**	0.49	0.11	0.40	0.07	0.29	0.05
This year, I received helpful training on the use of student achievement data to improve teaching and learning.	**0.71**	0.28	0.04	0.26	0.07	0.34	0.12
The professional development I received this year provided me with content support in my subject area.	**0.70**	0.36	0.04	0.22	0.01	0.27	0.08

Table 13
Continued

Survey Item	*Factor Loadings*						
The professional development I received this year provided me with teaching strategies to better meet the needs of my students.	**0.74**	0.27	0.08	0.28	0.02	0.23	0.11
I have sufficient materials to teach my class(es), including: books, audio/visual equipment, maps, and/or calculators.	**0.58**	0.23	0.35	0.25	-0.02	0.10	-0.03
My instructional materials are in good condition.	**0.57**	0.30	0.36	0.30	0.02	0.06	0.01
Obtaining information from parents about student learning needs is a priority at my school.	**0.66**	0.34	0.32	0.32	0.13	0.17	0.11
Teachers and administrators in my school use information from parents to improve instructional practices and meet student learning needs.	**0.67**	0.34	0.33	0.34	0.12	0.16	0.11
My school communicates effectively with parents when students misbehave.	**0.72**	0.08	0.46	0.23	0.12	0.10	0.12
I can get the help I need at my school to address student behavior and discipline problems.	**0.70**	0.11	0.57	0.17	0.01	0.13	0.09
There is a person or a program in my school that helps students resolve conflicts.	**0.51**	-0.12	0.40	0.18	0.05	0.28	0.23
Teachers in this school set high standards for student work in their classes.	0.36	**0.54**	0.34	0.47	0.01	0.17	-0.01
This year, what percentage of your students had at least one parent attend your Parent-Teacher Conferences?	0.15	**0.82**	0.22	0.14	-0.03	-0.11	-0.01
How often have you: attempted to have a conversation with a parent but failed because you were not able to contact the parent or the parent did not respond or attend?	0.13	**0.65**	0.42	0.13	-0.38	-0.01	-0.10
How often have you: sent parents written information on what you are teaching and what students are expected to learn?	0.15	**0.74**	-0.04	0.01	0.38	0.19	0.01
How often have you: sent home information on services to help students or parents such as: tutoring, after-school programs, or workshops adults can attend to help their children in school?	0.27	**0.59**	-0.12	-0.04	0.33	0.33	0.24
Students' use of alcohol and illegal drugs in school is a problem at my school.	0.13	**0.83**	0.22	0.05	-0.05	-0.12	-0.11
There are conflicts at my school based on race, culture, religion, sexual orientation, gender, or disability.	0.26	**0.69**	0.36	0.10	-0.07	0.08	-0.14
Gang activity is a problem in my school.	0.18	**0.74**	0.44	0.13	-0.07	-0.13	-0.09
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.33	**0.42**	0.40	0.04	-0.03	0.36	0.08
Order and discipline are maintained at my school.	0.59	0.25	**0.65**	0.16	-0.03	0.12	0.03

Table 13
Continued

Survey Item	*Factor Loadings*						
I am safe at my school.	0.54	0.21	**0.69**	0.24	-0.02	0.04	0.05
Crime and violence are a problem in my school.	0.34	0.47	**0.70**	0.16	-0.11	-0.03	-0.05
Students in my school are often threatened or bullied.	0.38	0.37	**0.72**	0.16	-0.11	0.04	-0.07
Adults at my school are often disrespectful to students.	0.30	0.30	**0.53**	0.43	-0.10	0.01	-0.07
Most students at my school treat teachers with respect.	0.40	0.38	**0.68**	0.25	-0.10	0.03	0.03
Most parents treat teachers at this school with respect.	0.37	0.14	**0.63**	0.37	-0.06	0.05	0.11
My school is kept clean.	0.35	0.25	**0.41**	0.12	0.09	0.15	-0.04
To what extent do you feel supported by: other teachers at your school?	0.31	0.18	0.16	**0.81**	0.03	0.05	0.01
Teachers in this school respect teachers who take the lead in school improvement efforts.	0.50	0.02	0.18	**0.77**	0.09	-0.03	0.07
Teachers in this school trust each other.	0.41	0.06	0.18	**0.82**	0.05	-0.02	0.02
Teachers in this school recognize and respect colleagues who are the most effective teachers.	0.39	0.05	0.16	**0.84**	0.08	0.04	0.05
Most teachers in my school work together to improve their instructional practices.	0.47	0.34	0.15	**0.68**	0.03	0.12	0.01
How often have you: had a conversation or corresponded with a parent of a student about the student's behavior?	-0.04	-0.12	-0.32	0.07	**0.73**	-0.15	0.06
How often have you: communicated with students about their progress in class?	0.09	-0.15	0.10	0.10	**0.66**	0.05	-0.20
How often have you: communicated with parents about their children's progress in class?	0.12	0.12	-0.02	0.10	**0.87**	0.04	0.05
Which of the following courses or activities are available to students at your school - and when are they available during the day? Offered as a regular school activity/course.	0.09	-0.17	0.17	0.07	-0.07	**0.64**	-0.28
Which of the following courses or activities are available to students at your school - and when are they available during the day? Offered before or after school or during free periods.	0.10	-0.18	0.04	0.12	0.01	-0.07	**0.83**
Variance	19.75	7.45	6.50	5.90	2.29	1.82	1.13
Proportion	0.35	0.13	0.11	0.10	0.04	0.03	0.02
N	4301						

Table 14
Rotated Factor Analysis of Student Survey Responses

Survey Item	*Factor Loadings*					
I feel welcome in my school.	**0.72**	0.59	0.08	0.06	0.08	0.00
Students who get good grades in my school are respected by other students.	**0.83**	0.28	0.16	0.07	-0.01	-0.07
How AVAILABLE are teachers and other adults at your school to talk about: a problem you are having in class?	**0.61**	0.59	0.33	0.05	0.01	-0.07
Teachers in my school treat students with respect.	**0.66**	0.61	-0.03	0.16	-0.03	-0.07
Most students in my school treat teachers with respect.	**0.84**	0.36	0.09	0.16	0.06	-0.09
Most students in my school help and care about each other.	**0.83**	0.36	0.10	0.24	0.10	-0.03
Most students in my school just look out for themselves.	**0.66**	0.15	0.19	0.37	0.05	0.01
Most students in my school treat each other with respect.	**0.90**	0.29	0.10	0.12	0.04	-0.05
Students threaten or bully other students at school.	**0.93**	0.02	0.13	-0.05	-0.08	0.11
Students get into physical fights at my school.	**0.92**	0.07	0.17	0.06	0.03	0.13
Adults at my school yell at students.	**0.87**	0.12	-0.03	0.02	-0.24	-0.11
There is conflict in my school based on race, culture, religion, sexual orientation, gender, or disabilities.	**0.74**	0.34	0.14	-0.05	0.04	0.22
There is gang activity in my school.	**0.67**	0.35	0.14	0.16	0.27	0.35
Discipline in my school is fair.	**0.71**	0.56	-0.05	0.08	0.11	-0.20
I am safe in my classes.	**0.75**	0.51	0.21	0.09	0.16	0.07
I am safe in the hallways, bathrooms, and locker rooms at my school.	**0.83**	0.39	0.17	0.06	0.11	0.16
I am safe on school property outside my school building.	**0.80**	0.39	0.06	0.01	0.16	0.03
My school is kept clean.	**0.81**	0.33	-0.03	0.06	0.04	0.01
I stay home because I don't feel safe at school.	**0.46**	0.26	0.46	-0.02	0.30	0.28
Most of the teachers, counselors, school leaders, and other adults I see at school every day know my name or who I am.	0.36	**0.51**	0.11	0.04	-0.27	0.46
The adults at my school look out for me.	0.54	**0.73**	0.10	0.05	-0.05	0.13
The adults at my school help me understand what I need to do to succeed in school.	0.29	**0.89**	0.06	0.10	0.10	0.07
My teachers encourage me to succeed.	0.27	**0.88**	0.12	0.13	0.09	0.09
I need to work hard to get good grades at my school.	-0.17	**0.70**	0.14	0.16	0.32	0.19
My school helps me to develop challenging academic goals.	0.39	**0.80**	0.00	0.12	0.09	-0.02
Someone at my school helps me understand what courses I need to be promoted to the next grade or graduate.	0.21	**0.83**	0.04	-0.12	-0.04	-0.06
My teachers expect me to continue my education after high school.	0.25	**0.78**	0.25	0.13	0.14	0.19
How COMFORTABLE are you talking to teachers and other adults at your school about: a problem you are having in class?	0.57	**0.63**	0.22	-0.09	-0.12	-0.12
How COMFORTABLE are you talking to teachers and other adults at your school about: something that is bothering you?	0.43	**0.73**	0.00	-0.01	-0.15	-0.18

Table 14
Continued

Survey Item	*Factor Loadings*					
How AVAILABLE are teachers and other adults at your school to talk about: something that is bothering you?	0.59	**0.66**	0.23	0.04	-0.04	-0.09
Adults in my school treat each other with respect.	0.45	**0.70**	0.15	0.17	0.08	0.16
My teachers enjoy the subjects they teach.	0.47	**0.72**	0.11	0.19	0.01	0.07
My teachers inspire me to learn.	0.16	**0.91**	-0.09	0.18	0.13	-0.02
My teachers give me extra help when I need it.	0.45	**0.74**	0.11	0.18	-0.04	0.09
My teachers connect what I am learning to life outside the classroom.	0.43	**0.77**	0.15	0.14	0.02	-0.02
During this school year, which of the following activities did you participate in either before or after school or during free periods?	-0.03	**0.54**	0.04	0.13	0.52	0.09
My school offers a wide enough variety of classes and activities to keep me interested in school.	0.49	**0.54**	-0.10	0.04	0.32	-0.41
Students use alcohol or illegal drugs while at school.	0.21	**0.64**	0.00	0.17	0.28	0.47
There is a person or program in my school that helps students resolve conflicts.	0.44	**0.56**	0.05	0.12	0.24	-0.28
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.50	**0.63**	-0.08	0.06	0.30	-0.03
How often have your teachers asked you to: Complete an essay or research project using multiple sources of information?	0.17	0.11	**0.78**	0.29	0.10	0.09
How often have your teachers asked you to: Complete an essay or project where you had to use evidence to defend your own opinion or ideas?	0.39	0.06	**0.71**	0.35	-0.10	0.00
In how many classes in the past 2 weeks have you: worked by yourself (independently) during class?	0.03	-0.03	**0.76**	-0.30	0.24	-0.02
In how many classes in the past 2 weeks have you: had whole-class discussions?	0.38	0.43	**0.53**	0.24	-0.01	-0.07
In how many classes in the past 2 weeks have you: participated in hands-on activities such as science experiments?	0.14	0.56	0.02	**0.61**	0.09	-0.09
In how many classes in the past 2 weeks have you: worked in groups of 2 to 6 students?	0.21	0.32	0.25	**0.78**	0.03	0.09
During this school year, have you taken or had a chance to take a class in the following subjects?	0.10	0.12	0.34	0.01	**0.72**	-0.05
Variance	15.04	14.29	3.06	1.98	1.82	1.30
Proportion	0.32	0.30	0.07	0.04	0.04	0.03
N	2619					

The first factor in the analysis of teacher responses looks much like the first factor for parents (Table 13). It accounts for 35% of the variation while the second factor only explains 13%. A majority of questions load most strongly on the first factor, and these questions span a rather broad range of topics. The second factor seems related to parent involvement in the school and serious safety problems. The questions that load most strongly on the third factor ask about school safety, and the questions with high loadings on the fourth factor ask teachers what they think of the teaching workforce at the school. Three questions about how often teachers have communicated with parents have high loadings on the fifth factor. The sixth and seventh factors each produce high loadings for a single variable related to school courses and activities. The sixth factor corresponds to regular school activities and courses while the seventh factor relates to activities and courses offered before or after school or during free periods.

For students, the first two factors explain 32% and 30% of the variation, respectively, after which the amount of explained variation drops off sharply to 7% for the third factor (Table 14). Most of the questions loading strongly on the first factor ask about students showing each other respect or about school safety. The second factor produces high loadings for a set of questions mostly asking about adults at the school, although there are also questions about school activities and safety. Four questions about assignments and teaching practices load most strongly on the third factor. Two similar questions about experiments and working in groups load highly on the fourth factor. One question about the availability of classes in certain subjects loads strongly on the fifth factor. No

question has its highest loading on the sixth factor, and it could be the result of random variation.

The results thus far indicate that while parent, teacher, and student opinions can be largely explained by a single dimension, additional dimensions enhance my ability to explain the variation in survey responses. The explanatory strength of the first factors in these analyses could be the result of a tendency among respondents to largely view school performance along a single dimension. Alternatively, a strong first factor could indicate that various dimensions of school performance are highly correlated. Perhaps each of these explanations is partially correct. When one looks beyond the first factor, there is evidence that multiple dimensions do play a role in explaining survey responses. For the most part, there is clear conceptual similarity among the variables that load most strongly on the rotated factors. This suggests that most factors correspond with actual conceptual distinctions within the minds of respondents rather than purely random instances of covariation.

Even though examining the rotated factors provides some insight into how parents, teachers, and students evaluate schools along multiple dimensions, there are some problems with this approach. As I noted above, factor analysis with varimax rotation produces uncorrelated factors while actual dimensions of school performance should exhibit noticeable correlation. Looking to the results themselves, one finds that the first factor does not necessarily have a clear conceptual theme. Furthermore, several

questions with high loadings on the first factor are conceptually very similar to other questions that have their highest loadings on other factors.

Conceptual groupings

As a result of these problems, I decided to create my own conceptual groupings of survey questions. Note that there is not necessarily one correct way to conceptually group the questions into separate dimensions. Any organization will exhibit countless attributes, and the concept of dimensions provides a convenient way to organize and process large amounts of information about these attributes. One might think of a dimension as a cluster of related organizational attributes. These clusters can be formed in many different ways, and different methods of clustering will yield different insights about an organization. For example, suppose that a set of survey results provides information about how well teachers communicate with others within a school. If one wishes to consider teachers as a dimension of the school, it would make sense to combine this piece of information with other information about the teaching workforce. If the issue of communication is under consideration, one might combine this information about teacher communication with information about the communication habits of other individuals within a school. The information about teacher communication fits well in either cluster and contributes differently to each.

With this in mind, I created a set of conceptual groupings. A single concept clearly relates to every question within each group, providing some face validity for my

grouping scheme. My parent survey question categories were safety, activities, parent engagement, and academics. I categorized the teacher survey questions into safety, activities, parent engagement, teaching workforce, achievement-oriented culture, parent involvement, school leadership, and resources. The student categories I created were safety, activities, academics, teachers and other adults, and student respect. I performed a factor analysis on the questions within each conceptual group, the results of which can be found in Appendix B. Taking the first factor from each factor analysis allowed for the creation of several indexes of respondents' opinions without any requirement that the various indexes be uncorrelated. These indexes constitute my perceptual measures of school traits. Almost every variable used to create these indexes exhibited a high loading on the first factor, providing some evidence of convergent validity (i.e., questions asking about similar concepts produce similar survey responses).[13]

Multiple measures of the same trait are very useful to researchers because they create an opportunity to test for external validity. I was able to add another measure of parent involvement to my study by utilizing a survey question that I had ignored up to this point. The question asked parents how they preferred to receive information from the school and presented them with a list of options. Respondents could select multiple

[13] For the teacher survey's activities category, the question asking which courses or activities are "offered before or after school or during free periods" has a very poor loading on the first factor (Table B-6); perhaps this is because regular school activities/courses matter much more to teachers when they are forming an opinion about school activities. Additionally, the teacher survey's parent engagement category does not have consistently high loadings on the first factor (Table B-7). The question asking teachers how often they communicate with students about their progress has a particularly low loading on the first factor. However, there is very little variation for this variable as most teachers report communicating with students "more than once a week."

options, and my analysis examines the percentage of parents at a school who selected each option. One would expect parents to select more active forms of receiving information at schools with high levels of parent involvement. Thus, my factor analysis included six options that seemed to indicate parent involvement, such as "Parent Teacher Conferences," "School bulletin board," "Other parents," and "Paper sent home with your child." The first factor from this analysis became a new measure of parent involvement (Table B-18).

Public records of school traits

Several administrative records of school traits are available that will enhance my ability to test the validity of my perceptual measures. First, the School Violence Index (described in detail in Chapter II) provides an inverse measure of safety (New York State Education Department 2011).[14] Second, the primary administrative measure of academic success is standardized test scores. I measure this using my own index of last year's test performance, which I explained in Chapter II. I also included an administrative measure of teacher quality. The state reports the percentage of core classes taught by a "highly qualified" teacher (as defined by *No Child Left Behind*). In order to be "highly qualified," a teacher must have a bachelor's degree, meet state certification requirements, and demonstrate a knowledge of every subject they teach (U.S. Department of Education 2004). The city's *Quality Reviews* (described in Chapter II) provide a rough administrative measure of organizational culture. Finally, the parent

[14] I use a log transformation of the School Violence Index.

survey response rate is used as an indicator of parent involvement. Parents who are involved in their school in a significant way should be more likely to take the time to fill out a survey about the school. Thus, I conjure that schools with higher response rates on the parent survey should generally have greater parent involvement.

Initial assessment of the measures' validity

When multiple measures of multiple characteristics are available, it is common to evaluate the validity of these measures with a multitrait-multimethod matrix (see Cambell and Fiske 1959). A multitrait-multimethod matrix displays pairwise correlations for each pair of variables and allows one to learn about both the convergent and discriminant validity of the variables. Relatively high monotrait-heteromethod correlations indicate that different methods of measuring the same concept produced similar data, thus providing evidence of convergent validity. Relatively low heterotrait correlations are needed to demonstrate discriminant validity. Without discriminant validity, one cannot claim that the variables actually measure distinct traits.

Difficulties presented by the dataset

Before looking to my multitrait-multimethod matrix, I wish to note several unique aspects of my data that may make it difficult to validate my measures. First, one would expect that some of my school traits are closely related to one another. For example, teacher quality should be highly related to academic quality since teachers are the ones

who provide academic instruction. Thus, some fairly high heterotrait correlations should be expected.

Second, there is imperfect uniformity concerning what is being measured among the variables that I identified as "monotrait." In order to maximize the number of variables that I could include in my matrix, I generally designated two variables as "monotrait" as long as they seemed to overlap significantly in what they measured. Uniformity in what is being measured for a given trait is a matter of degree rather than of kind; some of my traits (e.g., safety, activities) have a fairly precise and consistent meaning while other traits (e.g., academics, teachers) take on somewhat different meanings depending on which measure is used. Differences in what is being measured among a set of "monotrait" variables should act to weaken monotrait correlations.

Third, many of my measures of school characteristics probably contain large measurement errors. As I discussed earlier, scholars have contested the use of perceptual indicators as well as administrative measures of schools. Both types of measures are imperfect and should yield fairly high measurement errors. In general, large measurement errors should produce lower monotrait-heteromethod correlations. As long as measurement errors are uncorrelated across variables, no other problems should arise. However, in the case of perceptual measures, assuming that measurement errors are uncorrelated is probably unrealistic. In order to identify when correlations in measurement errors are likely to occur, one must first understand the key factors that

play a role in determining how survey respondents evaluate specific aspects of an organization. The following function provides a rough guide:

$$R = f(D, O, P, E) \quad (3)$$

R = Survey response

D = Dimension(s) identified in survey question

O = Overall opinion (halo effect)

P = Personal characteristics

E = Other error

This function implies that while survey responses tell you something about the dimension of an organization identified in a given question, the responses are also partially a function of the respondents' overall opinion of the organization and of the respondents' personal characteristics. Since overall opinions and personal characteristics will provide a common source of variation for responses to all questions on a survey, I expect heterotrait-monomethod correlations to be high for perceptual measures. Additionally, any variables that indicate something about the overall opinion or the personal characteristics of a set of respondents are likely to be correlated with variables that are based on survey results coming from that set of respondents. For example, variables that provide information about the parents at a school (such as the level of parent involvement) will likely be correlated with all perceptual measures derived from parent survey results. In this case, heterotrait-heteromethod correlations will be inflated.

If heterotrait-heteromethod correlations are sufficiently inflated and monotrait-heteromethod correlations are sufficiently deflated, it will become impossible to validate measures without first addressing some of the measurement error.

Discussion of matrix output

My multitrait-multimethod matrix contains seven traits and four sources of measures (Table 15). No single source provides measures for all seven traits, so there are several empty columns and rows in the matrix. High, positive correlations between different measures of the same trait indicate strong convergent validity.[15] Evidence of discriminant validity exists whenever the correlation between two different measures of the same trait is greater than the heterotrait-heteromethod correlations found in the same column or row of the matrix (see Cambell and Fiske 1959). In other words, discriminant validity implies that a measure of a given trait will be more closely correlated to another measure of the same trait than to another measure of a different trait.

[15] Since the School Violence Index is an inverse measure of safety, it should exhibit a strong, negative correlation with other safety measures.

Table 15
Multitrait-Multimethod Matrix

	Parents					
	Safety	Activities	Parent Engagement	Academics		Parent Involvement
Parents						
Safety	X *(4369)*					
Activities	0.57 *(4369)*	X *(4371)*				
Parent Engagement	0.84 *(4369)*	0.58 *(4371)*	X *(4371)*			
Academics	0.86 *(4369)*	0.59 *(4371)*	0.93 *(4371)*	X *(4371)*		
					X	
						X
Parent Involvement	0.37 *(4369)*	0.38 *(4371)*	0.37 *(4371)*	0.37 *(4371)*		X *(4371)*
Teachers						
Safety	**0.65** ***(4324)***	0.41 *(4326)*	0.50 *(4326)*	0.55 *(4326)*		0.20 *(4326)*
Activities	0.24 *(4322)*	**0.42** ***(4324)***	0.21 *(4324)*	0.24 *(4324)*		0.00 *(4324)*
Parent Engagement	0.48 *(4334)*	0.35 *(4336)*	**0.52** ***(4336)***	0.51 *(4336)*		0.17 *(4336)*
Teaching Workforce	0.46 *(4334)*	0.35 *(4336)*	0.46 *(4336)*	0.48 *(4336)*		0.12 *(4336)*
Achievement-Oriented Culture	0.56 *(4339)*	0.39 *(4341)*	0.51 *(4341)*	0.56 *(4341)*		0.19 *(4341)*
Parent Involvement	0.68 *(4338)*	0.47 *(4340)*	0.51 *(4340)*	0.57 *(4340)*		**0.45** ***(4340)***

Table 15
Continued

	Parents				
	Safety	Activities	Parent Engagement	Academics	Parent Involvement
Students					
Safety	**0.72** ***(2619)***	0.44 *(2621)*	0.56 *(2621)*	0.62 *(2621)*	0.11 *(2621)*
Activities	0.40 *(2619)*	**0.63** ***(2621)***	0.32 *(2621)*	0.38 *(2621)*	0.27 *(2621)*
Academics	0.57 *(2617)*	0.45 *(2619)*	0.48 *(2619)*	**0.57** ***(2619)***	0.27 *(2619)*
Teachers and Other Adults	0.65 *(2618)*	0.42 *(2620)*	0.59 *(2620)*	0.64 *(2620)*	0.26 *(2620)*
Public Records					
School Violence Index	**-0.35** ***(3267)***	-0.23 *(3267)*	-0.18 *(3267)*	-0.26 *(3267)*	-0.16 *(3267)*
Standardized Test Scores	0.43 *(3267)*	0.25 *(3267)*	0.25 *(3267)*	**0.32** ***(3267)***	0.10 *(3267)*
Teacher Qualifications	0.24 *(3267)*	0.05 *(3267)*	0.15 *(3267)*	0.17 *(3267)*	0.08 *(3267)*
Quality Review	0.33 *(2388)*	0.23 *(2388)*	0.27 *(2388)*	0.32 *(2388)*	0.20 *(2388)*
Parent Response Rate	0.63 *(3267)*	0.36 *(3267)*	0.61 *(3267)*	0.62 *(3267)*	**0.19** ***(3267)***

Table 15
Continued

	Teachers					
	Safety	Activities	Parent Engagement	Teaching Workforce	Achievement-Oriented Culture	Parent Involvement
Teachers						
Safety	X *(4326)*					
Activities	0.53 *(4310)*	X *(4324)*				
Parent Engagement	0.71 *(4322)*	0.51 *(4319)*	X *(4336)*			
				X		
Teaching Workforce	0.69 *(4322)*	0.47 *(4318)*	0.70 *(4333)*	X *(4336)*		
Achievement-Oriented Culture	0.83 *(4326)*	0.58 *(4323)*	0.83 *(4336)*	0.79 *(4336)*	X *(4341)*	
Parent Involvement	0.68 *(4324)*	0.27 *(4322)*	0.48 *(4335)*	0.43 *(4334)*	0.57 *(4339)*	X *(4340)*
Students						
Safety	**0.72** ***(2597)***	0.32 *(2589)*	0.39 *(2598)*	0.50 *(2598)*	0.55 *(2602)*	0.56 *(2601)*
Activities	0.35 *(2597)*	**0.38** ***(2589)***	0.30 *(2598)*	0.25 *(2598)*	0.37 *(2602)*	0.47 *(2601)*
Academics	0.48 *(2596)*	0.16 *(2587)*	0.33 *(2597)*	0.41 *(2597)*	0.45 *(2601)*	0.60 *(2599)*
Teachers and Other Adults	0.51 *(2597)*	0.15 *(2588)*	0.37 *(2598)*	**0.42** ***(2598)***	0.48 *(2602)*	0.56 *(2600)*

Table 15
Continued

	Teachers					
	Safety	Activities	Parent Engagement	Teaching Workforce	Achievement-Oriented Culture	Parent Involvement
Public Records						
School Violence Index	**-0.50** ***(3265)***	-0.27 *(3259)*	-0.24 *(3267)*	-0.29 *(3267)*	-0.35 *(3267)*	-0.44 *(3267)*
Standardized Test Scores	0.63 *(3265)*	0.41 *(3259)*	0.40 *(3267)*	0.43 *(3267)*	0.51 *(3267)*	0.59 *(3267)*
Teacher Qualifications	0.22 *(3265)*	0.07 *(3259)*	0.14 *(3267)*	**0.13** ***(3267)***	0.21 *(3267)*	0.26 *(3267)*
Quality Review	0.40 *(2386)*	0.27 *(2380)*	0.31 *(2388)*	0.35 *(2388)*	**0.42** ***(2388)***	0.31 *(2388)*
Parent Response Rate	0.50 *(3265)*	0.28 *(3259)*	0.51 *(3267)*	0.40 *(3267)*	0.52 *(3267)*	**0.58** ***(3267)***

Table 15
Continued

	Students					
	Safety	Activities	Academics	Teachers and Other Adults		
Students						
Safety	X *(2621)*					
Activities	0.49 *(2621)*	X *(2621)*				
			X			
Academics	0.65 *(2619)*	0.53 *(2619)*	X *(2619)*			
Teachers and Other Adults	0.81 *(2620)*	0.57 *(2620)*	0.76 *(2619)*	X *(2620)*		
					X	
						X
Public Records						
School Violence Index	**-0.41** ***(1788)***	-0.18 *(1788)*	-0.24 *(1788)*	-0.17 *(1788)*		
Standardized Test Scores	0.45 *(1788)*	0.14 *(1788)*	**0.23** ***(1788)***	0.13 *(1788)*		
Teacher Qualifications	0.16 *(1788)*	0.09 *(1788)*	0.12 *(1788)*	**0.10** ***(1788)***		
Quality Review	0.29 *(1318)*	0.17 *(1318)*	0.21 *(1318)*	0.20 *(1318)*		
Parent Response Rate	0.43 *(1788)*	0.35 *(1788)*	0.42 *(1788)*	0.47 *(1788)*		

Table 15
Continued

	Public Records				
	School Violence Index	Standardized Test Scores	Teacher Qualifications	Quality Review	Parent Response Rate
Public Records					
School Violence Index	X *(3267)*				
	X				
		X			
Standardized Test Scores	-0.52 *(3267)*	X *(3267)*			
Teacher Qualifications	-0.16 *(3267)*	0.24 *(3267)*	X *(3267)*		
Quality Review	-0.28 *(2388)*	0.32 *(2388)*	0.10 *(2388)*	X *(2388)*	
Parent Response Rate	-0.20 *(3267)*	0.39 *(3267)*	0.23 *(3267)*	0.27 *(2388)*	X *(3267)*

On the first page of the table, measures from parents and teachers can be compared. The safety measure appears to have some weak discriminant validity. The only value in its column or row that exceeds the monotrait correlation comes from the teacher measure of parent involvement. As I discussed above, a measure of parent involvement is likely to exhibit significant correlation with perceptual measures from parent surveys. The other three traits appear to have much weaker discriminant validity than safety. On the second page of Table 15, one can see that for parents and students, safety and activities appear to have convergent and discriminant validity. The academics measure, however, does not have much discriminant validity. When comparing parent measures with public records, none of the measures exhibit discriminant validity.

On the third page of Table 15, teacher measures are compared with student measures. The safety measures appear to have clear discriminant validity while the activities measures come close to displaying discriminant validity. Teacher measures and public records are compared on the fourth page of the table, and it appears as though no measure clearly establishes discriminant validity. Parent involvement comes close to achieving discriminant validity, with only one value in its column or row that is larger than the monotrait correlation. The fifth page of Table 15 compares student measures with public records, and no variable demonstrates discriminant validity.

On the whole, discriminant validity is very problematic with these variables. Out of all the measures, safety (particularly the student measure of safety) appears to perform the best. The activities measures also seem close to achieving discriminant validity. In light of these unimpressive findings, I decided to make an attempt at eliminating some of the measurement error.

Halo effect correction

The potential presence of a halo effect among the perceptual measures makes it difficult to draw conclusions based on the multitrait-multimethod matrix. Parents' overall opinions are probably correlated with teachers' and students' overall opinions, so one might expect correlated measurement errors among all of my perceptual measures. Since the halo effect may influence responses to some questions more than others, it is impossible to know whether or not a relatively high correlation between two perceptual

measures is merely the result of a strong correlation in measurement errors. To address this problem, I attempted to purge the perceptual measures of any halo effect. I first created indexes of overall satisfaction for parents and teachers using the first factors from my initial factor analyses in Tables 9 through 11. I then regressed each perceptual measure on the respondents' overall satisfaction and used the residuals as my new perceptual measure (Table 16).[16] These residuals represent the respondents' opinions about a specific dimension of their schools after controlling for their overall opinions of the schools. In other words, the new perceptual measures indicate the respondents' perceptions of a specific school dimension relative to their overall perceptions of the schools. Note that this approach may risk throwing the baby out with the bathwater since any variation in perceptions of specific school dimensions that is also reflected in respondents' overall opinions is purged from the new perceptual measures.

[16] No halo-correction was made for the parent survey measure of parent involvement. The halo effect is not expected to effect this measure since the question asked parents a very direct question about their preferences (for receiving information from the school) rather than asking them to make a subjective evaluation of some aspect of the school.

Table 16
Regressions Used to Create Halo-Corrected Measures

Perceptual Measure	*Overall Satisfaction*	R^2
Parents		
Safety	0.93	0.87
Activities	0.63	0.40
Parent Engagement	0.97	0.95
Academics	0.96	0.92
Teachers		
Safety	0.89	0.80
Activities	0.59	0.37
Parent Engagement	0.84	0.72
Teaching Workforce	0.83	0.70
Achievement-Oriented Culture	0.94	0.91
Parent Involvement	0.56	0.32
Students		
Safety	0.94	0.89
Activities	0.59	0.35
Academics	0.79	0.62
Teachers and Other Adults	0.95	0.91

Note: Coefficients for constant term not shown.

Validity of halo-corrected measures

Table 17 depicts a multitrait-multimethod matrix with the new halo-corrected perceptual measures. The first page of the table shows that all four traits measured by both parents and teachers (safety, activities, parent engagement, and parent involvement) appear to exhibit discriminant validity. The comparison of parent and student measures on the second page of Table 17 reveals that the safety and activities measures here also seem to have discriminant validity while the measures of academics do not. When parent measures are compared with public records, I find little evidence of validity for any of the measures.

The third page of Table 17 shows that the teacher and student measures of safety and activities appear to exhibit discriminant validity. However, the measures of school teachers do not. When teacher measures are compared to public records on the fourth page of the table, I find that safety and parent involvement appear close to achieving discriminant validity, each with a single problematic coefficient in its column or row. Finally, the fifth page of Table 17 shows the comparison of student measures and public records. None of the measures exhibit discriminant validity.

Table 17
Multitrait-Multimethod Matrix with Halo-Corrected Measures

	Parents					
	Safety	Activities	Parent Engagement	Academics		Parent Involvement
Parents						
Safety	X *(4369)*					
Activities	-0.09 *(4369)*	X *(4369)*				
Parent Engagement	-0.80 *(4369)*	-0.18 *(4369)*	X *(4369)*			
Academics	-0.38 *(4369)*	-0.09 *(4369)*	-0.09 *(4369)*	X *(4369)*		
					X	
						X
Parent Involvement	0.04 *(4369)*	0.18 *(4369)*	-0.02 *(4369)*	0.00 *(4369)*		X *(4371)*
Teachers						
Safety	**0.46** ***(4299)***	0.01 *(4299)*	-0.42 *(4299)*	-0.12 *(4299)*		0.13 *(4301)*
Activities	-0.08 *(4299)*	**0.39** ***(4299)***	-0.08 *(4299)*	-0.02 *(4299)*		-0.13 *(4301)*
Parent Engagement	-0.25 *(4299)*	-0.05 *(4299)*	**0.31** ***(4299)***	0.03 *(4299)*		0.07 *(4301)*
Teaching Workforce	-0.15 *(4299)*	0.00 *(4299)*	0.13 *(4299)*	0.05 *(4299)*		-0.01 *(4301)*
Achievement-Oriented Culture	0.03 *(4299)*	-0.01 *(4299)*	-0.05 *(4299)*	0.18 *(4299)*		0.14 *(4301)*
Parent Involvement	0.35 *(4299)*	0.10 *(4299)*	-0.28 *(4299)*	-0.04 *(4299)*		**0.44** ***(4301)***

Table 17
Continued

	Parents					
	Safety	Activities	Parent Engagement	Academics		Parent Involvement
Students						
Safety	**0.30** ***(2617)***	-0.09 *(2617)*	-0.23 *(2617)*	-0.25 *(2617)*		-0.23 *(2619)*
Activities	-0.04 *(2617)*	**0.57** ***(2617)***	-0.08 *(2617)*	0.01 *(2617)*		0.18 *(2619)*
Academics	-0.02 *(2617)*	0.12 *(2617)*	-0.03 *(2617)*	**0.16** ***(2617)***		0.18 *(2619)*
Teachers and Other Adults	-0.26 *(2617)*	-0.14 *(2617)*	0.31 *(2617)*	0.12 *(2617)*		0.22 *(2619)*
Public Records						
School Violence Index	**-0.28** ***(3267)***	-0.07 *(3267)*	0.34 *(3267)*	0.03 *(3267)*		-0.16 *(3267)*
Standardized Test Scores	0.33 *(3267)*	0.04 *(3267)*	-0.37 *(3267)*	**-0.05** ***(3267)***		0.10 *(3267)*
Teacher Qualifications	0.19 *(3267)*	-0.09 *(3267)*	-0.14 *(3267)*	-0.03 *(3267)*		0.08 *(3267)*
Quality Review	0.12 *(2388)*	0.04 *(2388)*	-0.17 *(2388)*	0.04 *(2388)*		0.20 *(2388)*
Parent Response Rate	0.11 *(3267)*	-0.07 *(3267)*	-0.05 *(3267)*	-0.04 *(3267)*		**0.19** ***(3267)***

Table 17
Continued

	Teachers					
	Safety	Activities	Parent Engagement	Teaching Workforce	Achievement-Oriented Culture	Parent Involvement
Teachers						
Safety	X *(4301)*					
Activities	-0.02 *(4301)*	X *(4301)*				
Parent Engagement	-0.18 *(4301)*	-0.01 *(4301)*	X *(4301)*			
				X		
Teaching Workforce	-0.22 *(4301)*	-0.08 *(4301)*	-0.03 *(4301)*	X *(4301)*		
Achievement-Oriented Culture	-0.13 *(4301)*	0.00 *(4301)*	0.10 *(4301)*	-0.04 *(4301)*	X *(4301)*	
Parent Involvement	0.48 *(4301)*	-0.10 *(4301)*	0.01 *(4301)*	-0.09 *(4301)*	0.16 *(4301)*	X *(4301)*
Students						
Safety	**0.38** ***(2574)***	0.15 *(2574)*	-0.19 *(2574)*	-0.06 *(2574)*	-0.17 *(2574)*	-0.15 *(2574)*
Activities	-0.09 *(2574)*	**0.35** ***(2574)***	0.11 *(2574)*	-0.08 *(2574)*	0.14 *(2574)*	0.16 *(2574)*
Academics	-0.07 *(2574)*	-0.08 *(2574)*	0.06 *(2574)*	0.12 *(2574)*	0.15 *(2574)*	0.24 *(2574)*
Teachers and Other Adults	-0.38 *(2574)*	-0.26 *(2574)*	0.19 *(2574)*	**0.04** ***(2574)***	0.09 *(2574)*	0.05 *(2574)*

Table 17
Continued

	Teachers					
	Safety	Activities	Parent Engagement	Teaching Workforce	Achievement-Oriented Culture	Parent Involvement
Public Records						
School Violence Index	**-0.40** ***(3257)***	-0.05 *(3257)*	0.16 *(3257)*	0.05 *(3257)*	0.03 *(3257)*	-0.28 *(3257)*
Standardized Test Scores	0.43 *(3257)*	0.12 *(3257)*	-0.06 *(3257)*	0.00 *(3257)*	0.09 *(3257)*	0.38 *(3257)*
Teacher Qualifications	0.16 *(3257)*	-0.06 *(3257)*	-0.01 *(3257)*	**-0.03** ***(3257)***	0.13 *(3257)*	0.20 *(3257)*
Quality Review	0.12 *(2378)*	0.04 *(2378)*	-0.08 *(2378)*	0.03 *(2378)*	**0.15** ***(2378)***	0.10 *(2378)*
Parent Response Rate	0.17 *(3257)*	-0.04 *(3257)*	0.19 *(3257)*	-0.03 *(3257)*	0.19 *(3257)*	**0.38** ***(3257)***

Table 17
Continued

	Students					
	Safety	Activities	Academics	Teachers and Other Adults		
Students						
Safety	X *(2619)*					
Activities	-0.24 *(2619)*	X *(2619)*				
			X			
Academics	-0.44 *(2619)*	0.14 *(2619)*	X *(2619)*			
Teachers and Other Adults	-0.81 *(2619)*	0.03 *(2619)*	0.05 *(2619)*	X *(2619)*		
					X	
						X
Public Records						
School Violence Index	**-0.32** ***(1788)***	0.00 *(1788)*	0.02 *(1788)*	0.39 *(1788)*		
Standardized Test Scores	0.43 *(1788)*	-0.05 *(1788)*	**-0.02** ***(1788)***	-0.50 *(1788)*		
Teacher Qualifications	0.08 *(1788)*	0.01 *(1788)*	0.02 *(1788)*	**-0.09** ***(1788)***		
Quality Review	0.12 *(1318)*	0.03 *(1318)*	0.01 *(1318)*	-0.13 *(1318)*		
Parent Response Rate	-0.06 *(1788)*	0.09 *(1788)*	0.08 *(1788)*	0.06 *(1788)*		

Table 17
Continued

	Public Records				
	School Violence Index	Standardized Test Scores	Teacher Qualifications	Quality Review	Parent Response Rate
Public Records					
School Violence Index	X *(3267)*				
	X				
	X				
Standardized Test Scores	-0.52 *(3267)*	X *(3267)*			
Teacher Qualifications	-0.16 *(3267)*	0.24 *(3267)*	X *(3267)*		
Quality Review	-0.28 *(2388)*	0.32 *(2388)*	0.10 *(2388)*	X *(2388)*	
Parent Response Rate	-0.20 *(3267)*	0.39 *(3267)*	0.23 *(3267)*	0.27 *(2388)*	X *(3267)*

The effect of the halo correction is quite astounding. A relatively strong case can be made for the convergent and discriminant validity of the perceptual measures of safety, activities, and parent engagement. The main caveat to these findings is that the perceptual measures of safety are more highly correlated with standardized test scores than with the School Violence Index. There is also some weak evidence for the convergent and discriminant validity of the perceptual measures of parent involvement. There is little to no evidence supporting the validity of my halo-corrected measures of academics, teachers, and organizational culture.

Conclusion

I found evidence that parents, teachers, and students do not express perfectly unidimensional opinions about their schools. While a single dimension can explain much of the variation in survey evaluation answers (particularly for parents), there does appear to be some level of sensitivity to performance that varies along distinct school dimensions. The limited sensitivity to multiple dimensions that I observed in the aggregated survey results could be caused by a small group of respondents who are especially knowledgeable about their schools. Schneider, Teske, and Marschall (2000, p. 172-174) suggested that such a group of "marginal consumers" could exist among school choice parents. Future studies might wish to further explore this issue using individual-level data.

My raw perceptual measures of school performance exhibited serious problems with discriminant validity. Once I made an attempt to control for the halo effect, however, the discriminant validity problem largely disappeared for my measures of safety, activities, parent engagement, and parent involvement. It is important to bear in mind that the correction I made for the halo effect attempts to completely eliminate the effect of overall opinion on responses to individual survey items. In doing so, I forfeit any information about specific dimensions of a school that is contained within respondents' overall opinions. This may explain the lack of validity exhibited by the halo-corrected measures of academics. My findings in Chapter II indicated that overall satisfaction with schools is strongly related to multiple measures of academic performance. If

respondents' evaluations of academic performance are largely incorporated into their overall opinions of schools, the halo effect correction will eliminate most of the variation caused by academic differences, thus rendering the halo-corrected measure of academics rather meaningless. In other words, correcting for the halo effect can end up creating a new set of difficulties related to validity and interpretation. A greater understanding of the halo effect and its implications for survey-based research is needed.

This paper provides some guidance as to how one might go about measuring performance as a multidimensional concept. Using a broader array of performance dimensions in studies of public administration would almost certainly yield a more complete picture of the tradeoffs and decisions that public managers must make. Certain stakeholders may hold specific dimensions of performance in particularly high esteem, and a decision to emphasize one dimension over another may have distributional effects, producing winners and losers. There is much to be learned about how organizations prioritize various dimensions of performance and how this process can be optimized.

CHAPTER IV

CONCLUSION

Survey evaluations of public organizations can tell us important information about both the organizations and the survey respondents. While several previous studies of citizen evaluations (particularly police studies) found that citizen evaluations were unrelated to agency measures of service provision, I find a strong link between survey evaluation results and multiple state and city measures of school outcomes. This strongly supports the argument that parents and teachers are knowledgeable enough to provide meaningful information about their schools, at least within the context of New York City's school choice system. The common variation between parents and teachers after controlling for administrative records of performance may indicate that survey evaluations are able to tap aspects of performance that administrators fail to measure.

Survey evaluations may even be able to tell us something about multiple dimension of performance. However, utilizing such information can be difficult because of the halo effect. Specifically, overall opinions of an organization appear to play a very strong role in coloring how people evaluate individual dimensions of an organization, making it difficult to know to what extent survey responses actually reflect the unique characteristic(s) of an organization identified in a question. I provide some initial evidence that it may be possible to find statistical cures that partially address the problem of the halo effect. However, caution is warranted with attempts to purge the

halo effect from variables since doing so can substantially change the interpretation of the variables.

Ultimately, the results from the two studies contained in this thesis provide support for the notion that citizen and employee evaluations can provide valuable information about an organization. At the same time, one must acknowledge that this information may be hard to access because of substantial measurement error.

Observing survey evaluations can also tell us something about the survey respondents themselves. I find that parents seem to be more informed about their schools than some scholars would expect. This may help to allay concerns that parents will ignore academic quality when choosing schools within the context of a school choice system. These findings should also be encouraging to those who are concerned about citizen participation in government since it may indicate that many parents are, at the very least, knowledgeable enough to contribute something of substance to civic discussions about education.

While this thesis provided an initial look at survey evaluations of public schools, many questions remain to be answered. In Chapter III, I produced measures of parent involvement, but this thesis never considered the insight these measures might provide into how parents can be encouraged to participate in their children's schools. Additionally, I observed strong correlations between evaluations and administrative

measures using survey data that was aggregated at the school level, but it is not clear how many respondents at the individual level expressed a meaningful knowledge of school characteristics. Future research should examine both of these topics.

Furthermore, I was unable to consider many aspects of schools that may or may not have influenced survey responses from parents and teachers. For example, one might consider researching how counseling services, advanced courses, cafeteria services, science and technology resources, Parent Teacher Associations, or after-school programs affect survey evaluation responses. Evaluating such topics may require collecting data on aspects of schools that are often ignored, and innovative methods may be needed to measure some of the variables.

Survey evaluations should also be studied in other contexts. The positive results here give us reason to believe that survey evaluations might produce useful results in other settings. At the same time, it may be the case that citizens are generally more knowledgeable about schools than they are about many other public organizations because public schools play such a prominent role in the lives of many families. If one wished to conduct a survey evaluation, it would be helpful to first know whether or not individuals in a given context were likely to provide useful evaluations. Only further experimentation with survey evaluations can reveal when perceptual measures are most likely to provide valid results.

The influence of the halo effect on survey results also merits further attention. Researchers who use survey instruments to measure attitudes should be made aware of the halo effect, and more research is needed to determine how one can most effectively analyze data that has been biased by the halo effect. Scholars might also consider when the halo effect is likely to exert a relative weak or relatively strong effect on respondents' answers. Perhaps survey questions can be carefully worded in ways that will minimize any halo effect.

REFERENCES

Anderson, Robert N., Myrna L. Greene, and Pamela S. Loewen. 1988. "Relationships Among Teachers' and Students' Thinking Skills, Sense of Efficacy, and Student Achievement." *Alberta Journal of Educational Research* 34(2): 148-165.

Armor, David, Patricia Conry-Oseguera, Millicent Cox, Nicelma King, Lorraine McDonnell, Anthony Pascal, Edward Pauly, and Gail Zellman. 1976. *Analysis of the School Preferred Reading Program in Selected Los Angeles Minority Schools* (Rep. No. R-2007-LAUSD). Santa Monica, CA: Rand Corporation.

Ashton, Patricia T., and Rodman B. Webb. 1986. *Making a Difference: Teachers' Sense of Efficacy and Student Achievement*. New York: Longman.

Bandura, Albert. 1997. *Self-Efficacy: The Exercise of Control*. New York: W.H. Freeman.

Béteille, Tara, and Susanna Loeb. 2009. "Teacher Quality and Teacher Labor Markets." In *Handbook of Education Policy Research*, ed. Gary Sykes, Barbara Schneider, and David N. Plank. New York : Routledge.

Brown, Ben, and Wm Reed Benedict. 2002. "Perceptions of the Police: Past Findings, Methodological Issues, Conceptual Issues, and Policy Implications." *Policing: An International Journal of Police Strategies & Management* 25(3): 543-580.

Brown, Karin, and Philip B. Coulter. 1983. "Subjective and Objective Measures of Police Service Delivery." *Public Administration Review* 43(1): 50-58.

Brudney, Jeffrey L., and Robert E. England. 1982. "Urban Policy Making and Subjective Service Evaluations: Are They Compatible?" *Public Administration Review* 42(2): 127-135.

Buckley, Jack, and Mark Schneider. 2007. *Charter Schools: Hope or Hype?* Princeton: Princeton University Press.

Campbell, Donald T., and Donald W. Fiske. 1959. "Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix." *Psychological Bulletin* 56(2): 81-105.

Cameron, Kim. 1978. "Measuring Organizational Effectiveness in Institutions of Higher Education." *Administrative Science Quarterly* 23(4): 604-632.

Charbonneau, Étienne, and Gregg G. Van Ryzin. 2012. "Performance Measures and Parental Satisfaction With New York City Schools." *American Review of Public Administration* 42(1): 54-65

Claridge, Jeffrey A., J. Forrest Calland, Vinay Chandrasekhara, Jeffrey S. Young, Hillary Sanfey, and Bruce D. Schirmer. 2003. "Comparing Resident Measurements to Attending Surgeon Self-perceptions of Surgical Educators." *American Journal of Surgery* 185(4): 323-327.

Cooper, William H. 1981. "Ubiquitous Halo." *Psychological Bulletin* 90(2): 218-244.

Davis, David A., Paul E. Mazmanian, Michael Fordis, R. Van Harrison, Kevin Thorpe, and Laure Perrier. 2006. "Accuracy of Physician Self-assessment Compared with Observed Measures of Competence: A Systematic Review." *Journal of the American Medical Association* 296(9): 1094-1102.

Davis, James R. 1990. "A Comparison of Attitudes Toward the New York City Police." *Journal of Police Science and Administration* 17(4): 233-243.

Falchikov, Nancy, and David Boud. 1989. "Student Self-Assessment in Higher Education: A Meta-Analysis." *Review of Educational Research* 59(4): 395-430.

Furstenberg, Frank F., Jr., and Charles F. Wellford. 1973. "Calling the Police: The Evaluation of Police Services." *Law & Society Review* 7(3): 393-406.

Gibbons, Stephen, and Olmo Silva. 2011. "School Quality, Child Wellbeing and Parents' Satisfaction." *Economics of Education Review* 30(2): 312-331.

Goddard, Roger D., Wayne K. Hoy, and Anita Woolfolk Hoy. 2000. "Collective Teacher Efficacy: Its Meaning, Measure, and Impact on Student Achievement." *American Educational Research Journal* 37(2): 479-507.

Greene, Jay P. 2005. *Education Myths: What Special Interest Groups Want You to Believe about Our Schools–And Why It Isn't So*. Lanham, MD: Rowman & Littlefield.

Guthrie, James P. 2001. "High-Involvement Work Practices, Turnover, and Productivity: Evidence from New Zealand." *Academy of Management Journal* 44(1): 180-190.

Haladyna, Thomas M. 2002. *Essentials of Standardized Achievement Testing: Validity and Accountability*. Boston, MA: Allyn & Bacon.

Hanushek, Eric A., and Steven G. Rivkin. 2006. "Teacher Quality." In *Handbook of the Economics of Education*, ed. Eric A. Hanushek and Finis Welch. Amsterdam: North-Holland.

Hastings, Justine S., and Jeffrey M. Weinstein. 2008. "Information, School Choice, and Academic Achievement: Evidence from Two Experiments." *Quarterly Journal of Economics* 123(4): 1373-1414.

Hastings, Justine S., Thomas J. Kane, and Douglas O. Staiger. 2005. "Parental Preferences and School Competition: Evidence from a Public School Choice Program." National Bureau of Economic Research Working Paper 11805.

Henig, Jeffrey R. 1996. "The Local Dynamics of Choice: Ethnic Preferences and Institutional Responses." In *Who Chooses? Who Loses? Culture, Institutions, and the Unequal Effects of School Choice*, ed. Bruce Fuller, Richard F. Elmore, and Gary Orfield. New York: Teachers College Press.

Hoorens, Vera. 1993. "Self-enhancement and Superiority Biases in Social Comparison." *European Review of Social Psychology* 4(1): 113-139.

Howell, William. 2006. "Switching Schools? A Closer Look at Parents' Initial Interest in and Knowledge About the Choice Provisions of No Child Left Behind." *Peabody Journal of Education* 81(1): 140-179.

Kelly, Janet M. 2003. "Citizen Satisfaction and Administrative Performance Measures: Is There Really a Link?" *Urban Affairs Review* 38(6): 855-866.

---. 2005. "The Dilemma of the Unsatisfied Customer in a Market Model of Public Administration." *Public Administration Review* 65(1): 76-84.

Licari, Michael J., William McLean, and Tom W. Rice. 2005. "The Condition of Community Streets and Parks: A Comparison of Resident and Nonresident Evaluations." *Public Administration Review* 65(3): 360-368.

Lyons, W.E., David Lowery, and Ruth Hoogland DeHoog. 1992. *The Politics of Dissatisfaction: Citizens, Services, and Urban Institutions*. Armonk, New York: M.E. Sharpe.

Martin, Stephen, and Peter C. Smith. 2005. "Multiple Public Service Performance Indicators: Toward an Integrated Statistical Approach." *Journal of Public Administration Research and Theory* 15(4): 599-613.

Maxwell, Nan L., and Jane S. Lopus. 1994. "The Lake Wobegon Effect in Student Self-Reported Data." *American Economic Review Papers and Proceedings* 84(2): 201-205.

McNeil, Linda M. 2000. *Contradictions of School Reform: Educational Costs of Standardized Testing*. New York: Routledge.

Meier, Kenneth J., and Laurence J. O'Toole, Jr. 2010a. "I Think (I am doing well), Therefore I Am: Assessing the Validity of Administrators' Self-assessments of Performance." Paper presented at the annual meeting of the Midwest Political Science Association, Chicago, April 22-25.

---. 2010b. "Organizational Performance: Measurement Theory and an Application: Or, Common Source Bias, the Achilles Heel of Public Management Research." Paper presented at the annual meeting of the American Political Science Association, Washington, September 1-5.

Miller, Thomas I., Michelle Miller Kobayashi, and Shannon Elissa Hayden. 2009. *Citizen Surveys for Local Government: A Comprehensive Guide to Making Them Matter*. 3rd ed. Washington: ICMA.

Myers, David G. 2002. *Intuition: Its Powers and Perils*. New Haven: Yale University Press.

New York City Department of Education. 2011a. "General Education Students Graduation Requirements." http://schools.nyc.gov/NR/rdonlyres/53FADF0D-D784-435E-8675-90E20624DAE1/0/2011GenEd.pdf [accessed November 4, 2011].

---. 2011b. "Performance & Accountability." http://schools.nyc.gov/Accountability/default.htm [accessed July 22, 2011].

New York State Education Department. 2011. "Violent and Disruptive Incidents - School Safety & Accountability." http://www.p12.nysed.gov/irs/vadir/vadir-accountability.html [accessed July 22, 2011].

New York State Testing and Accountability Reporting Tool. 2011. "New York State Report Cards." https://www.nystart.gov/publicweb/ [accessed July 22, 2011].

Parks, Roger B. 1984. "Linking Objective and Subjective Measures of Performance." *Public Administration Review* 44(2): 118-127.

Percy, Stephen L. 1980. "Response Time and Citizen Evaluation of Police." *Journal of Police Science and Administration* 8(1): 75-86.

---. 1986. “In Defense of Citizen Evaluations as Performance Measures.” *Urban Affairs Quarterly* 22(1): 66-83.

Poister, Theodore H., and James C. McDavid. 1978. “Victim’s Evaluations of Police Performance.” *Journal of Criminal Justice* 6: 133-149.

Popham, W. James. 1999. “Why Standardized Tests Don't Measure Educational Quality.” *Educational Leadership* 56(6): 8-15.

Priest, Thomas B., and Deborah Brown Carter. 1999. “Evaluations of Police Performance in an African American Sample.” *Journal of Criminal Justice* 27(5): 457-465.

Rainey, Hal G., Robert W. Backoff, and Charles H. Levine. 1976. “Comparing Public and Private Organizations.” *Public Administration Review* 36(2): 233-244.

Ross, John A. 1992. “Teacher Efficacy and the Effects of Coaching on Student Achievement.” *Canadian Journal of Education* 17(1): 51-65.

Schachter, Hindy Lauer. 2010. “Objective and Subjective Performance Measures: A Note on Terminology.” *Administration & Society* 42(5): 550-567.

Schneider, Mark, Paul Teske, and Melissa Marschall. 2000. *Choosing Schools: Consumer Choice and the Quality of American Schools*. Princeton: Princeton University Press.

Stipak, Brian. 1979a. “Are There Sensible Ways to Analyze and Use Subjective Indicators of Urban Service Quality?” *Social Indicators Research* 6(4): 421-438.

---. 1979b. “Citizen Satisfaction with Urban Services: Potential Misuse as a Performance Indicator.” *Public Administration Review* 39(1): 46-52.

---. 1980. “Using Clients to Evaluate Programs.” *Computers, Environment, and Urban Systems* 5(3-4): 137-154.

Swindell, David, and Janet M. Kelly. 2000. “Linking Citizen Satisfaction Data to Performance Measures: A Preliminary Evaluation.” *Public Performance & Management Review* 24(1): 30-52.

Tedin, Kent L., and Gregory R. Weiher. 2004. “Racial/Ethnic Diversity and Academic Quality as Components of School Choice.” *Journal of Politics* 66(4): 1109-1133.

Teske, Paul, Jody Fitzpatrick, and Gabriel Kaplan. 2006. “The Information Gap?” *Review of Policy Research* 23(5): 969-981.

Thorndike, Edward L. 1920. "A constant error in psychological ratings." *Journal of Applied Psychology* 4(1): 25-29.

U.S. Department of Education. 2004. "New No Child Left Behind Flexibility: Highly Qualified Teachers." http://www2.ed.gov/nclb/methods/teachers/hqtflexibility.html [accessed March 31, 2012].

Van Dunk, Emily, and Anneliese M. Dickman. 2003. *School Choice and the Question of Accountability: The Milwaukee Experiement*. New Haven: Yale University Press.

Van Ryzin, Gregg G., Stephen Immerwahr, and Stan Altman. 2008. "Measuring Street Cleanliness: A Comparison of New York City's Scorecard and Results from a Citizen Survey." *Public Administration Review* 68(2): 295-303.

Watson, Shirley Dendy. 1991. "A Study of the Effects of Teacher Efficacy on the Academic Achievement of Third Grade Students in Selected Elementary Schools in South Carolina." Ed.D. diss., South Carolina State College.

Wayne, Andrew J., and Peter Youngs. 2003. "Teacher Characteristics and Student Achievement Gains: A Review." *Review of Educational Research* 73(1): 89-122.

APPENDIX A

MISSING QUALITY REVIEWS

Table A-1
Logistic Regression Output for Quality Review Selection Bias Model

	b	se
Enrollment	-.083	(.155)
American/Alaskan Native	.155	(.135)
Black	-.005	(.005)
Hispanic	-.002	(.006)
Asian	.000	(.006)
Female	.007	(.012)
Remain at Year End	-.038	(.023)
Limited English	.001	(.009)
Recent Immigrants	.003	(.028)
Special Ed.	-.007	(.014)
Overage	-.024	(.041)
Temp. Housing	-.028	(.016)
Poverty Rate	-.019*	(.008)
Free Lunch	.006	(.006)
Reduced Lunch	.002	(.015)
Year 2008	3.367***	(.607)
Year 2009	-3.268***	(.225)
Elementary School	1.173***	(.272)
Middle School	.524**	(.201)
High School	.042	(.329)
Parent Response Rate	-.006	(.004)
Teacher Response Rate	.007	(.004)
Suspensions/Student	-.002	(.009)
Administrators/Teacher	-.009	(.007)
Avg. Class Size	.062	(.082)
Teacher Experience	.001	(.090)
Teacher Qualifications	-.053	(.082)
Teacher Turnover	-.005	(.082)
Attendance Rate	-.094**	(.032)
Student Performance	-.726***	(.181)
Progress Report	-.386***	(.098)
School Violence Index	.523	(.395)
(constant)	15.220***	(3.994)
Log Likelihood	-828.241	
Chi-squared	720 (p=.000, df=32)	
Correctly Classified	89.53%	
N	3267	

* p<.05, ** p<.01, *** p<.001

Table A-2

Parent Models 3-5 with Missing Quality Reviews Omitted

	Parent Model 3		*Parent Model 4*		*Parent Model 5*	
	b	**se**	**b**	**se**	**b**	**se**
Enrollment	-.180***	(.035)	-.179***	(.035)	-.186***	(.032)
American/Alaskan Native	.031	(.035)	.028	(.035)	.035	(.035)
Black	.004**	(.001)	.004**	(.001)	.004***	(.001)
Hispanic	.010***	(.001)	.009***	(.001)	.010***	(.001)
Asian	-.007***	(.001)	-.007***	(.001)	-.008***	(.001)
Female	.001	(.002)	.000	(.002)	.000	(.002)
Remain at Year End	.003	(.005)	.002	(.005)	.004	(.005)
Limited English	-.005*	(.002)	-.005*	(.002)	-.004*	(.002)
Recent Immigrants	.003	(.008)	.002	(.008)	.003	(.007)
Special Ed.	-.007*	(.003)	-.007*	(.003)	-.008*	(.003)
Overage	.020*	(.010)	.019*	(.009)	.013	(.010)
Temp. Housing	.004	(.005)	.004	(.005)	.008	(.006)
Poverty Rate	.000	(.001)	.000	(.001)	.001	(.002)
Free Lunch	.000	(.001)	.000	(.001)	-.000	(.001)
Reduced Lunch	-.008**	(.003)	-.008**	(.003)	-.008**	(.003)
Year 2008	.448***	(.028)	.446***	(.029)	.417***	(.025)
Year 2009	.498***	(.053)	.517***	(.052)	.370***	(.049)
Elementary School	.163**	(.061)	.156*	(.061)	.148*	(.062)
Middle School	-.177***	(.045)	-.165***	(.045)	-.114*	(.044)
High School	-.186*	(.078)	-.215**	(.079)	-.183*	(.077)
Parent Response Rate	.012***	(.001)	.012***	(.001)	.011***	(.001)
Suspensions/Student	-.009***	(.002)	-.006*	(.002)	-.006*	(.003)
Administrators/Teacher	-.003	(.002)	-.002	(.002)		
Avg. Class Size	-.033	(.018)	-.034	(.018)	-.035	(.019)
Teacher Experience	-.059**	(.021)	-.062**	(.021)		
Teacher Qualifications	-.001	(.016)	-.002	(.016)		
Teacher Turnover	-.040*	(.018)	-.036*	(.018)		
Attendance Rate	.045***	(.007)	.045***	(.007)	.046***	(.007)
Student Performance	.197***	(.035)	.179***	(.036)	.203***	(.036)
Progress Report	.157***	(.020)	.152***	(.020)	.162***	(.021)
Quality Review	.168***	(.021)	.166***	(.021)		
School Violence Index			-.293**	(.092)	-.304***	(.091)
Teacher Satisfaction					.165***	(.032)
(constant)	-4.708***	(.865)	-4.494***	(.859)	-4.291***	(.875)
Adj R-sqr	.649		.651		.641	
N	2388		2388		2388	

* p<.05, ** p<.01, *** p<.001

Table A-3

Teacher Models 3-5 with Missing Quality Reviews Omitted

	Teacher Model 3		*Teacher Model 4*		*Teacher Model 5*	
	b	**se**	**b**	**se**	**b**	**se**
Enrollment	-.181***	(.038)	-.178***	(.038)	-.175***	(.038)
American/Alaskan Native	.032	(.035)	.027	(.034)		
Black	-.006***	(.001)	-.006***	(.001)		
Hispanic	-.005***	(.002)	-.006***	(.002)		
Asian	-.005**	(.002)	-.005**	(.002)		
Female	.004	(.003)	.004	(.003)	.003	(.003)
Remain at Year End	.002	(.005)	.000	(.005)	-.001	(.005)
Limited English	-.001	(.003)	-.001	(.003)	.001	(.002)
Recent Immigrants	.008	(.009)	.007	(.009)		
Special Ed.	-.003	(.004)	-.003	(.003)	-.001	(.003)
Overage	.008	(.015)	.008	(.014)		
Temp. Housing	-.004	(.008)	-.005	(.008)	-.006	(.008)
Poverty Rate	-.001	(.002)	-.001	(.002)	-.005***	(.001)
Free Lunch	-.002	(.001)	-.001	(.001)	-.002*	(.001)
Reduced Lunch	-.006	(.004)	-.006	(.003)	-.007*	(.003)
Year 2008	.280***	(.035)	.276***	(.035)	.216***	(.036)
Year 2009	.311***	(.065)	.341***	(.065)	.281***	(.062)
Elementary School	-.119	(.070)	-.130	(.070)	-.190**	(.066)
Middle School	-.078	(.052)	-.058	(.053)	-.022	(.052)
High School	-.363***	(.079)	-.410***	(.080)	-.395***	(.081)
Teacher Response Rate	.007***	(.001)	.007***	(.001)	.006***	(.001)
Suspensions/Student	-.008***	(.002)	-.003	(.002)	-.003	(.002)
Administrators/Teacher	.000	(.002)	.001	(.002)	.001	(.002)
Avg. Class Size	.002	(.019)	-.001	(.018)	-.002	(.018)
Teacher Experience	.020	(.023)	.016	(.022)	.044*	(.022)
Teacher Qualifications	.045*	(.019)	.043*	(.019)	.052**	(.019)
Teacher Turnover	-.053**	(.018)	-.047**	(.017)	-.062***	(.017)
Attendance Rate	.010	(.010)	.010	(.010)	.005	(.007)
Student Performance	.256***	(.036)	.225***	(.036)	.257***	(.033)
Progress Report	.214***	(.021)	.206***	(.020)	.192***	(.020)
Quality Review	.253***	(.028)	.249***	(.028)	.251***	(.028)
School Violence Index			-.482***	(.098)	-.460***	(.096)
Parent Satisfaction					.155***	(.036)
(constant)	-.594	(1.030)	-.244	(1.020)	.245	(.904)
Adj R-sqr	.545		.551		.550	
N	2388		2388		2388	

* p<.05, ** p<.01, *** p<.001

APPENDIX B

FACTOR ANALYSES FOR CONCEPTUAL GROUPINGS

Table B-1
Safety - Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loading*
My child is safe at school.	0.93
My child's school is clean.	0.86
Discipline is enforced fairly at my child's school.	0.90
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.83
Students threaten or bully other students.	0.85
School staff are disrespectful to students.	0.88
There is racial or cultural bias by school staff.	0.85
There is conflict at my child's school based on race, culture, religion, sexual orientation, gender, or disabilities.	0.88
Students use alcohol or illegal drugs during school.	0.72
There is gang activity in my child's school.	0.83
Eigenvalue	7.30
Proportion	0.73
N	4369

Table B-2
Activities - Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loading*
My child participates in the following courses during the regular school day.	0.73
My child participates in the following school activities before or after school.	0.75
My child's school offers a wide enough variety of courses and activities to keep my child interested in school.	0.76
Eigenvalue	1.67
Proportion	0.56
N	4371

Table B-3
Parent Engagement - Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loading*
I feel welcome in my child's school	0.89
My child's school makes it easy for parents to attend meetings by holding them at different times of the day, providing an interpreter, or in other ways.	0.89
The school keeps me informed about my child's academic progress.	0.91
The school contacts me when my child breaks school rules.	0.83
The school contacts me to tell me about my child's achievements and successes.	0.93
How often have you: received information about what your child is studying in school?	0.89
How often have you: received information on services for your child or for you, such as: tutoring, after school programs, or workshops you can attend to help your child?	0.84
How often have you: been invited to a workshop, program, performance, or other event at your child's school?	0.79
How often have you: talked with a teacher or other adult at your child's school to share with them important information about your child's learning?	0.80
The school clearly communicates its expectations for my child's learning to me and my child.	0.93
How well your child's school communicates with you.	0.95
Your opportunities to be involved in your child's education.	0.95
Eigenvalue	9.39
Proportion	0.78
N	4371

Table B-4
Academics - Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loading*
The school has high expectations for my child.	0.88
My child's teacher(s) give helpful comments on homework, class work, and tests.	0.93
My child is learning what he/she needs to know to succeed in later grades or after graduating from high school.	0.95
The quality of your child's teacher(s) this year.	0.92
The education your child has received this year.	0.97
Eigenvalue	4.35
Proportion	0.87
N	4371

Table B-5
Safety - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
Order and discipline are maintained at my school.	0.91
I can get the help I need at my school to address student behavior and discipline problems.	0.84
I am safe at my school.	0.91
Crime and violence are a problem in my school.	0.91
Students in my school are often threatened or bullied.	0.91
Adults at my school are often disrespectful to students.	0.75
Most students at my school treat teachers with respect.	0.91
Most parents treat teachers at this school with respect.	0.76
Students' use of alcohol and illegal drugs in school is a problem at my school.	0.61
There are conflicts at my school based on race, culture, religion, sexual orientation, gender, or disability.	0.74
There is a person or a program in my school that helps students resolve conflicts.	0.55
Gang activity is a problem in my school.	0.76
My school is kept clean.	0.61
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.69
Eigenvalue	8.62
Proportion	0.62
N	4326

Table B-6
Activities - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
Which of the following courses or activities are available to students at your school - and when are they available during the day? Offered as a regular school activity/course.	0.78
Which of the following courses or activities are available to students at your school - and when are they available during the day? Offered before or after school or during free periods.	0.18
My school offers a wide enough variety of activities or courses to keep students at my school engaged.	0.82
Eigenvalue	1.32
Proportion	0.44
N	4324

Table B-7
Parent Engagement - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
Obtaining information from parents about student learning needs is a priority at my school.	0.90
Teachers and administrators in my school use information from parents to improve instructional practices and meet student learning needs.	0.90
My school communicates effectively with parents when students misbehave.	0.77
How often have you: communicated with students about their progress in class?	0.27
How often have you: communicated with parents about their children's progress in class?	0.54
How often have you: sent parents written information on what you are teaching and what students are expected to learn?	0.68
How often have you: sent home information on services to help students or parents such as: tutoring, after-school programs, or workshops adults can attend to help their children in school?	0.67
Eigenvalue	3.50
Proportion	0.50
N	4336

Table B-8
Teaching Workforce - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
Teachers in this school set high standards for student work in their classes.	0.78
To what extent do you feel supported by: other teachers at your school?	0.88
Teachers in this school respect teachers who take the lead in school improvement efforts.	0.91
Teachers in this school trust each other.	0.92
Teachers in this school recognize and respect colleagues who are the most effective teachers.	0.92
Most teachers in my school work together to improve their instructional practices.	0.91
Teachers in this school use student achievement data to improve instructional decisions.	0.78
Eigenvalue	5.32
Proportion	0.76
N	4336

Table B-9
Achievement-Oriented Culture - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
Curriculum, instruction, and assessment are aligned within and across the grade levels at this school.	0.92
My school has high expectations for all students.	0.93
My school has clear measures of progress for student achievement throughout the year.	0.95
This school makes it a priority to help students develop challenging learning goals.	0.97
This school makes it a priority to help students find the best ways to achieve their learning goals.	0.96
Eigenvalue	4.47
Proportion	0.89
N	4341

Table B-10
Parent Involvement - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
This year, what percentage of your students had at least one parent attend your Parent-Teacher Conferences?	0.93
How often have you: attempted to have a conversation with a parent but failed because you were not able to contact the parent or the parent did not respond or attend?	0.93
Eigenvalue	1.72
Proportion	0.86
N	4340

Table B-11
School Leadership - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
School leaders communicate a clear vision for this school.	0.94
School leaders let staff know what is expected of them.	0.93
School leaders encourage open communication on important school issues.	0.95
The principal places the learning needs of children ahead of other interests.	0.95
The principal is an effective manager who makes the school run smoothly.	0.95
I trust the principal at his/her word.	0.94
To what extent do you feel supported by: your principal?	0.95
The principal has confidence in the expertise of the teachers.	0.89
School leaders invite teachers to play a meaningful role in setting goals and making important decisions for this school.	0.91
School leaders encourage collaboration among teachers.	0.88
School leaders visit classrooms to observe the quality of teaching at this school.	0.79
School leaders give me regular and helpful feedback about my teaching.	0.89
School leaders place a high priority on the quality of teaching at this school.	0.92
Eigenvalue	10.92
Proportion	0.84
N	4338

Table B-12
Resources - Factor Analysis of Teacher Survey Responses

Survey Item	*Factor Loading*
This year, I received helpful training on the use of student achievement data to improve teaching and learning.	0.87
The professional development I received this year provided me with content support in my subject area.	0.91
The professional development I received this year provided me with teaching strategies to better meet the needs of my students.	0.92
I have sufficient materials to teach my class(es), including: books, audio/visual equipment, maps, and/or calculators.	0.84
My instructional materials are in good condition.	0.86
Eigenvalue	3.88
Proportion	0.78
N	4341

Table B-13
Safety - Factor Analysis of Student Survey Responses

Survey Item	*Factor Loading*
I stay home because I don't feel safe at school.	0.64
Students threaten or bully other students at school.	0.82
Students get into physical fights at my school.	0.87
Adults at my school yell at students.	0.75
There is conflict in my school based on race, culture, religion, sexual orientation, gender, or disabilities.	0.84
Students use alcohol or illegal drugs while at school.	0.57
There is gang activity in my school.	0.84
There is a person or program in my school that helps students resolve conflicts.	0.69
Discipline in my school is fair.	0.86
I am safe in my classes.	0.95
I am safe in the hallways, bathrooms, and locker rooms at my school.	0.96
I am safe on school property outside my school building.	0.91
My school is kept clean.	0.87
The presence and actions of School Safety Agents help to promote a safe and respectful learning environment.	0.77
Eigenvalue	9.34
Proportion	0.67
N	2621

Table B-14
Activities - Factor Analysis of Student Survey Responses

Survey Item	*Factor Loading*
During this school year, have you taken or had a chance to take a class in the following subjects?	0.77
During this school year, which of the following activities did you participate in either before or after school or during free periods?	0.85
My school offers a wide enough variety of classes and activities to keep me interested in school.	0.70
Eigenvalue	1.81
Proportion	0.60
N	2621

Table B-15
Academics - Factor Analysis of Student Survey Responses

Survey Item	*Factor Loading*
I need to work hard to get good grades at my school.	0.57
My school helps me to develop challenging academic goals.	0.71
How often have your teachers asked you to: Complete an essay or research project using multiple sources of information?	0.67
How often have your teachers asked you to: Complete an essay or project where you had to use evidence to defend your own opinion or ideas?	0.70
In how many classes in the past 2 weeks have you: worked in groups of 2 to 6 students?	0.80
In how many classes in the past 2 weeks have you: had whole-class discussions?	0.80
In how many classes in the past 2 weeks have you: participated in hands-on activities such as science experiments?	0.74
Eigenvalue	3.58
Proportion	0.51
N	2619

Table B-16
Teachers and Other Adults - Factor Analysis of Student Survey Responses

Survey Item	*Factor Loading*
Most of the teachers, counselors, school leaders, and other adults I see at school every day know my name or who I am.	0.64
The adults at my school look out for me.	0.91
The adults at my school help me understand what I need to do to succeed in school.	0.92
My teachers encourage me to succeed.	0.93
Someone at my school helps me understand what courses I need to be promoted to the next grade or graduate.	0.78
My teachers expect me to continue my education after high school.	0.84
How COMFORTABLE are you talking to teachers and other adults at your school about: a problem you are having in class?	0.84
How COMFORTABLE are you talking to teachers and other adults at your school about: something that is bothering you?	0.83
How AVAILABLE are teachers and other adults at your school to talk about: a problem you are having in class?	0.86
How AVAILABLE are teachers and other adults at your school to talk about: something that is bothering you?	0.89
Teachers in my school treat students with respect.	0.87
Adults in my school treat each other with respect.	0.87
My teachers enjoy the subjects they teach.	0.89
My teachers inspire me to learn.	0.86
My teachers give me extra help when I need it.	0.90
My teachers connect what I am learning to life outside the classroom.	0.91
Eigenvalue	11.84
Proportion	0.74
N	2620

Table B-17
Student Respect - Factor Analysis of Student Survey Responses

Survey Item	*Factor Loading*
Students who get good grades in my school are respected by other students.	0.92
Most students in my school treat teachers with respect.	0.95
Most students in my school help and care about each other.	0.96
Most students in my school just look out for themselves.	0.80
Most students in my school treat each other with respect.	0.97
Eigenvalue	4.26
Proportion	0.85
N	2621

Table B-18
Parent Involvement - Factor Analysis of Parent Survey Responses

Survey Item	*Factor Loading*
What are the BEST ways for your child's school or teachers to get information to you about your child's education?	
Parent Association, Parent Teacher Association, or similar meetings	0.67
Paper sent home with your child	0.67
School bulletin board	0.74
Parent Coordinator	0.46
Parent Teacher Conferences	0.70
Other parents	0.68
Eigenvalue	2.62
Proportion	0.44
N	4371

CONTACT INFORMATION

Name:	Nathan Bradley Favero
Professional Address:	c/o Dr. Kenneth J. Meier Department of Political Science 2033 Allen Building 4348 TAMU College Station, TX 77843
Email Address:	nate.favero@gmail.com
Education:	B.S., Political Science, Texas A&M University, May 2012 Summa Cum Laude Honors Undergraduate Research Fellow Phi Beta Kappa