Transforming an Urban School System

Progress of New Haven School Change and New Haven Promise Education Reforms (2010–2013)

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Preface

In 2009, the City of New Haven and New Haven Public Schools (NHPS) announced a sweeping K–12 educational reform, New Haven School Change. The district had three primary goals for School Change: (1) close the gap between the performance of NHPS students' and Connecticut students' averages on state tests, (2) cut the high school dropout rate in half, and (3) ensure that every graduating student has the academic ability and the financial resources to attend and succeed in college. As a complement to School Change, the City of New Haven partnered with the Community Foundation *for* Greater New Haven, NHPS, and Yale University in 2010 to create New Haven Promise, a scholarship program that offers funding toward postsecondary education to eligible New Haven residents who attend NHPS schools. It aims to improve the postsecondary enrollment and graduation rates of NHPS graduates as a way to enhance the economic development of the city, attract more residents to New Haven, reduce crime and incarceration, and improve residents' quality of life. The 2010–2011 school year marked the first year of a staged implementation for New Haven School Change and New Haven Promise: School Change is designed to be fully implemented in 2015–2016; the graduating high school class of 2014 was the first cohort of students that was eligible for the full Promise stipend.

   In June 2013, the New Haven Promise Board of Directors asked the RAND Corporation to conduct a study to document and describe baseline conditions and early progress NHPS and New Haven Promise have made to date in improving student educational outcomes. This project was funded by a grant to New Haven Promise from the Peter

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Background

In 2009, the City of New Haven and New Haven Public Schools (NHPS) announced the start of a set of educational reforms within the district to improve schooling experiences and outcomes for students: the School Change Initiative (School Change). By design, School Change is being implemented in stages over five years, with components of the reform starting at different points. Launched in the 2010–2011 school year, the 2013–2014 school year marked its fourth year of implementation. It is organized into three pillars: portfolio of schools, talent, and community and parent engagement. The three pillars are designed to work together to help NHPS achieve three reform-level goals:

- eliminate the achievement gap, bringing NHPS students to the state averages on the Connecticut Mastery Test (CMT) and Connecticut Academic Performance Test (CAPT) within five years
- cut the high school dropout rate in half
- ensure that every graduating student has the academic ability and the financial resources to attend and succeed in college.

Portfolio of Schools Pillar

The vision of the portfolio of schools pillar is that "each school will be organized and supported to its own unique path to success" (NHPS, undated a). To meet this vision, the portfolio of schools pillar has five core components that started in the 2010–2011 school year:

- **the School Learning Environment (SLE) survey**—This annual survey administered to students, teachers, school staff, and parents asks questions about each school's climate.
- **school tiering**—The district organizes schools into three tiers based on a school's average responses from students, parents, teachers, and school staff on the SLE survey; students' growth and percentage scoring proficient and above on state test scores; and for high schools, the college enrollment rates of high school graduates two years after graduation and the high school's five-year cohort graduation rate. Schools in tier I are deemed consistently high performing on most measures and are given more site-based autonomy for decisionmaking; schools in tier II have mixed results or low growth rates in student performance and receive moderate support; schools in tier III are chronically underperforming and receive extra support, possibly even staff restructuring. Tiering is intended to measure performance of schools and to mobilize district resources toward improving schools that are defined as lower performing (NHPS, 2010b).
- **school improvement plans**—Schools create individualized plans to improve the educational conditions within the schools (levels of decisionmaking autonomy for school administrators and guidelines are based on the tier in which the school is placed).
- **turnaround schools**—The development and implementation of transformation plans and interventions for struggling schools (the schools that are determined to be in "tier II—improvement" or "tier III—turnaround").
- **the central office survey**—A survey administered to principals and assistant principals to gauge the quality of the management, tools, and support that school-based administrators receive from the district's central office

Talent Pillar

The vision of the talent pillar is that "teachers, administrators, and staff will be managed as professionals to encourage collaboration, empowerment, and responsibility for outcomes, enabling the district to attract,

develop, and retain the highest caliber staff" (NHPS, undated a). The talent pillar has two core components:

- **evaluation and feedback to support the professional growth of educators within NHPS**—The district utilizes evaluation systems for teachers (the Teacher Evaluation and Development System [TEVAL]), school leaders (the Principal Evaluation and Development System [PEVAL]), and central office staff (Central Office Evaluation and Development System [CEVAL]) to identify strengths and weaknesses of each staff member, provide differentiated opportunities for professional development, and guide human resources actions.
- **recruitment**—The district endeavors to find the best matches between people and positions and to develop all district employees to their full potential. Recruitment includes the following efforts: differentiated professional development, new teacher mentoring and support, (minority) teacher recruiting, teaching leadership programs, and leadership pipeline programs (e.g., Achievement First's Residency Program for School Leadership).

Parent and Community Engagement Pillar
The vision for the parent and community engagement pillar is that "the school system will coordinate as closely as possible with parents, community organizations, and others who work on behalf of students" (NHPS, undated a). The parent and community engagement pillar includes three components:

- Boost!—a United Way of Greater New Haven program that strengthens social support structures for students
- Citywide Parent Leadership Team
- New Haven Promise
- other programs in development at the time of this study: wellness initiative and school food, report card nights, parent university.

Concurrent with School Change, the City of New Haven, NHPS, and the Community Foundation *for* Greater New Haven launched

New Haven Promise in 2010. New Haven Promise is a scholarship program that complements the School Change reform; although it is not a NHPS central office program, the district places New Haven Promise under the community and parent engagement pillar as an important effort to support district students. Promise covers up to full tuition for New Haven residents graduating from NHPS or city charter high schools to attend Connecticut public colleges and universities or up to $2,500 annually to attend in-state Connecticut private non-profit colleges and universities. New Haven Promise is designed to be an eight-year program (9th grade through graduation from a four-year college or university) and offers a variety of services to improve high school students' knowledge about the college and financial aid application process. To maintain the Promise scholarship while in college, a Promise Scholar must maintain a grade point average (GPA) of 2.0.

Promise aims to improve the postsecondary enrollment and graduation rates of NHPS graduates as a way to enhance the economic development of the city, attract more residents to New Haven, reduce crime and incarceration, and improve residents' quality of life. It has the following specific goals:

- promote college education as an aspiration for all NHPS students
- assist graduating students from New Haven to pursue education after high school
- enhance the growth, stability, and economic development of the City of New Haven.

To be eligible for the scholarship, students must meet the following criteria:

- be a resident of the City of New Haven and attend a NHPS school (or a city-approved public charter school)
- have a positive disciplinary record (no expulsions)
- complete 40 hours of community service in high school (grades 9–12)
- have 90-percent attendance or better in high school (grades 9–12)
- obtain a cumulative 3.0 GPA in high school (grades 9–12)
- complete a Promise scholarship application form.

Purpose of This Report

In June 2013, the New Haven Promise Board asked the RAND Corporation to analyze the progress School Change and Promise have made toward achieving their goals by documenting patterns and trends in key indicators of student and school success.[1] At the time of this study (2013–2014), some components of School Change and Promise had been implemented since the efforts' inception in 2010–2011 (e.g., the SLE survey, the tiering process, and the TEVAL system); others were still being designed or were just beginning to occur (e.g., Citywide Parent Leadership Team). NHPS and the Promise board can use the analyses from this study as a baseline against which to compare the results of future analyses that can be conducted by an external evaluator or tracked by district or Promise staff to monitor progress.

It was outside our scope to assess the implementation of School Change—to determine *how* efforts were working within schools or within the district's central office. We also did not evaluate or determine whether the reforms are meeting their goals. Given that both School Change and Promise were in the midst of designing and implementing components of each initiative at the time of the study, an evaluation of whether the reform efforts are meeting their goals or are successful will not be appropriate until each initiative has been in place for a few years. This will allow students, parents, school staff, teachers, district staff, and the broader educational stakeholder community to experience stable reform initiatives, rather than ones in flux.

Analytic Approach and Data Sources

We conducted two analytic tasks and utilized a wide range of data sources, employing both qualitative and quantitative methodologies, to document trends in key outcomes:

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[1] The project had two other objectives not presented in this report: assess the extent to which Promise was meeting the needs of parents and NHPS students through a process evaluation and design a template for a web-based tool for Promise to communicate progress of NHPS and New Haven Promise educational indicators annually to the public.

1. **Examine trends in school climate, learning environment, school safety, and engagement.** For this task, we examined NHPS students', teachers', and parents' perspectives on school climate. We relied on student and teacher SLE survey results from each year the survey was administered (2009–2010 through 2012–2013) and comments from Promise Scholars and parents of Promise Scholars in focus groups we conducted in fall 2013.

2. **Analyze NHPS district educational outcomes to measure the progress the school system has made since the inception of School Change and Promise in the 2010–2011 academic year.** For this task, we compared trends in state student achievement test scores (CMT and CAPT), high school dropout rates, and postsecondary institution enrollment rates before and after the inception of the reforms. We also compared the district's test scores with those from comparable Connecticut districts.

Since School Change and Promise are being implemented largely at the same time with similar intentions, it is difficult to analytically discern the distinct contribution of each effort to each outcome. Because School Change and Promise are not being implemented with a random selection of students, school staff, or schools across NHPS, we implemented a quasi-experimental evaluation design to assess whether any changes in outcomes can be associated with School Change or Promise. Quasi-experimental research designs can control for observable student background and some economic conditions. However, the lack of experimental control and randomization precludes our being able to attribute any changes through time as explicitly a cause of the reforms.

To conduct the above analyses, we relied on the following sources of data:

1. teacher and student SLE surveys NHPS administered in the spring of academic years 2009–2010, 2010–2011, 2011–2012, and 2012–2013

2. focus group discussions with 35 Promise Scholars and 21 parents of Promise Scholars (parents were not necessarily the parents of Promise Scholars who participated in focus groups), which took place over two weeks in October and November 2013, exploring students' and parents' attitudes, perceptions, and levels of satisfaction with the Promise and School Change initiatives and the support they receive from NHPS high school teachers and administrators, as well as the Promise Scholars' sense of readiness and expectations for college and their post–college graduation plans.
3. Connecticut Department of Education student assessments (CMT and CAPT) in reading and mathematics
4. NHPS and Connecticut Department of Education dropout rate data
5. National Student Clearinghouse Student Tracker data on college enrollees
6. NHPS TEVAL data from 2010–2011, 2011–2012, and 2012–2013
7. NHPS administrative data on student characteristics and teacher characteristics from 2006–2007 through 2012–2013.

School Change and Promise Are Making Progress Toward Meeting Their Goals

- NHPS's SLE survey data indicate that students' and teachers' perceptions of school climate have been relatively positive through the years, ranging from between 3 and 4 on a scale from 1 to 5, with 5 being the most positive rating.
- On average, students' and teachers' SLE responses were positively related to a school's average TEVAL score: The higher the percentage of teachers deemed "strong" or "exemplary," the more positive the students' and teachers' perceptions were about a school's climate.
- We found that students' and teachers' perceptions of school climate improved from the first year of the administration of the

SLE (2009–2010) to the next (2010–2011) but then typically remained flat or did not change significantly thereafter.

- On average, students and teachers in tier I schools reported higher SLE scores than those in tier III schools. This is not surprising; we would expect a significant difference in SLE responses for schools in different tiers in the first year of School Change, given that average SLE is used as part of a school's tier decision.
- Average reading and math test scores (as measured with the CMT and CAPT assessments) *improved* in the first three years of the reform for students in tier III schools.
- Dropout rates in tier III schools *improved* and were on par with dropout rates in other districts with similar sociodemographic and achievement profiles.
- The percentage of graduating high school students eligible for Promise scholarships *increased* through time, and college enrollment for all students *slightly increased* on average—regardless of whether students were eligible for Promise. This suggests that college-going attitudes among all NHPS students and their parents have been improving since the inception of Promise in 2010.
- In focus groups, parents and Promise Scholars noted that Promise opened postsecondary opportunities: Promise Scholars considered applying to more-selective colleges and then reported being able to live on campus, rather than at home, thanks to Promise scholarships.

Areas in Which NHPS Remains in Need of Improvement

- Students in NHPS still lagged considerably behind the rest of the state in both math and reading test scores as measured on the CMT and CAPT.
- Most students and teacher SLE responses did not change significantly through the years: Schools defined as tier III in 2010–2011, the first year of tiering, continued to have significantly lower average SLE scores than schools in tier I, even when controlling for school characteristics, such as the percentage of the student body

being eligible for free or reduced-price lunches or average math test scores.

- Promise Scholars in our focus groups noted changes in school climate when they were in high school but did not perceive specific changes in teachers' instruction, learning environment, or school safety. (However, we did not conduct independent objective observations of instruction or school climate to corroborate students' perspectives.)
- Parents of Promise Scholars in our focus groups reported not feeling that the schools their children attended or the district as a whole was more welcoming. Neither did they report that the district had made them feel more engaged since the inception of School Change. Even though the SLE survey probed parents for feedback, parents believed that the questions were vague and that the survey was not timely, given that it was first administered after the inception of School Change. Moreover, parents in our focus groups reported that there was no established system in place to smoothly facilitate parent involvement in schools—especially in the larger schools.
- Promise Scholars in our focus groups did not feel fully prepared for college-level coursework, even after the School Change reform efforts that had been put in place. Scholars specifically mentioned struggling with study skills, time management, and self-discipline—skills that only a handful of Promise Scholars said they learned in high schools. (However, we did not ask respondents for their GPAs or coursework in high school to determine differences across Promise Scholars in preparation.)

Concluding Remarks

The study summarized in this report tracked baseline trends to provide information that will allow NHPS, NHPS Board of Education, the New Haven Promise Board of Directors, and the broader City of New Haven community to determine, at a later date, whether the reform is meeting its goals. As the city and school district continue on the path

to reform the school system, measuring the progress of change and whether School Change and Promise are meeting expected outcomes is an important step. With knowledge about how well these reforms are doing, the extent to which expectations are being met, and how well internal organizational processes are performing, NHPS and Promise staff will be in a strong place to make any necessary midcourse corrections to improve the success of School Change and Promise and to leverage areas that are working well.

Acknowledgements

Background

Structure of the New Haven Public Schools' School Change Reform Initiative

The City of New Haven and New Haven Public Schools (NHPS) have embarked on improving schooling for the students the district serves through a comprehensive and sweeping K–12 school reform, the School Change Initiative (School Change), which was announced in 2009. The 2010–2011 school year marked the initiative's first year with the launch of the Teacher Evaluation and Development System (TEVAL)—created in collaboration with the local teacher's union, the New Haven Federation of Teachers—a school climate survey, and a process to support schools deemed to be in the most need, among other programmatic efforts. School Change's programs are being implemented incrementally over five years, with the goal of having a fully established education reform in the 2015–2016 school year.

School Change is organized into three pillars: portfolio of schools, talent, and community and parent engagement. While each of the three pillars has distinctive operations, resources, and short-term objectives, all three are designed to work together to help NHPS achieve three reform-level goals:

- eliminate the achievement gap, bringing NHPS students in line with state averages on the Connecticut Mastery Test (CMT) and Connecticut Academic Performance Test (CAPT) within five years
- cut the high school dropout rate in half

- ensure that every graduating student has the academic ability and the financial resources to attend and succeed in college.

Figure 1.1 illustrates the structure of School Change. The three pillars on the left consist of the programs and initiatives NHPS has developed with the intention of producing the reform goals on the right. All these efforts can be affected by external factors outside of the control of the district. Therefore, Figure 1.1 also lists possible external factors that could be operating alongside the School Change programs and efforts that might affect the progress these initiatives make toward the intended goals. Specific programs are organized according to which aspect of the reform they reinforce.

Figure 1.1
The Structure of the School Change Initiative

Pillars	Reform goals
Portfolio of schools pillar	Eliminate the achievement gap
Talent pillar	Cut the high school dropout rate in half
Parent and community engagement pillar	Ensure that every graduating student has the *academic ability* and the *financial resources* to attend and succeed in college

External factors (for example):
- National and state economic conditions
- Status of federal financial aid for postsecondary education (loans and scholarships)
- Status of federal policies supporting local education agencies (districts)
- Movement of businesses in or out of New Haven region

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Portfolio of Schools Pillar

The vision of the first pillar, portfolio of schools, is that "each school will be organized and supported to its own unique path to success" (NHPS, undated a). This pillar has five core components. The first is the evaluation of each school's climate, as measured through the School Learning Environment (SLE) survey. Starting in spring of the 2009–2010 academic year, this survey has been administered annually to students, parents, school staff, and teachers. SLE questions are organized into five domains: (1) academic expectations, (2) collaboration, (3) communication, (4) engagement, and (5) safety and respect (NHPS, 2010b).

The second component is school tiering, a process to organize schools into one of three categories, called *tiers*. School tiering is intended to provide a fair and transparent measure to help NHPS stakeholders (defined as teachers, administrators, parents, students, and the community) understand the performance of schools and to mobilize district resources toward improving schools that are defined as lower performing (NHPS, 2010b). A school's tier is determined by the superintendent, based on the following information for elementary and middle schools: [1]

- **student progress**—average growth of students' results on the CMT in math, reading, and writing relative to other students with similar academic histories
- **student performance**—percentage of students scoring at or above proficient on the CMT in math, reading, writing, and science (three-year weighted average)
- **school environment**—an average score of student, teacher, and parent responses on the SLE survey.

A high school's tier is based on the following information:

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[1]   Student progress and student performance for elementary and middle schools are calculated as the weighted average of three years of data, where the current year is 50 percent and the prior two years are each 25 percent. In 2010–2011, CMT Science (assessed in grades 5 and 8 only) was added to the student performance measure (NHPS, 2010a; NHPS, 2010b).

- **student progress and outcomes** (relative to the academic level of incoming 9th grade students, defined as the percentage of a cohort scoring proficient or above on the 8th grade CMT): [2]
  - *high school graduation trajectory*—percentage of a cohort on track for high school graduation (9th–11th grade) or graduating high school within four years (by 12th grade)
  - *college success rate*—percentage of a cohort enrolling in a second year of college within two years of high school graduation
- **school environment**—an average score of student, teacher, and parent responses on the SLE survey.

Tier I schools are defined as those that experienced high growth and performance. Tier II schools experienced moderate growth and performance or mixed results. Tier III schools are considered to be underperforming (NHPS, 2010b). Schools were first tiered in fall 2010, using data from the previous school years (NHPS, 2010a; NHPS, 2010b). At that time, six schools were placed in tier I (five elementary and middle schools and one high school), 20 schools were placed in tier II (13 elementary and middle schools and seven high schools), and 16 schools were placed in tier III (11 elementary and middle schools and five high schools). Tier I and tier II schools have more autonomy to make site-based decisions, while tier III schools receive intensive support from the district and, in some cases, more extreme intervention, such as restructuring staff (NHPS, 2010b).

The third component of the school pillar is school improvement planning, in which all schools, regardless of tier, undertake a process to outline academic goals for the year and devise a plan to reach them. Schools started developing school improvement plans in 2009–2010 and continued to develop and revise them in 2010–2011 (NHPS, 2010b).

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[2]   Unlike elementary and middle school tiering measures, high school tiering measures are not calculated as three-year rolling averages because the measures reflect multiple years of a trajectory. The high school graduation rate (12th grade trajectory) accounts for 50 percent, and the combined 9th, 10th, and 11th grade percents making adequate progress account for the remaining 50 percent (NHPS, 2010a and 2010b).

The fourth component is turnaround schools, in which a handful of high-need, low-performing tier II and tier III schools were selected to undergo intensive interventions from the district. In addition to developing a school improvement plan, designated turnaround schools were to craft a transformation plan in concert with the district.

The fifth component is the central office survey, an annual survey first administered in spring 2010 to school principals and vice principals. Its purpose is to gauge the quality of the management, tools, and support that school administrators receive from the district's central office.

Talent Pillar

The vision of the talent pillar is that "teachers, administrators, and staff will be managed as professionals to encourage collaboration, empowerment, and responsibility for outcomes, enabling the district to attract, develop, and retain the highest caliber staff" (NHPS, undated a) to build an increasingly effective workforce over time.

The first component of this pillar is evaluation and feedback to support the professional growth of educators within NHPS, which includes teachers (TEVAL), school leaders (Principal Evaluation and Development System [PEVAL]), and central office staff (Central Office Evaluation and Development System [CEVAL]). These evaluations are used to identify strengths and weaknesses of each staff member, provide differentiated opportunities for professional development, and guide human resource actions. TEVAL was designed in January 2010 (PEVAL and CEVAL were designed shortly thereafter) and first implemented in the 2010–2011 school year. In TEVAL, teachers are evaluated by an assigned "instructional manager," typically the school principal or someone the principal has assigned, such as a vice principal or a teacher leader. Ratings are based on information compiled during three conferences set up between teachers and the instructional manager. The first conference sets goals and discusses available professional development opportunities. The second is a midyear check-in. The third is an end-of-year summative conference in which instructional managers compile the information from the year to produce a final rating.

Instructional managers rate teachers along a five-point continuum: 5 is Exemplary; 4 is Strong; 3 is Effective; 2 is Developing; and 1 is Needs Improvement. Exemplary teachers are eligible for teacher leadership positions. Teachers identified as needing improvement receive development opportunities, including a written plan for improvement and additional required professional development. If they do not improve within one year of the initial rating, they are subject to immediate (i.e., end-of-the-school-year) sanctions. Developing teachers also receive development opportunities, with a goal of improving sufficiently to move into the Effective category within one complete school year. Instructional managers use three sources of information to determine a teacher's rating:

1. growth of students' learning relative to peers with a similar academic history, measured through results on state and district assessments and through analysis of portfolios of students' work and other relevant student data
2. formal and informal observations of instructional practice throughout the school year
3. judgment of the teacher's professional values, specifically
    a. collaboration and collegiality
    b. self-improvement
    c. reliability
    d. high expectations
    e. respect
    f. responsiveness and outreach
    g. professionalism and judgment.

In the first conference of the school year, teachers whose instructional managers foresee that they will be rated either Exemplary or Needs Improvement will undergo a "peer validation process" in which a non-district educational expert (contracted by the district in consultation with the New Haven Federation of Teachers) jointly conducts multiple observations of instructional practice between November 1 and March 31 of that year.[3]

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[3]   For more information about the TEVAL system, see NHPS, undated b.

The second component of the talent pillar is recruitment and development: finding the best matches between people and positions and developing all district employees to their full potential. This pillar includes differentiated professional development, new teacher mentoring and support, (minority) teacher recruiting, teaching leadership programs, and leadership pipeline programs (e.g., Achievement First's Residency Program for School Leadership)

Parent and Community Engagement Pillar

The vision for the parent and community engagement pillar is that "the school system will coordinate as closely as possible with parents, community organizations, and others who work on behalf of students" (NHPS, undated a). This pillar includes three key initiatives. The first is Boost!, a United Way of Greater New Haven program that strengthens social support structures for students. The second is the Citywide Parent Leadership Team, which includes representatives of the parent-teacher organization leadership at each school, who meet regularly to offer input to the district. The third is New Haven Promise (Promise), described in more detail in the following section. Other programs listed in district documentation as part of this pillar—the wellness initiative and school food, report card nights, parent university—were still being developed at the time of this study.

Table 1.1 summarizes the programs and activities associated with each pillar at the time of this study.

Structure of New Haven Promise

Recognizing that many capable students might need financial or social support to enter and graduate from college and wanting to further galvanize community support for the education of NHPS graduates, the City of New Haven, NHPS, and the Community Foundation *for* Greater New Haven launched Promise in 2010. Promise is a scholarship program that complements the district's School Change reform; although it is not a NHPS central office program, it falls under the community and parent engagement pillar as an important effort to

Table 1.1
Programs and Activities Associated with School Change Reform Pillars, 2010–2013

School Pillar[a]	Talent Pillar	Community Engagement

SLE survey: An annual survey administered to students, teachers, school staff, and parents that asks questions about each school's climate	**Evaluation and feedback**
	  TEVAL: teachers
	  PEVAL: school leaders
	  CEVAL: central office staff
		Boost![b]
		
		New Haven Promise
		
		Citywide Parent Leadership Team

School tiering: The district organizes schools into tiers based on schools' results on the SLE survey, students' growth, and the percentage of them scoring proficient or above on state test scores	**Professional development, recruiting, hiring, and placement** • Differentiated professional development • New teacher mentoring and support • (Minority) teacher recruiting • Teaching leadership programs • Leadership pipeline programs (e.g., Achievement First; Residency Program for School Leadership)	
School improvement plans: Schools create individualized plans to improve the educational conditions within the schools (level of decisionmaking autonomy for school administrators and the guidelines are based on the tier in which the school is placed)		
Turnaround schools: The development and implementation of transformation plans and interventions for struggling schools (the schools that are determined to be in "tier II—improvement" or "tier III—turnaround")		
Central office survey: A survey administered to principals and assistant principals to gauge the quality of the management, tools, and support that school-based administrators receive from the district's central office		

SOURCE: NHPS, 2013.

[a] Other activities within the school pillar that were just launching at the time of this study include site-based budgeting, attendance teams, new schools (such as the Gateway Technical Institute), and the development of an intraschool equity working committee.

[b] Boost! offers wraparound services to a selection of schools and is sponsored by the United Way.

support district students. The high school graduating class of 2011 was the first to be eligible to receive Promise scholarship funds.

As a place-based scholarship program, Promise aims to improve the postsecondary enrollment and graduation rates of NHPS graduates as a way to enhance the economic development of New Haven, attract more residents to the city, reduce crime and incarceration, and improve residents' quality of life. It has the following specific goals:

- cultivate an aspiration for a college education in New Haven public school students
- build community and parent engagement
- promote economic development in the City of New Haven.[4]

Promise covers up to full tuition for New Haven residents graduating from NHPS or a city-approved public charter high school to attend Connecticut public colleges and universities or up to $2,500 annually to attend in-state Connecticut private nonprofit colleges and universities. Promise is designed to be an eight-year program (9th grade through graduation from a four-year college or university) and offers a variety of services to improve high school students' knowledge about the college and financial aid application processes. To retain a Promise scholarship while in college, the student must maintain a grade-point average (GPA) of 2.0.

To be eligible for the scholarship, students must meet the following criteria:

- be a resident of the City of New Haven and attend a NHPS school or a city-approved public charter school (note that the scholarship amount available for a student depends on the number of years a student is enrolled in New Haven public schools and resides in the City of New Haven)
- have a positive disciplinary record (no expulsions)
- complete 40 hours of community service in high school (grades 9–12)

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[4] From New Haven Promise, undated.

- meet 90-percent attendance or better in high school (grades 9–12)
- obtain a cumulative 3.0 GPA in high school (grades 9–12).

Over the first three years of Promise (for students graduating high school in 2011, 2012, and 2013), the amount of scholarship funds available increased gradually. Students graduating high school in spring 2014 were the first students eligible to receive 100 percent of the scholarship benefit, and 2013–2014 is considered the first year of the full implementation of Promise, as it was designed. Prior to the Class of 2014, each graduating class was eligible for funds based on a specific formula: The Class of 2011 was eligible for up to 25 percent of the scholarship, with scholarship eligibility requirements applying only to the students' senior year (rather than an average of all four years of high school). The Class of 2012 was eligible for up to 50 percent of the scholarship, with the requirements applying to the students' senior and junior years. The Class of 2013 was eligible for up to 75 percent of the scholarship, with the requirements applying to the students' senior, junior, and sophomore years.

Figure 1.2 illustrates Promise's structure.

Objectives of This Project: Gauging Early Progress of School Change and New Haven Promise

The Board of Directors of New Haven Promise oversees the monitoring and evaluation of School Change. In June 2013, the Promise board asked the RAND Corporation to assess the progress School Change and Promise had made toward their goals by documenting patterns and trends in key educational outcomes since the inception of the reforms in 2010–2011. Because they had been in operation for only a short time (three years at the time of the study) and because they had been specifically designed to implement individual components strategically over five years (2010 to 2015 for School Change) and over four years (2010 to 2014 for Promise), the Promise board determined it was necessary to gather evidence of short-term progress through an initial research effort.

Figure 1.2
The Structure of New Haven Promise

New Haven Promise	→	New Haven Promise goals	→	Longer-term city and community changes
Scholarships for postsecondary education		Cultivate an aspiration for a college education in New Haven public school students		Promote economic development of the city
Support services to build knowledge about college and financial aid application process		Build community and parent engagement		

External factors (for example):
• National and state economic conditions
• Status of federal financial aid for postsecondary education (loans and scholarships)
• Status of federal policies supporting local education agencies (districts)
• Movement of businesses in or out of New Haven region

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An Evaluation Is Integral to Decisionmaking and Continual Improvements

Evaluation is a systematic process for understanding what a program, initiative, or reform does and how well it is doing it. Evaluations are useful and important tools for addressing the need for credible information, well-grounded decisionmaking, and transparency. Well-planned and well-conducted evaluations are invaluable in determining how an education program can be improved. Evaluation is an integral part of an ongoing cycle of program planning and development, implementation, and improvement (Patton, 1987), producing evidence about

- how well programs and policies are working
- whether they are achieving their objectives
- why they are or are not effective.

A high-quality program evaluation includes a process evaluation, an outcome evaluation, and an impact evaluation. Process evaluations help answer the question, "Are systems in place?" They are designed to document and analyze the early development and implementation of a program, assessing whether and how well services are delivered as intended or planned (this is also known as an implementation assessment) (Wholey, Hatry, and Newcomer, 2010; Rossi et al., 2004). An evaluation of how well programs are being implemented can answer questions about how targeted participants experience the program, understand variations in the delivery of the program to targeted participants or clients, and describe how a program is organized (Patton, 2001). This type of evaluation allows identification of areas of strength and areas needing improvement within a program. In the cases of School Change and Promise, a process evaluation would assess whether each pillar's and Promise's operational processes (such as standards, guidelines, and technical requirements) are in place; whether these processes are appropriate, adequate, or are functioning well; and whether key stakeholders (e.g., students, parents, school teaching and administrative staff, central office staff, and social service support staff) are implementing the reforms' components or activities as intended. It can thereby help district and Promise officials and other educational or community-level stakeholders understand whether programs and initiatives are working in a way that will promote the reforms' success (Wholey, Hatry, and Newcomer, 2010; Rossi et al., 2004).

Outcome evaluations can help answer, "Are we making progress in achieving our goals?" Outcome evaluations can help stakeholders assess a program's performance: what kind of progress is being made and whether goals are being met. An analysis of how well a program's or reform's goals are being met can determine whether it is effective and, when coupled with a process evaluation, what could be changed to improve its potential effectiveness (Rossi et al., 2004). For School Change and Promise, an outcome evaluation would examine changes

in school populations' skills, knowledge, attitudes, or behaviors. Outcomes are measured at the individual level. So, for example, an outcome evaluation could examine changes in instruction; changes in students', parents', teachers', principals', or the community's attitudes and expectations for students to attend college; growth in students' test scores; improvements in course taking; or improvements in students' attendance, high school graduation rates, or college enrollment and graduation rates.

Impact evaluations help answer, "What kind of broad social change has occurred in the community?" Impact evaluations examine whether longer-term communitywide or social changes have occurred as a result of a program or a reform effort. This differs from an outcome evaluation in that the latter focuses on shorter-term changes. Furthermore, the unit of analysis of an outcome evaluation typically should be the individuals targeted by the reform or program (e.g., students, teachers). In contrast, the unit of analysis for an impact evaluation is the broader community (e.g., a geographic region, the local community). In the case of School Change and Promise, an impact evaluation would assess whether the long-term city- and community-level goals, including promoting the economic development of the City of New Haven, are being reached.

Timing Evaluations Appropriately Impacts the Types of Decisions That Can Be Made
Figure 1.3 describes when it would be appropriate to conduct a process, outcome, or impact evaluation for any educational reform effort; what type of questions can be answered by each evaluation; and the types of decisions that can be made from the results of analyses.

To document whether School Change and Promise are making progress toward their goals, three to five years after the full implementation of School Change and Promise would be an appropriate time for an outcome evaluation. Given that School Change will be fully implemented in 2015 and Promise in 2014, an outcomes evaluation to determine whether they succeeding—that is, whether they are "working"—could be conducted by 2018 and 2017, respectively. Waiting a few years after the initiatives have been fully implemented will allow

Figure 1.3
Timeline for Conducting Three Types of Evaluations

	Inception (0–3 years)	Established (3+ years)	Mature (5+ years)
Type	Process/Implementation ⟶	Outcomes ⟶	
			Impact
Questions to ask	Is the program being implemented and operating as planned?	• Is the program achieving its objectives and goals? • Are there any unintended outcomes? • In what ways can the program be improved?	Has any broad community-level or social change been associated with the program?
Decisions made	Ways to strengthen implementation	• Funding and continuation decisions • Changes to program design and structure	Funding, continuation, and expansion

Data to inform outcomes and impact evaluations should be collected from outset of program

NOTE: Authors' construction based on typologies available in Pancer, 1989; and Rossi et al., 2004.

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School Change and Promise to take hold within the district and to put data systems in place so that an outcome evaluation can be as informative as possible. If an outcome evaluation were to be conducted before full implementation, these programs might not have had the opportunity or time to affect outcomes, and any findings could be uninformative or misleading. An ideal time for an impact evaluation of School Change and Promise initiatives would be once they have matured and once a cohort of New Haven students has gone through K–12 and graduated from college. This likely will not be until 10 to 20 years after the inception of the initiatives.

Figure 1.4 offers a timeline for suggested evaluations of Promise and School Change.

As Figures 1.3 and 1.4 illustrate, given the recent implementation of School Change and Promise, different types of evaluations can be conducted at different times. If an evaluation to determine whether

Figure 1.4
Framework for Evaluating School Change and Promise with Corresponding Timeline
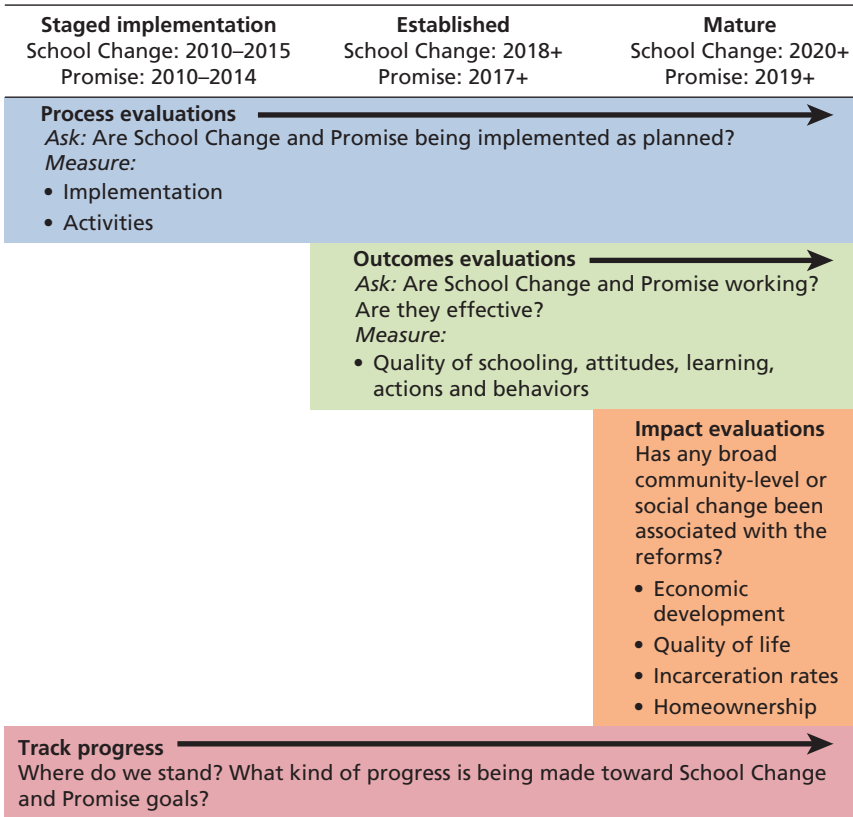
NOTE: Data to inform outcomes and impact evaluations should be collected from outset of initiatives as part of effort to track progress.
RAND *RR777-1.4*

School Change and Promise are successful in meeting their articulated goals occurs while they are still in a nascent stage or in flux, it will not be possible to ascertain whether any changes in outcomes (or lack thereof) are associated with the reform efforts. Tracking progress would describe to the broader stakeholder community where the district and Promise stand on key activities; the status of key teacher, parent, student, and school outcomes; and broader community or social impacts.

The RAND Study Serves as a Critical First Step in Documenting the Reforms' Progress

The analyses documented in this report track progress of the reforms, serving two purposes. First, they can be used as a baseline for comparison in future studies. In this way, they provide benchmarks against which to measure progress, so that a future outcomes evaluation can determine whether School Change and Promise are succeeding—that is, whether they are "working." Second, the study served to support NHPS and Promise to ensure that data systems are in place and that the instruments used to collect data are valid. Having a highly functioning system in place to collect, store, and share information will ensure that results on how well reform activities are operating and key outcomes are progressing can be communicated with the educational stakeholder community. In turn, this will inform internal monitoring and decisionmaking.

It is not intended to be a comprehensive evaluation of outcomes because it is too early in the implementation stages of School Change and Promise for such an evaluation. Waiting a few years after School Change and Promise have been fully implemented (currently planned for 2015 and 2014, respectively) before conducting a comprehensive evaluation will allow the initiatives to take hold within the district and will allow time for collecting the data that will inform the evaluation. Appropriate systems also need to be in place to collect, store, and share information with the educational stakeholder community on reform activities and key outcomes.

Assessing the implementation of School Change's components was outside our scope. However, such implementation evaluation could provide important information on whether and to what extent district officials, students, teachers, and principals are implementing reform elements and reacting to them, which can provide valuable early feedback on how well reform features are working, what might need improvement, and what is working that could be replicated or leveraged.

Analytic Approach

To meet the project's objective to document trends in key outcomes, we conducted two analytic tasks.

Examine Trends In School Climate, School Safety, and Engagement

For this task, we examined NHPS students', teachers', and parents' perspectives on school climate. We relied on student and teacher SLE survey results and comments from Promise Scholars and parents of Promise Scholars in focus groups. We organized students' and teachers' responses to the district's SLE survey into a set of domains that characterize perceptions of school climate. We then examined whether the mean score of each domain changed through time—that is, differed based on a school's tier designation in 2010–2011, on school's aggregated TEVAL score results from 2010–2011, or on other school-level characteristics. We also conducted a set of focus groups with Promise Scholars and with parents of Promise Scholars to analyze students' and parents' attitudes and level of satisfaction with Promise and School Change.

Analyze NHPS District Educational Outcomes to Measure the Progress the School System Has Made Since the Inception of School Change

For this task, we examined trends in students' results on state student math and reading achievement test scores, high school dropout rates, and postsecondary institution enrollment rates. Because School Change and Promise are being implemented largely at the same time, uniformly across schools, and with similar intentions, it is difficult to analytically discern the distinct contribution of each effort to each outcome. The ideal way to determine causal effects of an initiative or program is through an experimental design. In such a design, program components are administered randomly to a set of schools, teachers, and/or students (a treatment group) while being withheld randomly from a corresponding set of schools, teachers, and/or students (a control group). However, School Change and Promise comprise multiple program components implemented across multiple levels (schools, teach-

ers, students) for the entire New Haven district, and this approach to implementation precludes the identification of direct causal relationships. Because School Change and Promise are not being implemented with a random selection of students, school staff, or schools across NHPS, we conducted two quasi-experimental research designs to assess whether any changes in outcomes can be associated with School Change or Promise. Quasi-experimental research designs can control for observable student background and some economic conditions. For the first design, we compared CMT and CAPT assessment results for NHPS schools before and after the inception of the reforms. We also compared NHPS schools' outcomes with those of schools in Connecticut districts with sociodemographic and academic profiles similar to those of NHPS. For the second design, we assessed trends in student outcomes by comparing RAND-developed expected trajectories of performance (had preform trends continued after School Change and Promise initiated in 2010–2011) to observed trajectories. Despite the strengths of both of these quasi-experimental designs, the lack of experimental control and randomization procedures precludes statements of causation.

Data Sources

We used both quantitative and qualitative methodologies to capitalize on the multiple forms of data we collected and acquired from NHPS district, Promise, and the Connecticut State Department of Education.

School Learning Environment Survey

Each spring since the 2009–2010 academic year, NHPS has fielded the SLE survey to students, parents, school staff, and teachers to gather information on the climate of each school in the district. NHPS organizes SLE questions into five categories: academic expectations, collaboration and support, communication, engagement, and safety and respect.

RAND analyzed the survey questions to develop domains that would measure distinct aspects of the learning environment in NHPS

schools. First, we excluded SLE survey items that correlated very highly with other survey items and, therefore, did not provide unique information. We also excluded items that were not asked in the same or in similar ways across all years. Second, we drew from the theoretical and practice-based literature on school climate to group SLE survey items into sets of items that seemed consistent with this body of literature. This two-step approach made it possible to examine trends over time because each factor had been measured similarly at each survey administration. We used confirmatory factor analysis to evaluate how well the RAND-proposed groups were statistically a good "fit."[5] The results, presented in Appendix A in the companion volume, suggested that the new groupings worked well for both teachers and students.[6]

Table 1.2 outlines the student and teacher school climate domains we developed. There are four domains for students' responses (engagement, school safety, orderly learning environment, and learning climate) and three for teachers' responses (parent communication [asked on the SLE only for 2009–2010 through 2011–2012], school safety, and instructional climate). We aggregated six teacher domains that were highly correlated in our preliminary analyses (engaged students, academic expectations, instructional leadership, engaged leadership, instructional preparation, and teacher collaboration) to create the instructional climate domain.

Once we developed the domains, we used hierarchical growth curve modeling to explore patterns in student and teacher responses over time. We examined whether the mean score of each domain changed through time, was associated with a school's average TEVAL rating, differed based on a school's tier designation in 2010–2011, or differed based on other school-level characteristics. School tier designations are based, in part, on a school's aggregated SLE results. For this reason, we used a school's tier classification in 2010–2011 (the first

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[5]   We "fit" each model to the data across all years, for both teachers and students separately by year, grade (among students), and school type to confirm that these models fit the data well.

[6]   The companion volume containing the technical appendixes (Scherer et al., 2014) is available on the RAND website.

Table 1.2
School Learning Environment Survey Student and Teacher School Climate Domains, Developed by RAND

Domains	Sample Items
Student	
Engagement	I feel welcome in my school
	I have a voice in classroom and/or school decisions
School safety	There is inappropriate physical contact and gestures among students
	Students threaten other students at my school
Orderly learning environment	Order and discipline are consistently maintained
	My school is kept clean
Learning climate	My teacher(s) inspire me to want to learn
	My teacher(s) believe I am capable of learning
Teacher	
Parent communication	I have communicated with parents about their children's progress in class
	I have sent home information on how parents can help students learn at home
School safety	Order and discipline are consistently maintained at my school
	I feel safe at my school
Instructional climate	
Engaged students	Students are engaged in their classes
	Students at my school are interested in learning new things
Academic expectations	The learning needs of children are a top priority at this school
	My school has high academic expectations for all students
Instructional leadership	School administrators encourage career development and growth for staff
	The administrative team has confidence in the expertise of the teachers
Engaged leadership	The school administration provides for effective communication and positive relationships
	The school administration works cooperatively with students
Instructional preparation	Functional modern instructional technology is readily available for my use
	My instructional materials are in good condition

Table 1.2—Continued

Domains	Sample Items
Teacher collaboration	Teachers in my school work together to improve their instructional practice
	In this school, teachers learn from each other
	Teachers in this school trust each other

time schools were classified by tier) to examine whether there had been any changes over time in students' and teachers' perceptions of school climate. Details about the methodology used to analyze the SLE surveys are available in Appendix A in the companion volume.

We limited our analyses to student and teacher SLE responses because these population groups had sufficient response rates in each year to allow analysis of change over time. Response rates from parents were too small for us to analyze the SLE results with confidence. Furthermore, we limited our analyses to exploring school-level means of each domain of school climate and to using school-level characteristics when exploring differences in SLE responses through time. This was because the district does not ask individual respondents for their sociodemographic information, and SLE responses are not linked to students, parents, or teachers to protect respondents' privacy and ensure anonymity.

Focus Groups with Promise Scholars and Parents of Promise Scholars

In October and November 2013, we conducted six focus groups with 35 Promise Scholars and four focus groups with 21 parents of Promise Scholars. Parents who participated in focus groups were not necessarily the parents of Promise Scholars who participated in focus groups. Participants were selected to include a diverse sociodemographic population, from each Promise cohort (graduating Class of 2011, 2012, and 2013) and had graduated from high schools that had been designated as tier I, tier II, or tier III in 2010–2011. At the time of the focus groups, Promise Scholars were enrolled at six different postsecondary education institutions in Connecticut: Ten attended private four-year universities, 18 attended public four-year universities, and six attended a two-

year public community college. Of the participating Promise Scholars, 83 percent were female, and 43 percent identified as Hispanic, 34 percent as African-Americans, 20 percent as white, and 3 percent as Asian-American. Among parents, 76 percent of the participants were female, and 29 percent identified as Hispanic, 33 percent as African-American, 33 percent as white, and 5 percent as Asian-American.

Focus group discussions inquired about the academic and nonacademic experiences of Promise Scholars and parents of Promise Scholars and the extent to which School Change and Promise reform efforts might have influenced their experiences. Specific topics included Promise Scholars' and parents' levels of satisfaction with the Promise and School Change initiatives, support from NHPS high school teachers and administrators, and Promise Scholars' sense of readiness and expectations for college and post–college graduation plans. Details about the sample selection and methodology employed to analyze results from the focus groups are available in Appendix D in the companion volume.

State Student Achievement Tests

Achievement in the NHPS district is measured through two assessments: CMT and CAPT. Both tests are state standardized assessments of math, reading comprehension, writing, and science. All public school students in the 3rd through 8th grades take the CMT; all public school students in 10th grade take the CAPT. Our analysis used the CMT and CAPT math and reading scale scores. We chose to focus on these two subjects because proficiency in them is considered vital for ensuring that students are on track to reach advanced classes in math and in English during high school, which helps prepare them to take on college-level work. We analyzed scale scores rather than proficiency levels because they provided a more consistent and comparable account of students' results from one year to the next (May et al., 2009).

High School Dropout Data from NHPS and Connecticut Department of Education

We obtained school-level data for all districts in Connecticut from the Connecticut Department of Education. We aggregated the school-level

data to the district level for all 194 districts (including NHPS) in the state, spanning the school years 2005–2006 through 2012–2013. The state data include district-level dropout rates and sociodemographic characteristics, including the percentage of student population by race or ethnicity, gender, eligibility for free or reduced-priced lunch, and whether the student is an English language learner (ELL).

For within-NHPS analyses, we relied on student-level dropout data and sociodemographic data for all students in the district for the school years 2007–2008 through 2011–2012: three academic years of preform data (2007–2008 through 2009–2010) and three academic years of early reform data (2010–2011 through 2012–2013).[7] Within the district, there were nine high schools and four transitional high school programs that were operational in 2013. For these analyses, we used cohort dropout rates, which followed an entering cohort of high school students and tracked dropouts over time, typically over multiple years. We defined a cohort as all students who showed up in district October attendance files in 9th grade, and we examined dropout rates through the end of the 10th grade year. Because of data limitations, we looked only at 9th and 10th grade dropout rates. Full cohort high school dropout analysis would require five years of historical data. The first cohort we could have examined with our data files would have been the 2010–2011 graduating cohort, so we would have had no information on dropout rates prior to the inception of the reforms. Therefore, our analysis captured dropping out behavior during the first half of high school only.

National Student Clearinghouse Student Tracker Data

NHPS receives data on postsecondary outcomes from the National Student Clearinghouse's (NSC's) Student Tracker service, which includes semester-level enrollment data for members of the graduating classes. NSC matches students using social security numbers, names, and birth dates. More than 95 percent of postsecondary institutions in

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[7] We excluded Dixwell New Light and New Horizons transitional programs from the analysis because students from these schools did not appear in the data based on our inclusion criteria.

the United States now report to the NSC, providing information on enrollment and, in some cases, major and graduation. From these data, we constructed measures of college enrollment on NHPS graduates through time.

NHPS Student and Teacher Administrative Data

For all analyses, we used NHPS administrative data on students' and teachers' characteristics from 2005–2006 through 2012–2013.

Teacher Evaluation and Development System Scores

NHPS also provided RAND with teachers' TEVAL scores for 2010–2011, 2011–2012, and 2012–2013. To protect the confidentiality of teachers and to prohibit individual TEVAL scores from being linked to specific students or being released inadvertently to the public, we were limited to using TEVAL scores that were aggregated by score for each school. Figures 1.5 through 1.7 illustrate the percentage of teachers who have reached the highest TEVAL scores (3, effective; 4, strong; and 5, exemplary) in each year that the evaluation system has been in effect. Figure 1.5 shows that between 75 and 85 percent of the teaching staff in NHPS were rated "effective" or above each year, and over 50 percent were rated "strong" or above.

Figures 1.6 and 1.7 illustrate the distribution of TEVAL scores across schools in the district in 2010–2011 and 2012–2013, respectively. Figure 1.6 shows that the distribution of teachers rated "effective" or above across schools became much more equal between 2010–2011 and 2012–2013. That is, the gap between the 25th percentile school and the 75th percentile school in the percentage of teachers rated as "effective" or above dropped by more than one-half between 2010–2011 and 2012–2013 (a gap of 12 percentage points versus 25 percentage points). Figure 1.7 shows that the gap between the 25th percentile school and the 75th percentile school in the percentage of teachers rated "strong" or above dropped by one-third between 2010–2011 and 2012–2013 (a gap of 23 percentage points versus 35 percentage points).

Figure 1.5
Percentage of Teachers Reaching the TEVAL Score Effective or Above and Strong or Above, 2010–2011 and 2012–2013
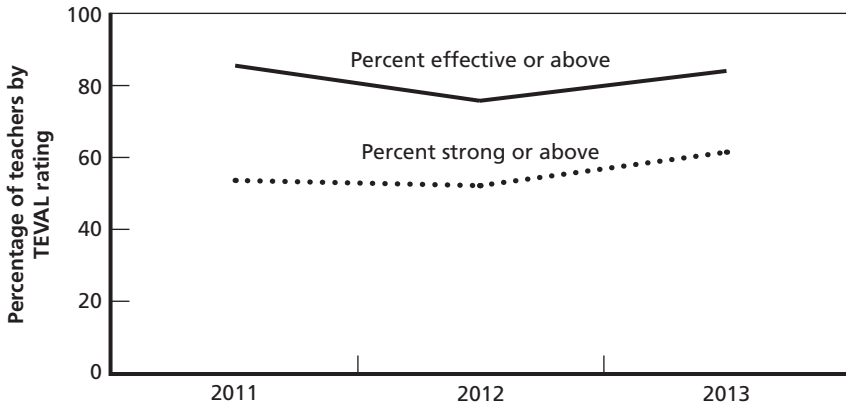
Figure 1.6
Distribution of Schools by Percentage of Teachers Rated Effective or Above, 2010–2011 and 2012–2013
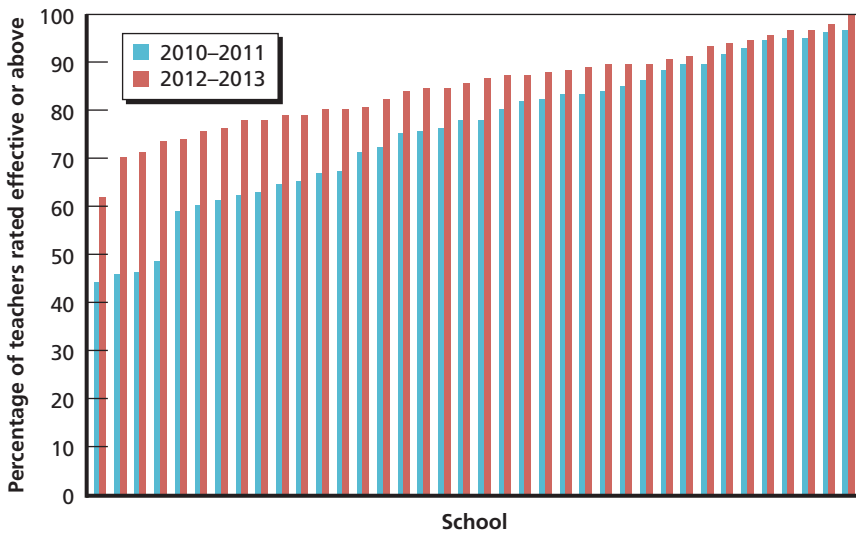
Figure 1.7
**Distribution of Schools by Percentage of Teachers Rated Strong or Above,
2010–2011 and 2012–2013**
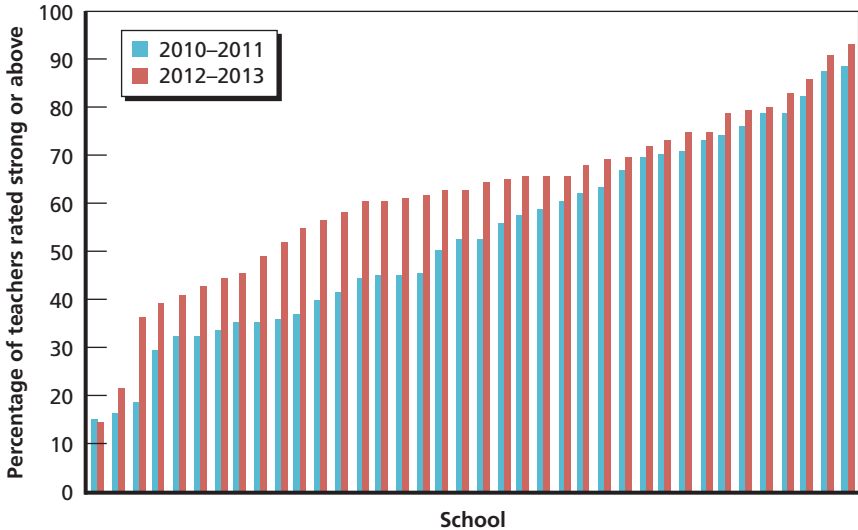
Remainder of This Report

Chapter Two deeply examines NHPS stakeholder perspectives on school climate since the inception of the reforms, reporting the results of our focus groups with Promise Scholars and parents of Promise Scholars and the results of our analyses of students' and teachers' perspectives on school climate, as reported in the SLE surveys. Chapters Three, Four, and Five report analyses of the student achievement results on Connecticut state assessments, dropout rates, and college enrollment rates, respectively, to compare NHPS with similar districts in Connecticut and to examine changes through time. We include analyses of focus group comments from Promise Scholars and parents of Promise Scholars on college preparation in Chapter Five. Chapter Six summarizes our findings to date and concludes this report with suggested next steps that NHPS and Promise can undertake to continue to examine the reforms' progress.

A companion document provides a series of technical appendixes. In the companion document, Appendix A documents the methodology we used to develop the school climate domains from the SLE survey analyzed in Chapter Two. Appendix B describes the analytic approach and methodology we used to compare NHPS students with those in a group of Connecticut districts similar to NHPS. Appendix C describes the analytic approach and methodology we used to compare the student assessment test score results, dropout rates for NHPS students, and college enrollment rates for NHPS graduates through time. Appendix D provides the pre-discussion survey and discussion session questions used in Promise Scholar and Promise parent focus groups. Appendix E summarizes analyses on trends in community indicators.

Student, Parent, and Teacher Perceptions of School Climate

School climate involves patterns of behavior and interaction in a school's environment that are influenced by shared beliefs, values, and attitudes (Brown, Anfara, and Roney, 2004). School climate often comprises order, safety, discipline, school facilities, and nonacademic measures of social relationships and school connectedness (Griffith, 2001; Wilson, 2004; Blum, 2005). Studies have shown that perceptions of a healthy school climate are correlated with promoting positive student outcomes (Scales and Leffert, 1999; Marshall, 2004; Miron, Jones, and Kelaher-Young, 2011), including increased student achievement (Brown, Anfara, and Roney, 2004; Benner, Graham, and Mistry, 2008; Wang and Holcombe, 2010; Zullig et al., 2010).

As Figure 1.1 in Chapter One describes, the three pillars of School Change endeavor to improve the learning and success of students by promoting a healthy school environment (portfolio of schools pillar), improved teaching practices and talent management (talent pillar), and improved community engagement (engagement pillar). This chapter summarizes our analyses of changes that have been occurring within schools according to the perspectives of students, parents, and teachers.

Five research questions guided the analyses presented in this chapter:

1. How did students' and teachers' SLE responses vary over time?
2. In what ways did students' and teachers' SLE responses vary by school TEVAL scores?

3. In what ways did stakeholders' perceptions of the learning environment, teaching practice, and instructional climate differ by school characteristics?
4. In what ways did stakeholders' perceptions of school safety differ by school characteristics?
5. In what ways did stakeholders' perceptions of the district and schools' engagement and community building differ by school characteristics?

Analytic Approach

To document patterns and trends in school climate since the inception of School Change, we analyzed teacher and student responses on the SLE survey. This chapter reports the results for the four student domains RAND constructed (orderly learning environment, learning climate, school safety, and engagement) and the three teacher domains (instructional climate, school safety, and parent communication).[1]

The district provided data for all students, teachers, staff, and parents who completed an SLE survey during the 2009–2010, 2010–2011, 2011–2012, and 2012–2013 school years. Figure 2.1 illustrates the survey's response rates from 2009–2010 through 2011–2012. Note that response rates were not available from the district's vendor for the 2012–2013 SLE administration. Due to the low response rates among parents and staff, we concluded that any results from these data would be prone to substantial response bias. We therefore limited our analyses to the student and teacher SLE data because these groups have had sufficient response rates in each year to allow an analysis of change through time.

The SLE survey is anonymous; respondents do not write their names on the survey, and there are no questions that ask respondents for information that could be potentially identifiable, such as race or

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[1] The construct instructional climate was developed from six teacher domains that were highly correlated in our preliminary analyses. These six teacher domains were engaged students, academic expectations, instructional leadership, engaged leadership, instructional preparation, and teacher collaboration.

Figure 2.1
School Learning Environment Response Rates, 2009–2010 Through 2011–2012
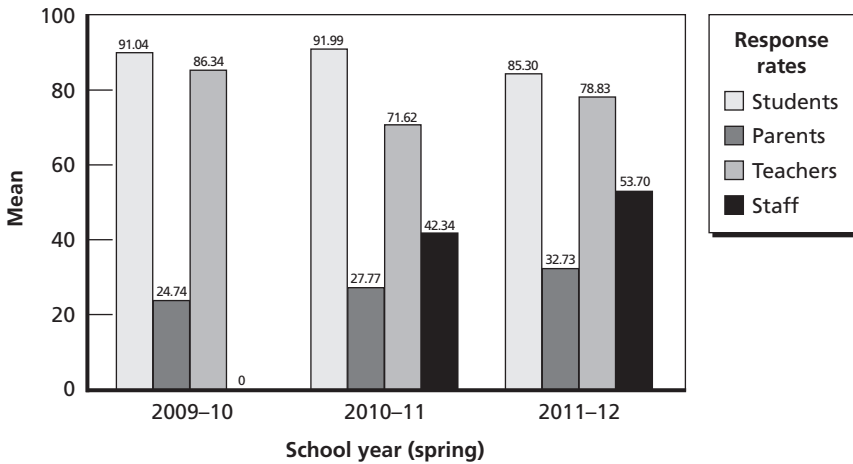
ethnicity, gender, and age. However, each respondent is linked to his or her district school. We were therefore able to examine whether school-level characteristics were associated with any changes in schools' aggregated scores through time or could account for any differences in SLE results across schools. Appendix A in the companion volume shows the distribution of the demographic variables among district schools and describes the methodology we employed to control for school-level characteristics. Across all years, our analyses included 37,823 students: 9,263 in 2009–2010; 9,429 in 2010–2011; 9,476 in 2011–2012; and 9,655 in 2012–2013. Our analyses included 5,527 teachers: 1,310 in 2009–2010; 1,331 in 2010–2011; 1,399 in 2011–2012; and 1,487 in 2012–2013.

We used hierarchical growth curve modeling to explore patterns in student and teacher SLE responses over time. We then examined whether any changes over time varied according to the following school characteristics: the school's tier assignment in 2010–2011, percentage of the student population receiving free or reduced-price lunch, percentage of student body designated as ELLs, average math achievement

on Connecticut student assessments, and school grade range (K–8 versus 9–12). School tier designations are based, in part, on a school's aggregated SLE results. For this reason, we used a school's tier classification in 2010–2011 (the first time schools were classified by tier) to examine whether there had been any changes over time in students' and teachers' perceptions of school climate. This temporal ordering was necessary to circumvent tautological conclusions. To explore how the quality of a school's teaching staff, as measured by the TEVAL scores, compared with students' and teachers' responses for each domain, we used ordinary linear regression. Details about the methodology used to analyze the SLE surveys are available in Appendix A in the companion volume.

In this chapter, we contextualize the SLE findings with results from focus groups of Promise Scholars and parents of Promise Scholars we conducted in October and November 2013.[2] It is important to note that, while Promise Scholars and parents' perspectives provide an important understanding of how well the reforms have been implemented and of their perceived legitimacy, we cannot corroborate these perspectives with independent evidence (such as objective observations of changes in school climate, safety, or teachers' classroom practices or instruction). Furthermore, we do not generalize Promise Scholars and parents of Promise Scholars' impressions to all students or parents in NHPS, limiting our interpretation of focus group findings as a contextual, rich description to support the SLE analyses.

How Students' and Teachers' SLE Responses Varied over Time

Figure 2.2 illustrates trends over time for the mean response for the four student school climate domains. On average, students have a relatively positive impression of their school's climate, responding around 3.5 through 4 (on a scale of 1 through 5) for each domain in each

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[2]   Detailed information about the SLE survey, the focus groups, and the methodologies used for the analyses reported in this chapter is available in Appendixes A and D in the companion volume.

Figure 2.2
Student School Climate Domain Trends, 2009–2010 Through 2012–2013
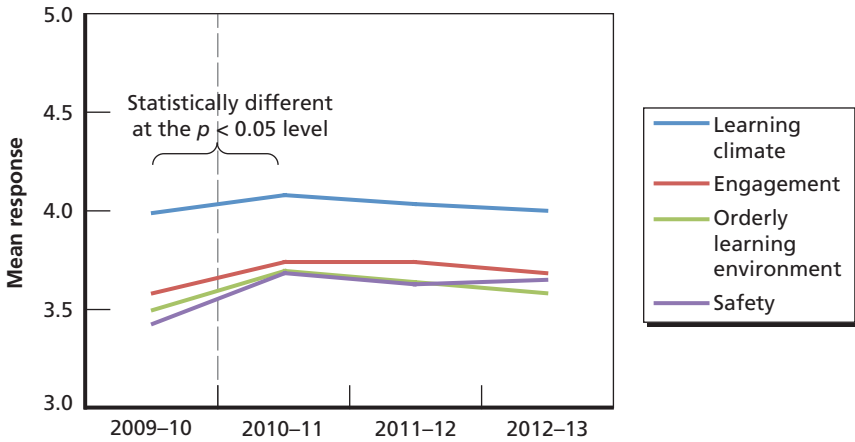
SOURCES: Student SLE surveys, various years.
NOTE: Mean responses from 2009–2010 to 2010–2011 are statistically different
($p < 0.05$).
RAND *RR777-2.2*

year. Furthermore, that positive impression improved slightly from 2009–2010 to 2010–2011 (each domain score increased by about 0.2). The improvement in scores from 2009–2010 to 2010–2011 was statistically significant.[3] In the subsequent two years, however, the students' responses moved downward or remained flat, suggesting little change in perspectives since 2010–2011.

Figure 2.3 illustrates trends over time for the mean response for each teacher domain we created. On average, teachers' ratings were between 3.5 and 4.5 each year, which is fairly positive, yet there was no statistically significant movement in average teachers' perceptions on each domain from one year to the next.

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[3] While positive, these results should be interpreted with caution. As demonstrated in Appendix A in the companion volume, analyses of the SLE suggest that it might not be an optimal instrument for measuring distinct dimensions of schools' climates. Analysis of changes over time in the RAND-constructed domains demonstrated that there has been little variation in how students and teachers responded to questions about the operation and culture of the school. The SLE results might thus be less informative than other standardized, national school climate survey results typically are.

Figure 2.3
Teacher School Climate Domain Trends, 2009–2010 Through 2012–2013
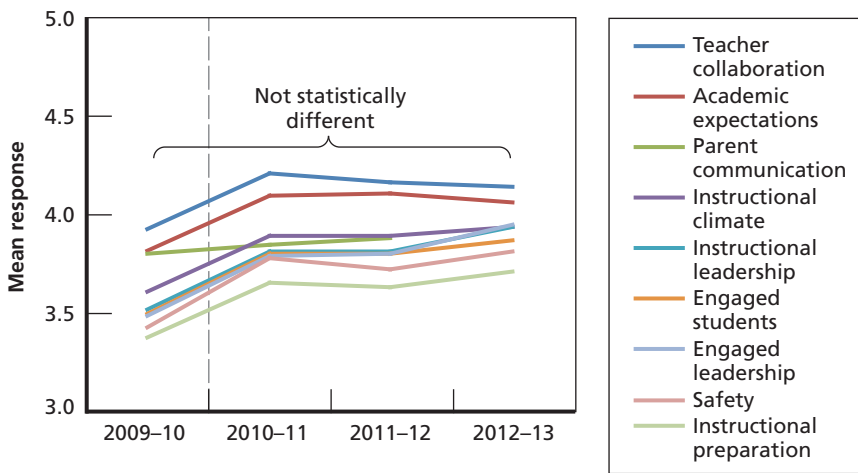
SOURCES: Teacher SLE surveys, various years.
RAND *RR777-2.3*

Figures 2.2 and 2.3 highlight that, in the aggregate, *students' and teachers' responses on the SLE survey were relatively positive: On average, responses ranged from close to 3.5 to 4.2. Yet, little change had occurred over these years in student and teacher SLE responses, and the teachers' responses were not significantly different from each other from one year to the next.*

How Students' and Teachers' SLE Responses Varied, by School TEVAL Scores

In examining whether there were any patterns or trends in associations between SLE scores and TEVAL scores, we conducted a linear regression on student and teacher SLE responses by the percentage of teachers rated "effective" and above and those "strong" and above. We found that, in 2010–2011, the first year the TEVAL system was in effect, a greater percentage of teachers rated as "effective" or above was associated with positive reports from students on that school's engagement,

orderly learning environment, and safety domains. Only the teacher's school safety domain was positively associated with a greater percentage of teachers rated as "effective" or above. The greater the percentage of teachers rated "strong" or above in a school, the higher the SLE responses for both students and teachers. In 2012–2013, the relationship was even more apparent: The higher the percentage of teachers with high TEVAL scores, the higher the school's average SLE score, as shown in Table 2.1.

Table 2.1
Associations Between School Average SLE Responses and TEVAL, 2010–2011 and 2012–2013

	2010–2011		2012–2013	
	"Effective" and Above (%)	"Strong" and Above (%)	"Effective" and Above (%)	"Strong" and Above (%)
Student Domains				
Engagement	+	+	+	+
Orderly Learning Environment	+	+	+	+
Learning Climate	(None)	+	+	+
School Safety	+	+	+	+
Teacher Domains				
Parent Communication	(None)	+	+	+
School Safety	+	+	+	+
Instructional Climate	(None)	+	+	+
Engaged Students	+	+	+	+
Academic Expectations	(None)	+	+	+
Instructional Leadership	(None)	+	+	+
Engaged Leadership	(None)	+	+	+
Instructional Preparation	(None)	+	+	+
Teacher Collaboration	(None)	+	+	+

SOURCES: Teacher and Student SLE survey (2010–2011 and 2012–2013); TEVAL scores by school (2010–2011 and 2012–2013).

The broad trends examined in the first two research questions offer an interesting portrait of general trends through time in SLE results. However, these results might obscure variations in SLE by schools' characteristics. We therefore examined trends and patterns in students' and teachers' SLE responses over time according to 2010–2011 tier assignments. We then examined whether other school characteristics matter. Specifically, we explored whether the trends by tier changed when holding constant the percentage of the student population receiving free- or reduced-price lunches, percentage of students designated as ELL, school-level math achievement, or school grade range (K–8 versus 9–12). Results from these analyses, for each student and teacher domain, are presented in the remainder of this chapter.

How Stakeholders' Perceptions of the Learning Environment, Teaching Practice, and Instructional Climate Differed, by School Characteristics

Student Orderly Learning Environment Domain

Figures 2.4 and 2.5 illustrate the results from our analyses of students' responses for the orderly learning environment domain over time. Figure 2.4 shows that, when we examined differences by 2010–2011 tier assignment, the general pattern of responses was relatively stable over time, and year-to-year responses were not statistically significantly different from each other. For each year, students in tier III schools reported significantly *less favorable* orderly learning environments than did students in tier I schools ($t = 2.18$, $p \leq 0.05$).

Several noteworthy changes emerged after taking school attributes into account, as shown in Figure 2.5. First, after controlling for school characteristics, there were no longer significant differences between tier I and tier III schools. Second, the improvement between 2009–2010 and 2010–2011 became statistically significant ($t = 2.95$, $p \leq 0.01$). Third, holding other factors constant, students in 9th to 10th grade schools responded *less positively* about orderliness of the learning environment ($t = 2.15$, $p \leq 0.05$) than students in K–8 schools. Fourth, there was an interactive relationship between school composition and

Figure 2.4
Students' Responses on Orderly Learning Environment Domain Trends,
2009–2010 Through 2012–2013, by School Tier
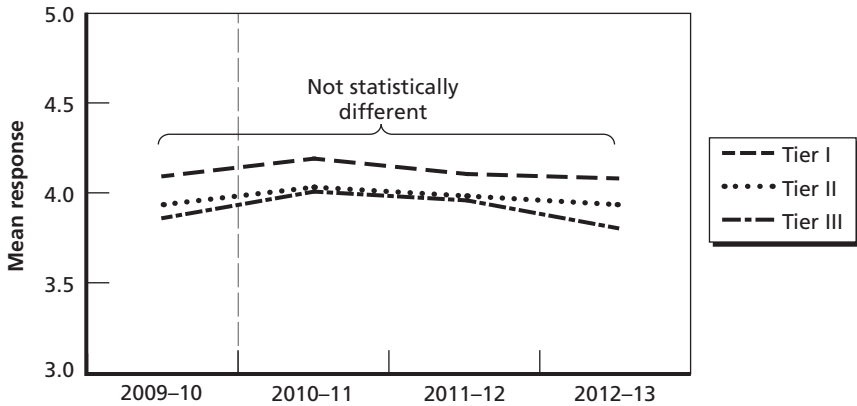
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data;
n (schools) = 36.
NOTE: Tier I and III mean responses are statistically different from each other
(*p* < 0.05). Mean responses from one year to the next are not statistically different.
RAND *RR777-2.4*

students' perception of the orderliness of their school's learning environment: A larger share of ELLs in the school population was generally related to a more-favorable student perception of the orderliness of the learning environment, but this relationship waned as the proportion of students on free and reduced-price lunch rose ($t = 3.20$, $p \leq 0.01$).

These findings suggest that, overall, students have relatively positive perceptions of how orderly their school's learning environment is, yet the scores improved only slightly after the first year of the reform's inception. Also, high school students report less orderly earning environments than do K–8 students.

Student Learning Climate Domain

Figure 2.6 illustrates the trends in students' responses for the learning climate domain. Figure 2.6 demonstrates that, on average, there were no significant differences among tiers in student responses on the learning climate domain over time. Moreover, the mean student learn-

Figure 2.5
Students' Responses on Orderly Learning Environment Domain Trends,
2009–2010 Through 2012–2013, Accounting for Key School-Level
Characteristics
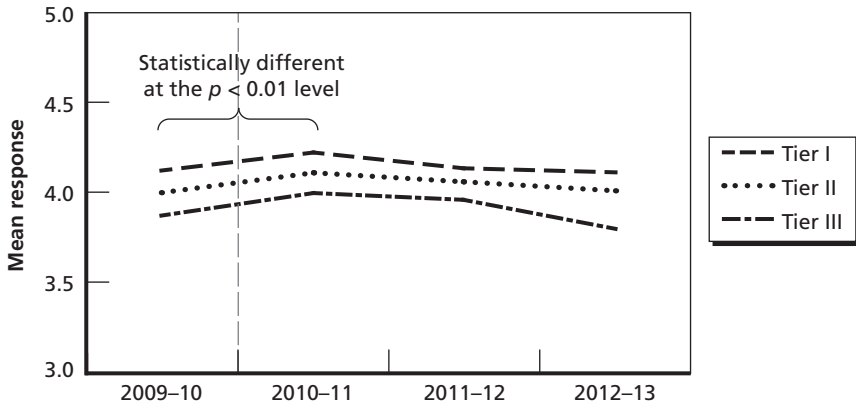
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data;
n (schools) = 36.
NOTE: Tier I and III mean responses are not statistically different from each other.
Mean responses from 2009–2010 to 2010–2011 are statistically different ($p < 0.01$).
RAND *RR777-2.5*

ing climate domain responses remained relatively flat between 2009–
2010 and 2012–2013, neither worsening nor improving, for all tiers.

When accounting for school-level demographics, patterns across
the tiers or over time were not statistically significantly different
from those illustrated in Figure 2.5. However, we found an interac-
tion between the proportion of students receiving free or reduced-
price lunch and the proportion designated as ELLs (t = 3.01, $p \le 0.01$):
A larger proportion of ELLs in a school was related to better student
perception of the learning climate, but this association faded as the
proportion of students on free or reduced-price lunch rose.

These analyses suggest that students' perspectives on learning climate
are relatively positive and are about the same regardless of which tier the
school the student is attending is in and have remained relatively positive
since in the inception of the reforms.

Figure 2.6
Students' Responses on Learning Climate Domain Trends, 2009–2010
Through 2012–2013, by School Tier
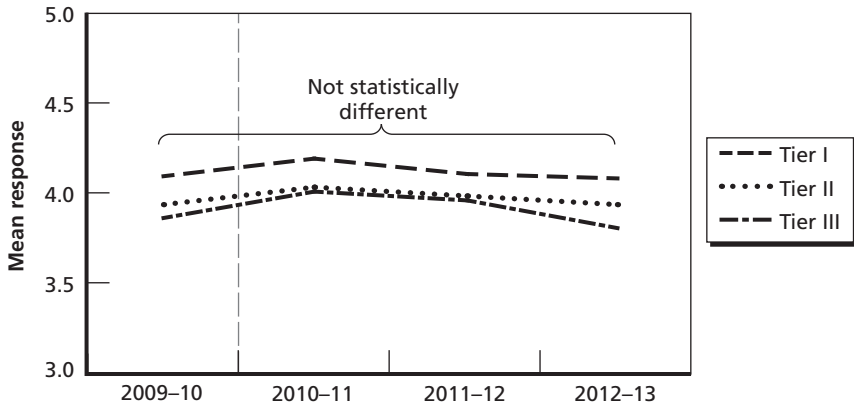
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data;
n (schools) = 36.
NOTE: Tier mean responses are not statistically different from each other.
Mean responses from one year to the next are not statistically different.
RAND *RR777-2.6*

Teacher Instructional Climate Domain

Figures 2.7 and 2.8 illustrate our analyses of teachers' responses on the instructional climate domain, which is a compilation of six teacher-reported domains (as described earlier in this chapter and in the Introduction). As depicted in Figure 2.7, we found that teachers' perceptions of instructional climate markedly improved between 2009–2010 and 2010–2011 ($t = 6.09$, $p \leq 0.001$), but there was no change between 2010–2011 and 2012–2013. We also found measurable differences among all three tiers in instructional climate, with tier I schools having stronger teacher-reported instructional climates than tier II schools ($t = 2.49$, $p \leq 0.05$) and tier III schools ($t = 5.29$, $p \leq .001$); tier II schools also outpaced tier III schools ($t = 3.95$, $p \leq 0.001$).

After accounting for school characteristics, as shown in Figure 2.8, tier I and tier II schools demonstrated similar trends in instructional climate, but significant differences remained between tier I and tier III schools and between tier II and tier III schools. The year-to-year trend

Figure 2.7
Teachers' Responses on Instructional Climate Domain Trends, 2009–2010
Through 2012–2013, by School Tier
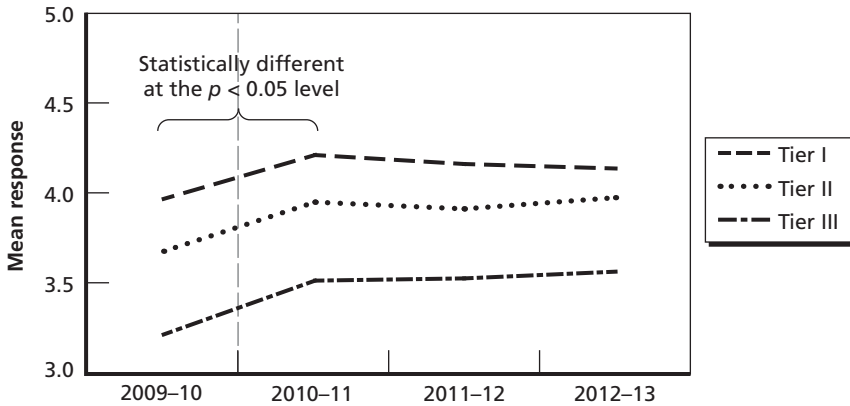
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data;
n (schools) = 36.
NOTE: Tier mean responses are statistically different from each other (*p* < 0.05).
Mean responses from 2009–2010 to 2010–2011 are statistically different (*p* < 0.05).
RAND *RR777-2.7*

described in Figure 2.7 remained unchanged after accounting for
school attributes.

*Taken together, the analyses of teachers' perspectives of the instructional
climate suggest that those teaching in tier III schools found the instructional
climates at their schools were less satisfactory than teachers in tier I or
tier II schools found theirs.* These findings are to be expected, given that
the decision of which tier to place a school takes into account its aggre-
gate SLE score. Our analyses also demonstrate that, while teachers'
perspectives on instructional climate significantly improved in the first
year of School Change reforms in 2010–2011, so did those of teachers
in all the schools. *Tier III teachers' opinions of the instructional climate
remained significantly lower than those of teachers in other schools over
time, and there is no sign that these differences are narrowing.*

Figure 2.8
Teachers' Responses on Instructional Climate Domain Trends, 2009–2010
Through 2012–2013, Accounting for Key School-Level Characteristics

SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data;
n (schools) = 36.
NOTE: Tier III mean responses are statistically different from tier I and tier II
($p < 0.05$) responses. Mean responses from 2009–2010 to 2010–2011 are statistically
different ($p < 0.05$).
RAND *RR777-2.8*

Focus Group Respondents' Perceptions of Instructional Climate and Teaching Practices

Promise Scholars and parents of Promise Scholars in our focus groups held both positive and negative opinions about how instruction and teachers' practices had changed since the inception of the reforms in 2010–2011. Scholars and parents' perspectives and impressions provided us with an important understanding of how well the reforms have been implemented and their perceived legitimacy, but we were not able to corroborate these perspectives with independent evidence (such as objective observations of teachers' classroom practices or instruction). We therefore do not know the extent to which teachers' instruction had objectively changed since the reforms started.

Teacher Responsibilities

In our focus groups, Promise Scholars described the changes they experienced in teachers' classroom practices and instruction. Many Promise

Scholars noted that, with the advent of School Change, it appeared that their teachers had new responsibilities outside the classroom. Students perceived that teachers appeared overwhelmed with these new tasks and had heard teachers explicitly complain about the new requirements and roles they were required to take on. Promise Scholars sometimes felt the quality of instruction provided by teachers suffered as a result. For example, one Promise Scholar noted:

> My last two years, they seemed to be under a lot of stress because they had more things to get done. I noticed it mainly in my Math and English class[es]. It seemed like my teacher was trying to get all these new things into the class and tried to implement it into what he was teaching, but it didn't really match up really well. But he was trying really hard.

Indeed, two Promise Scholars who graduated from a tier III high school mentioned that several of their high-performing teachers expressed a desire to score *lower* on teacher evaluations so that they would not be overburdened with more responsibilities. A majority of parents of Promise Scholars with whom we spoke perceived a decline in the quality of teachers and instruction, which they attributed to the increased burden, larger classes, new teachers' guidelines, the new teachers' evaluation system, and responsibilities demanded of teachers since the inception of the reforms. These comments are unsurprising; educator exhaustion from managing new responsibilities has previously been reported as an unanticipated outcome of school reform (Miron and Evergreen, 2008). This is crucial to note: Such exhaustion from job demands (i.e., work overload or deficient equipment) and a lack of job resources (i.e., administrative leadership or professional development) often lead to teacher burnout (Fernet et al., 2012).

Personnel Reallocation

In our discussion sessions, Promise Scholars repeatedly brought attention to changes in their high schools' staffing with the advent of School Change. They noted that they understood that teachers and principals left or arrived at their schools for three primary reasons: (1) Teachers and principals who scored well in the evaluation system were sent to

troubleshoot in failing schools; (2) teachers left because they were dissatisfied with changes at the school or in the district; and (3) teachers who scored poorly on the evaluation system either had left voluntarily or were let go.

Changes in personnel provoked mixed opinions among students, depending on Promise Scholars' perceptions of the competency and experience of departing and incoming teachers and principals. Several students from a tier III high school expressed disappointment in losing the teachers they thought were their best ones. When these teachers left, Promise Scholars perceived that the new incoming teachers were less experienced or less competent. At the same time, however, Promise Scholars acknowledged that some of the worst teachers were fired, which they perceived as positive, and one student who graduated from a tier III high school expressed appreciation for what he perceived to be better teachers in his final years at the school.

Several parents in our focus groups also noticed changes in teachers and principals and linked these changes to school reform and the new evaluation system. From their perspective, parents observed that good teachers and principals were sent to troubleshoot in lower-performing schools but felt the replacements did not always seem to be fully qualified or adequate. One parent remarked that the seemingly constant reallocation of teachers and principals felt like it was becoming a core characteristic of NHPS. Research of other district reforms focused on improving teacher effectiveness has demonstrated that reallocation of teaching staff should be handled carefully to ensure that lower-income or minority students are not inadvertently placed at a disadvantage. In these studies, teacher effectiveness, as measured through an evaluation system, has been found to remain relatively stable across a district, yet low-income minority students often experience more teacher reallocations than other students. Furthermore, studies have found that the act of teacher sorting was more favorable across schools (as teachers moved around a district) than within schools: Even in cases in which low-income minority students attended schools with teachers estimated to be more effective, the low-income minority students typically had access to the *less* effective teachers within that school (Steele et al., 2014; Xu, Özek, and Corritore, 2012; Mansfield, 2010).

How Stakeholders' Perceptions of School Safety Differed, by School Characteristics

Student School Safety Domain

Figure 2.9 illustrates the results for students' responses to the school safety domain. This figure shows that, on average, students had relatively positive perceptions of their school's safety: Responses ranged between 3.8 and 4.1 on a scale of 1 through 5. Further, between 2009–2010 and 2010–2011, student perceptions of school safety improved significantly ($t = 4.28$, $p \leq 0.001$) and then remained level in subsequent years, eventually returning to the pre-reform levels in 2012–2013. This trend stood for schools in each tier. We also found that students in tier I schools responded more favorably, on average, regarding school safety than students in tier II ($t = 2.52$, $p \leq 0.05$) and tier III ($t = 3.60$, $p \leq 0.001$) schools, while students in tier II and tier III schools responded similarly to each other.

Figure 2.9
Students' Responses on School Safety Domain Trends, 2009–2010 Through 2012–2013, by School Tier

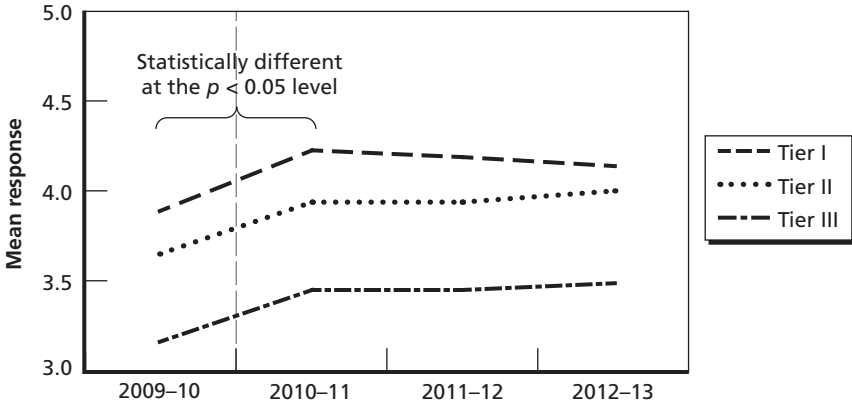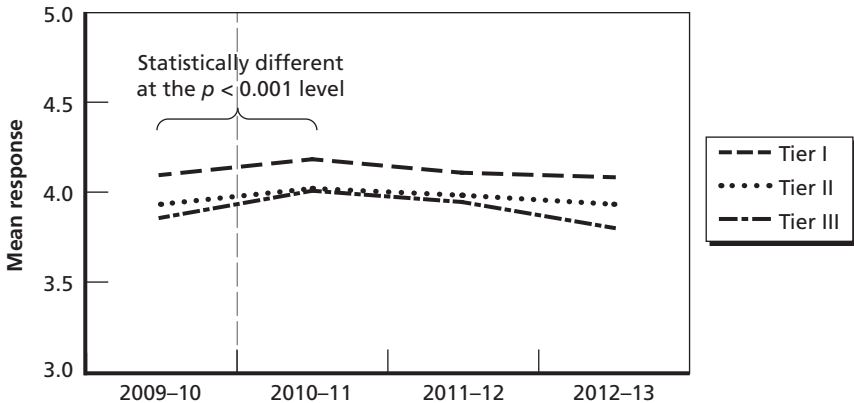SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data; n (schools) = 36.
NOTE: Tier I mean responses are statistically different from tier II ($p < 0.05$) and tier III ($p < 0.001$) responses. Mean responses from 2009–2010 to 2010–2011 are statistically different ($p < 0.001$).
RAND *RR777-2.9*

Once we accounted for the schools' characteristics, there was no change in the overall trend in students' perceived school safety from that found in Figure 2.9: There was a slight improvement in perceptions of school safety from 2009–2010 to 2010–2011. However, differences between the perceptions of students in tier I and tier II schools of school safety disappeared, while differences between tier I and tier III schools remained (t = 2.30, p ≤ 0.05). Controlling for school type, tier, and school-level math achievement, an increase in the number of students receiving free or reduced-price lunch was associated with a measurable decline in students' perceived school safety at the school level (t = 2.10, p ≤ 0.05), while an increase in the number of students designated as ELL was associated with an improvement in perceptions of student safety at the school level (t = 2.70, p ≤ 0.01).

Teacher School Safety Domain

Figure 2.10 illustrates our analyses of teachers' responses to the school safety domain. Here, compared to the prior measures of school climate reported in this chapter, a different pattern of change in teacher perception of school safety emerged: for teachers in tier II and tier III schools, this factor improved significantly between 2009–2010 and 2010–2011 (t = 7.23, p ≤ 0.001) and remained positive. Teachers in tier I schools, however, reported a measurable *decline* in school safety between 2010–2011 and 2011–2012 (t = 1.99, p ≤ 0.05). However, teachers in tier I schools continued to report being significantly more positive about school safety than did teachers in tier II (t = 2.44, p ≤ 0.05) and tier III (t = 5.32, p ≤ 0.001) schools. Teachers in tier II schools also responded more favorably than teachers in tier III schools (t = 4.05, p ≤ 0.001).

Controlling for school characteristics did not change the overall trend in teachers' perceived school safety from that found in Figure 2.10. However, this did eliminate statistically significant differences between tier I and tier II schools in teacher perception of school safety, although differences between tier III schools and the other two tiers remained. On average, the percentage of ELL students in the school population was associated with an *improved* sense of school safety among NHPS teachers (t = 1.99, p ≤ 0.05), but no other school-level characteristics

Figure 2.10
Teachers' Responses on School Safety Domain Trend, 2009–2010 Through 2012–2013, by School Tier
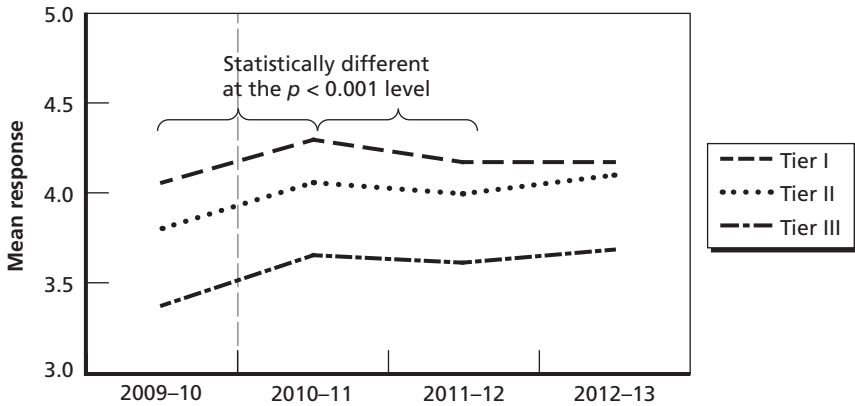
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data; *n* (schools) = 36.
NOTE: Tier I mean responses are statistically different from tier II (*p* < 0.05) and tier III (*p* < 0.001) responses. Mean responses from 2009–2010 to 2010–2011 and from 2010–2011 to 2011–2012 are statistically different (*p* < 0.001).
RAND *RR777-2.10*

had a statistically significant association with teachers' perceived school safety.

Taken together, our analyses of students' and teachers' perceptions of school safety suggest that, on average, teachers feel that their schools are less safe than students do. And, although there was an initial spike in perceived school safety with the inception of the School Change reforms, teachers and students in tier III schools continue to score school safety lower than do teachers and students in tier I schools. This relationship holds regardless of the average math scores, the percentage eligible for free or reduced-price lunch, or the percentage of ELLs in the school. *These findings suggest that, while improvements to school safety are slowly taking hold, students and teachers seem to have differing opinions on exactly how safe they feel in their schools and that this subject should therefore be explored in more depth.*

How Stakeholders' Perceptions of the District and Schools' Engagement and Community Building Differed, by School Characteristics

Student Engagement Domain

Figure 2.11 illustrates the results for the student engagement domain scores over time for schools in each tier. Our analyses found that, between 2009–2010 and 2010–2011 ($t = 4.39$, $p \leq 0.001$), there was a statistically significant improvement in student responses on student engagement. Yet from 2010–2011 through 2012–2013, scores on the student engagement domain remained relatively stable; there were no significant changes, positive or negative. We found that students in tier I schools reported a higher sense of engagement than did students in tier II schools ($t = 2.47$, $p \leq 0.05$) and tier III schools ($t = 3.68$, $p \leq 0.001$) through the years. The differences between average responses in tier I schools and both tier II and tier III schools were statistically

Figure 2.11
Students' Responses on Engagement Domain Trend, 2009–2010 Through 2012–2013, by School Tier
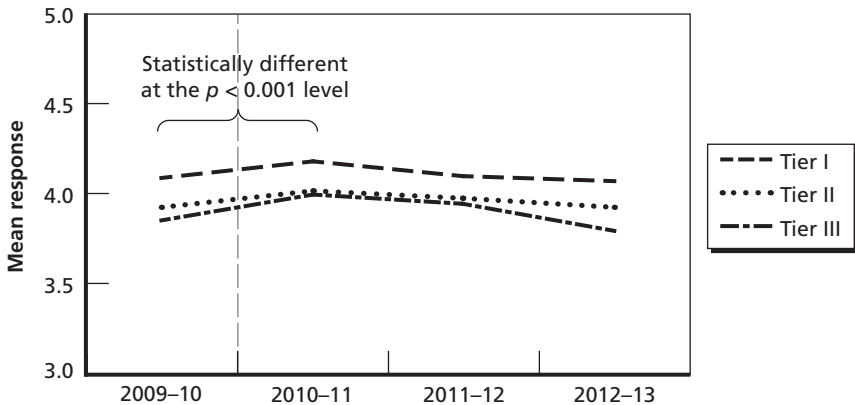
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data; n (schools) = 36.
NOTE: Tier I mean responses are statistically different from tier II ($p < 0.05$) and tier III ($p < 0.001$) responses. Mean responses from 2009–2010 to 2010–2011 are statistically different ($p < 0.001$).
**RAND** *RR777-2.11*

significant over time. But student engagement scores were not significantly different over time between tier II and tier III schools. Although trends by tier for other student domains examined in this study found that tier I and tier II schools typically had more similar average SLE scores, tier II and tier III are more similar here.

Mean student engagement domain results for schools in each tier, after accounting for key school-level characteristics, showed that the general trends noted in Figure 2.11 remained: All schools continued to demonstrate a marked improvement in the student engagement domain between 2009–2010 and 2010–2011, with levels again remaining flat from 2010–2011 through 2012–2013. Differences in students' perceptions of engagement levels remained between tier I and both tier II and tier III schools.

Teacher-Parent Communication Domain

Figure 2.12 illustrates the results of our analyses of teacher responses to the parent communication domain (note that this set of questions was not asked in 2012–2013). We found that, across schools in all tiers, teachers' responses about the level of parent communication improved between 2009–2010 and 2010–2011 ($t = 2.42$, $p \leq 0.05$); however, there was no discernable change between 2010–2011 and 2011–2012. We also found that teacher perceptions of parent communication levels were better in tier I than in tier II ($t = 2.89$, $p \leq 0.01$) and tier III ($t = 3.50$, $p \leq 0.001$) schools, but no difference was observed between tier II and tier III schools over time.

After accounting for school attributes, our analyses found that somewhat smaller but still measurable differences remained between tier I and both tier II and tier III schools in teachers' responses on levels of parent communication. Furthermore, school type was strongly associated with school-level variability in teacher responses about parent communication: Teachers in K–8 schools reported more parent communication than did teachers in 9–12 schools ($t = 5.85$, $p \leq 0.001$). The pattern of change between 2009–2010 and 2011–2012 remained the same.

Figure 2.12
Teachers' Responses on Parent Communication Domain Trend, 2009–2010 Through 2012–2013, by School Tier
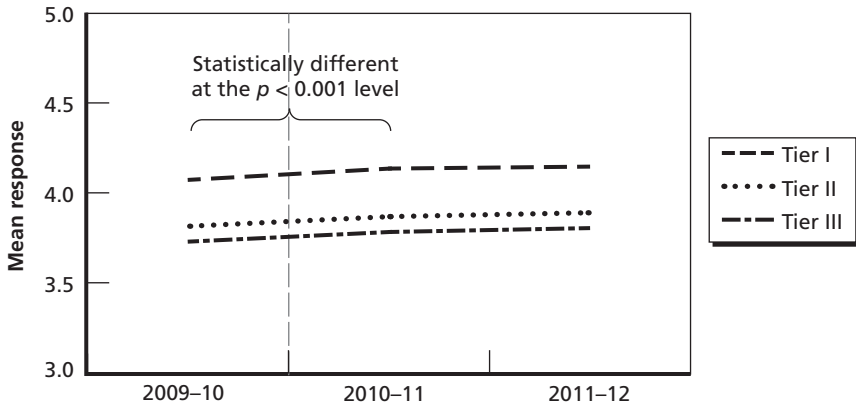
SOURCES: NHPS student SLE surveys, various years; NHPS district administrative data; *n* (schools) = 36.
NOTE: Tier I mean responses are statistically different from tier II (*p* < 0.01) and tier III (*p* < 0.001) responses. Mean responses from 2009–2010 to 2010–2011 are statistically different (*p* < 0.001).
RAND *RR777-2.12*

Perceptions of Within-School Engagement and Relationships

In focus group discussions, about one-quarter of the participating Promise Scholars (two-thirds of whom were minority) said that they had noticed changes in peer-to-peer relations and peer-to-teacher relations since the inception of the School Change reforms, which they felt improved the overall school climate. Scholars in our focus groups who graduated from tier II and tier III high schools described how they witnessed their student bodies become more active and engaged. They referenced several student-initiated clubs and organizations, which served a wide range of purposes, from antibullying programs for targeted populations to academic tutoring and peer services. This type of student activity, if robust and sustained, could improve overall school climate by encouraging higher attendance, engagement, expectations, competence, esteem, and self-concept and could mitigate anxiety, depression, substance abuse, and antisocial behavior (Griffith, 1995; Scales and Leffert, 1999).

Parents with children at tier II schools perceived the new parent section of the school website as an improvement because it enabled them to monitor their children's progress (by viewing their grades, tasks, or attendance). However, parents expressed concern that the new "i-tech" emphasis created a barrier to engaging in their child's academics because they were not familiar with these modern tools and did not have the time to learn to use them.

Leadership and Administration Changes Affected Perceptions of Engagement

Promise Scholars commented that changes in school administration, brought about by the restructuring that occurred for tier III and some tier II schools as part of School Change, left impressions of both positive and negative impacts on the school climates. Students who graduated from tier III schools, which had been restructured as part of School Change, perceived a decline in the quality of staff relations: In one case, new leadership resulted in several teachers leaving in protest, and tense relationships between students and the new principal ensued. One student from a tier II school that had undergone a leadership change reported the shift's negative impacts: The new principal reportedly terminated student clubs and put in place rigid structures, and the school climate felt very "tense" on a daily basis. On the other hand, one Promise Scholar from a tier III school explicitly voiced appreciation for new leadership, believing that her new principal had helped implement more structure in her school, which she believed had been needed prior to the principal's arrival.

Parents in our focus groups typically associated their sense of school engagement with the perceived quality of the school's leader—and new leadership was not associated with parents' feeling more engaged. For example, parents at a tier III high school reported that new leadership made it more difficult to communicate and engage with the teachers and staff at the high school than under previous leadership. A parent explicitly said the new leadership in her daughter's tier II high school did not engage with parents; she felt that the new principal overlooked and neglected her opinions. This, in turn, made her feel as though she did not have a voice. Research shows that parental

comfort at the school is a necessary condition for parental engagement (Hoover-Dempsey et al., 2005). When the principal works to create a welcoming environment, parents are more likely to be responsive and to actively participate (Griffith, 2001).

Perceptions of District's Parent Outreach and Engagement Efforts
Overall, Promise Scholars did not perceive significant changes in the strategies their high schools or the district used to reach out to their parents or engage them since the inception of School Change. Promise Scholars said that, when Promise was announced, there seemed to be interest and awareness from their parents in learning about college opportunities for their children, but no public presentations to facilitate it. For example, two Promise Scholars in separate focus groups noted a strong desire for the district to deepen parents' knowledge about college opportunities and the college application and financial aid application processes because they felt their parents understood little about those topics.

All the Latino students in our focus groups reported that their parents felt afraid of getting involved at school and did not know how to voice their opinions, in many cases because they themselves had not attended high school and were unaware of how the educational system works. A couple of students who graduated from a tier I and a tier II school suggested schools should provide informative materials (newsletters, videos, and even workshops) in Spanish to educate Latino parents on college applications and financial aid processes. A study on the Kalamazoo Promise reported similar findings that highlighted the need for new means of communicating with Latino families, especially considering language barriers, education backgrounds, and limited access to computers. Latino students in that study proposed sending letters home to reach parents, while parents preferred in-person meetings (Tornquist, Gallegos, and Miron, 2010).

Few parents reported knowing about the SLE surveys that were sent home. Of those who knew of them, nearly all perceived these surveys to be irrelevant and not helpful in facilitating parental engagement. Parents voiced disappointment that these surveys were administered after major changes had already taken place or been decided on,

making them question how much their input would really be taken into account. They would have preferred to be part of strategy development or discussions about impending changes. About a quarter of the parents labeled these surveys as "a waste of time" and admitted to filling them out the first year and discarding them in subsequent year(s). A few parents, all of minority backgrounds, mentioned that they would like to participate more in their children's schooling but felt intimidated by the larger schools: They were unsure who to speak with if they had questions and, in general, did not feel welcomed at the school. Given that parents are often cited as one of the top three sources of college information and help for students, this communication barrier is noteworthy (Auerbach, 2004). Furthermore, parental involvement throughout the K–12 system has been linked to positive outcomes, including better grades, success in school, higher standardized test scores, higher self-esteem, greater social competence, reduced substance use, aspirations for college, enrollment in college, and participation in out-of-school programs (Wartman and Savage, 2008). This holds true even when accounting for cultural differences. Minority students have high educational success and enroll in college, regardless of family income, when parents are informed and involved (Anguiano, 2004; Perna, 2002; Salinas et al., 2000). Furthermore, research has shown that parents are most likely to engage in the school when the school provides convenient and relevant opportunities to do so (Dauber and Epstein, 1993). Without direct outreach from the school and district, strong family-school relationships are unlikely to develop.

Concluding Remarks

Four key findings emerged from the SLE analyses presented in this chapter:

- On average, students' and teachers' responses on the SLE survey were relatively positive, ranging from 3 to 4 on a scale of 1 to 5. However, it is important to note that we were able to analyze only student and teacher responses and not parents' or school staff's

responses, due to low response rates. Parents are a key stakeholder in their children's education, and their opinions and perspectives should be a core component of a measure of a school's climate.

- For both teachers' and students' responses examined in this study, the typical trend was a measurable improvement between 2009–2010 and 2010–2011, followed by a small or statistically insignificant change in subsequent years. It is difficult to determine what could have caused this initial improvement and leveling off; it could have been due to initial excitement about the reform efforts, could have been due to real improvements that occurred in the first year of the reform that did not carry through in subsequent years, or could be an artifact of who responded to the questions. Because the SLE is anonymous, we were not able to link responses to specific students or teachers, so we were unable to determine whether students or teachers responded differently based on their characteristics (age, length of time at the school, gender, or race or ethnicity, for example).

- Most of the domains of school climate we examined tended to have statistically significant differences over time between tier III and tier I schools. This is not surprising, given that a school's aggregated SLE score is used as one piece of information in the decision of a school's tier each year. Schools designated as tier III receive extra support from the district or are restructured. We would therefore have expected that differences in school climate, as measured through the SLE responses among the tiers, would have narrowed slightly over time. We did not find this to be the case.

- Generally speaking, school-level characteristics appeared to be more strongly associated with variations in students' responses on each domain RAND created than with variation in teachers' responses.

Analysis of focus group discussions revealed that Promise Scholars and parents of Promise Scholars in our discussion sessions felt the impact of changes in NHPS district that aimed to enhance or promote school climate, engagement, and teaching or instruction. However, on

average, they felt as though the changes were not adequately implemented or had counterproductive consequences that hindered district improvements. This sense of dissatisfaction seemed to be driven by two primary factors.

First, Promise Scholars and parents of Promise Scholars in our focus groups were concerned that the staff restructuring or movement across schools that occurred in the early years of the reform were confusing and did not always seem to produce improvements in instruction, classroom practice, or school climate. Although some Promise Scholars expressed that they received a few "good" new teachers as a result of the relocation of teachers, this was not always perceived to have been effective. Some Promise Scholars noted that new teacher replacements did not seem qualified or experienced. When teachers left or relocated to new schools, Promise Scholars reported having felt "abandoned." While changes in administration were intended to bring new leadership and structural changes to high schools, Promise Scholars and parents both explained how new principals retained great influence in altering a school's climate. Several students who attended different tier II and tier III schools explained how student-led clubs were closed; relationships between teachers and administration grew tense; and the overall structure of the school seemed to become overly rigid. Such changes led to a perceived decline in the school's climate, according to several focus group participants. Although based on a small number of reports, these issues raise the question: To what extent are teacher or administrator reassignments or school staff restructuring indeed improving instruction, classroom practice, or school climate—as they are intended to do? It also raises the question of whether the negative impressions of the respondents in our focus groups were due to their having experienced only the initial period of the reform, in which one would expect disruption. Once the reform efforts take hold, the student and parent population might start to feel more comfortable with the changes.

Second, parents of Promise Scholars in our focus groups did not feel as though the schools their children attended or the district as a whole was more welcoming or that they were made to feel more engaged. The methods NHPS used to engage parents did not seem

effective or sincere, according to parents. Even though the SLE surveys probed parents for their feedback, parents believed the questions to be too vague and that the survey was not timely. Moreover, parents reported that there was no established system to smoothly facilitate parent involvement in schools—especially the larger ones. In other settings, educational programs that have aimed to improve communication between educational institutions and parents have resulted in increased parental confidence and involvement with their child's postsecondary higher education (Auerbach, 2004; Wartman and Savage, 2008; Salinas et al., 2000). This finding is especially significant for first-generation college students (Auerbach, 2004) and for low-income parents facing obstacles to attending school functions while tending to family and work obligations (Weiss et al., 2003). Both populations were well represented in our focus group samples.

In the remainder of this report, we shift focus from the internal processes within schools toward core goals of School Change (ameliorate the achievement gap with the rest of Connecticut, cut dropout rates, and support college going and success in college) and Promise (support access to college).

Eliminating the Achievement Gap: Analysis of State Student Assessment Results

The previous chapter explored student, parent, and teacher perspectives on changes in school climate, learning environment, school safety, and engagement to provide a general understanding of what has happened within schools since the inception of the reforms through the eyes of key stakeholders. This chapter examines the progress NHPS has made toward meeting one of the goals of School Change: eliminating the gap in academic performance between students in NHPS and students in the rest of the state. The analyses described in this chapter report trends in CMT scores for students in grades 3 through 8, as well as the 10th grade CAPT in the years directly preceding the implementation of School Change and the first three years of the reform's staged implementation (2010–2011, 2011–2012, 2012–2013). We used these data to answer three research questions:

1. **How did NHPS's progress compare with that of similar districts in the state?** How did NHPS's progress in CMT and CAPT scores compare with the progress that sociodemographically comparable districts across the state made?
2. **Did a school's tier make a difference?** Did trends in NHPS elementary and middle school students' performance on CMT vary across schools with different tier designations?
3. **Why might some schools have improved more than others?** Did NHPS elementary and middle schools that significantly improved their CMT scores have different student body or

teacher characteristics from schools that did not make improvements?

We addressed the first research question using both the CMT and CAPT scores. For the other two questions, we examined individual-level changes in scale scores from one year to the next and from adjacent grades within the same school. The CAPT was not useful for this examination because no comparable tests are administered in 9th or 11th grade (i.e., directly adjacent to 10th grade), so it is not possible to observe changes in scores from school year to school year at the high school level. Therefore, our analyses for the latter two research questions are limited to CMT performance among elementary and middle schools in the district.

Analytic Approach

To date, the district's published reports that compare average district scores on the CMT with the average scores of all students in the state indicate that the scores of NHPS students improved between 2008 and 2013 and at nearly twice the rate of the students in the state. While these improvements are notable and bode well for the district, comparing average scores could obscure important differences among schools, within schools, or across student subgroup populations. For example, if a large number of economically advantaged families with high-achieving children moved into the district in the years around the start of the reform, an observed increase in test score averages might reflect sociodemographic and/or academic compositional changes in the student population rather than real improvement in student learning. Knowing this information could help the district target specific subgroups or schools that might need stronger supports. Therefore, to understand whether the district is making strides in improving the academic proficiency of its students, our approach separated improvements in test scores due to trends in the sociodemographic composition or academic profile of students living in the district from improve-

ments that could be due to the implementation of School Change. Our first research question specifically addresses this issue.

To compare NHPS's progress with that of similar districts in the state, we compared the CMT and CAPT scores of NHPS students with the scores of a purposefully selected group of districts in the state whose student bodies had sociodemographic and academic profiles similar to that of the student body in NHPS. Given that a higher proportion of students identify as racial-ethnic minorities in the NHPS district than in most districts across the state and that the City of New Haven has a higher concentration of poverty than the rest of Connecticut, our approach provides a rigorous and relevant baseline on which to gauge progress. In these analyses, we used synthetic control group comparisons, with robustness checks in the form of a synthetic control group difference-in-difference approach to corroborate the main findings. Technical details regarding the synthetic control group comparisons and synthetic control group difference-in-difference analyses are in Appendix B in the companion volume.

We also examined whether a school's tier made a difference in students' CMT scores over time, using elementary and middle schools' tier designations as of the 2010–2011 academic year. As mentioned in Chapter One, a centerpiece of School Change is assigning schools to a tier (I, II, or III) based on growth in test scores and SLE survey results and, for high schools, college-going rates of their graduates and high school graduation rates. The highest-performing schools with the strongest learning environments are given a tier I designation, and the lowest-performing schools with the weakest learning environments are given a tier III designation. Tier III schools obtain more strategic resources and attention from the district central office to help them improve. We anticipated that any gains observed in test scores would be amplified among students attending tier III schools.

To test this, we tracked trends in elementary and middle school students' CMT scores within the district before and after the reform efforts were implemented, juxtaposing *actual performance* with *predicted performance*. We calculated the predicted performance as a forecast of expected performance of students given changes in the sociodemographic composition and academic profile of the student popula-

tion over time. These forecasts provide an estimation of what achievement trends might potentially have looked like in the district had the School Change initiative never been implemented. We then use a form of a linear spline analysis to test whether there were significance differences between the actual performance and the predicted performance of students. We graph both trends for schools with varying tier designations. It is important to note that tier designations are in part determined by test scores. Therefore, we examined initial tier designations in relationship to subsequent achievement scores. This temporal ordering is necessary to circumvent tautological conclusions.

To explore why some schools might have improved more than others, we explored possible factors that could have contributed to trends in district CMT scores over time. To do so, we classified schools based on whether their CMT scores improved following the passage of School Change and examined whether schools whose CMT scores grew had distinctive student body or teacher characteristics. Our analysis of teacher characteristics is of particular interest, given that past research shows that teacher inputs are important determinants of student performance (Darling-Hammond, 2000) and that improving the quality of the teaching staff is a central objective of School Change. Technical details regarding the linear spline analysis appear in Appendix C in the companion volume.

Limitations of the Analyses

Our analysis of achievement test scores had three limitations. First, as with all analyses in this report, Promise and School Change were conceived and initiated at the same time and were applied to all students attending NHPS. Further, evaluation design decisions were made retrospectively, after the reforms had already been implemented. These factors precluded randomization, which is the optimal strategy to determine whether educational policies and programs have a causal effect on student outcomes. In the absence of randomization, we used a range of rigorous analytical methods that allowed us to estimate *potential* causal relationships. However, we could not identify with certainty whether the reform is or is not *directly* influencing observed changes in achievement test scores.

Second, while we were able to document the sociodemographic characteristics of students and the qualifications of teachers in schools that were improving and schools that were not improving, these provided only a surface glimpse at the broad range of potential reasons for change and stability in student performance. School Change is a complicated reform effort that alters the landscape and operation of schools over time. It was anticipated to change the culture of the classroom, the nature of student engagement, the support of the parents, and trust in school leadership. While the sociodemographic characteristics of students and the qualifications of teachers are important indicators of how schools differ structurally, by no means can they definitively explain variation in performance between or among schools.

Finally, a number of other broader economic and policy changes were going on at the state and national level at the same time. School Change was initiated as the Great Recession was subsiding. Further, state (Substitute Senate Bill No. 438) and federal (Health Care and Education Reconciliation Act of 2010) education and health reforms were implemented at the same time that School Change was initiated. Exiting the recession likely improved the financial situation of the families of the students, perhaps leading to more parent involvement, better student nutrition, and lower stress, all of which are likely to contribute to student achievement. It is not possible to entirely parse out achievement trends due to School Change apart from achievement trends that may have been caused by these broader economic and policy changes.

Comparing NHPS's Progress with That of Similar Districts in the State

Methodology
To answer the first research question, we compared the CMT scores of 3rd- through 8th-grade students and CAPT scores for 10th grade students in NHPS with a purposefully selected comparison group of Connecticut public school districts that had student bodies sociodemographically similar to that of NHPS as of 2010–2011 (the first year of the reform). We obtained school-level data for all districts in Connecti-

cut from the Connecticut Department of Education. We aggregated the school-level data to the district level for all 194 districts (including NHPS) in the state, spanning the 2005–2006 through 2012–2013 school years. For a district to be eligible for inclusion in our comparison group, it needed to be similar to NHPS in terms of student population size, racial or ethnic composition (measured by percentage of students who identified as Hispanic or African-American), and family income (as measured by percentage of students eligible for free or reduced-price lunch).[1] We did this in a two-step process. In the first step, we excluded districts that had fewer than 2,000 students, those in which less than 9 percent of the student population was Hispanic or black, and those with less than 9 percent of the student population receiving free or reduced-price lunch. This first step eliminated 147 districts for the elementary and middle school analysis and 152 districts for the high school analysis (of the total 193, not including NHPS) that had student populations with sociodemographic portraits dissimilar to that of NHPS. In the second step, we constructed weights for the 46 districts for 3rd through 8th grade and 41 for high school to maximize the comparison group's similarity with NHPS and districts in terms of preform CMT scores (2005–2006 to 2009–2010), racial-ethnic composition, and family income. Districts in the comparison group that were more similar to NHPS in the preform years with respect to preform CMT scores, racial-ethnic composition, and family income were given more weight, and districts that were less similar to NHPS in the preform years were given less weight.[2]

In our analysis, we plotted the math and reading CMT and CAPT scores for both NHPS and the comparison group districts. We standardized the scores by the state's mean and standard deviation in each year and thus were able to interpret them in terms of how many standard deviations the district and the comparison group were above

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[1]   In 2010, New Haven had approximately 20,000 students, 87 percent of whom were either Hispanic or black and 80 percent of whom were receiving free or reduced-price lunch.

[2]   Appendix B in the companion volume provides more detailed information on the comparison group selection process and the accompanying weighting scheme—often referred to as synthetic control group comparisons.

or below the state's mean. Finding that NHPS outperformed the comparison group districts in the postreform years would be suggestive evidence that the reform efforts could have contributed to improvements in student achievement in the district.

Findings

Figures 3.1 and 3.2 show CMT scores for the district and the comparison group from 2005–2006 through 2012–2013. The vertical axis ranges from 0 to –1 because both NHPS students and the comparison group districts scored below the state average, which was set to 0 for ease of interpretation. The solid line in each figure represents the actual scale scores for NHPS, and the dotted line represents the weighted scale scores for the comparison districts. The vertical solid line intersecting the figure separates the five prereform school years from the three postreform school years. During the prereform years, the scores for NHPS and the comparison group districts were essentially identi-

Figure 3.1
Math Connecticut Mastery Test Scale Scores: NHPS and Comparison Group Districts
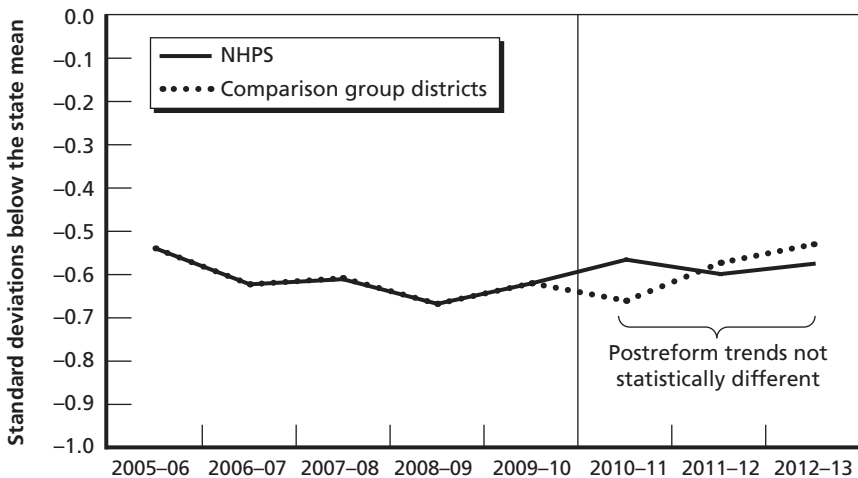
SOURCE: Connecticut Department of Education.
NOTE: NHPS and comparison group district trends in test scores from 2010–2011 through 2012–2013 are not statistically different.
RAND *RR777-3.1*

Figure 3.2
Reading Connecticut Mastery Test Scale Scores: NHPS and Comparison Group Districts

SOURCE: Connecticut Department of Education.
NOTE: NHPS and comparison group district trends in test scores from 2010–2011 through 2012–2013 are not statistically different.
RAND *RR777-3.2*

cal by design because the districts included in the comparison group were weighted to be similar to NHPS in terms of CMT scale scores, race-ethnicity composition, and family income before the reform was implemented.

Figure 3.1 shows math CMT scores for NHPS elementary and middle schools and the scores for the comparison group districts from 2005–2006 through 2012–2013. Across the five school years prior to School Change, there was a decline in math achievement in NHPS relative to the rest of the state, from 0.54 of a standard deviation below the state mean in 2005–2006 to 0.62 of a standard deviation below the state mean in 2009–2010. However, in the years following the implementation of School Change, math achievement in NHPS improved relative to the state overall, from 0.62 of a standard deviation below the state mean in 2010–2011 to 0.57 of a standard deviation below the state mean in 2012–2013. Despite this improvement, it should be

noted that students in NHPS remained below the state mean by a little more than half of a standard deviation.

In 2010–2011, NHPS outperformed the comparison group districts. Then, in the subsequent two years, the comparison group districts outperformed NHPS. However, it should be noted that, in both the five prereform school years and the three postreform years, there were no statistically significant differences in the scale math scores between NHPS and the comparison group districts.[3]

The overall trends in reading scores, shown in Figure 3.2, were similar to those observed for math scores. In the five school years leading up to the implementation of the reform efforts, there was an overall decline in reading achievement in the district relative to the state, from 0.56 of a standard deviation below the state mean in 2005–2006 to 0.66 of a standard deviation below the state mean in 2009–2010. In the school years following the implementation of School Change, there was a small improvement in reading achievement in the district relative to the state, from 0.62 of a standard deviation below the state mean in 2010 to 0.56 of a standard deviation below the state mean in 2012–2013.

In 2010–2011, NHPS slightly outperformed the comparison group districts. Then, in the subsequent two years, the comparison group districts slightly outperformed NHPS. As with the math CMT score analysis depicted in Figure 3.1, however, the postreform results for NHPS and the comparison group districts were not significantly different from each other.

Figures 3.3 and 3.4 show CAPT scores for the district's 10th graders and scores for the comparison group from 2006–2007 through 2012–2013 for math and reading, respectively. Figure 3.3 illustrates that, during the prereform years, math achievement in NHPS steadily improved relative to the rest of the state, from 0.95 of a standard deviation below the state mean in 2006–2007 to 0.83 of a standard deviation below the state mean in 2009–2010. The scores for NHPS and the comparison group districts were essentially identical by design during

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[3] Appendix B in the companion volume provides detailed information on the statistical tests used to compare the trend lines for NHPS with those of the comparison group districts.

Figure 3.3
Math Connecticut Academic Performance Test Scale Scores: NHPS and
Comparison Group Districts
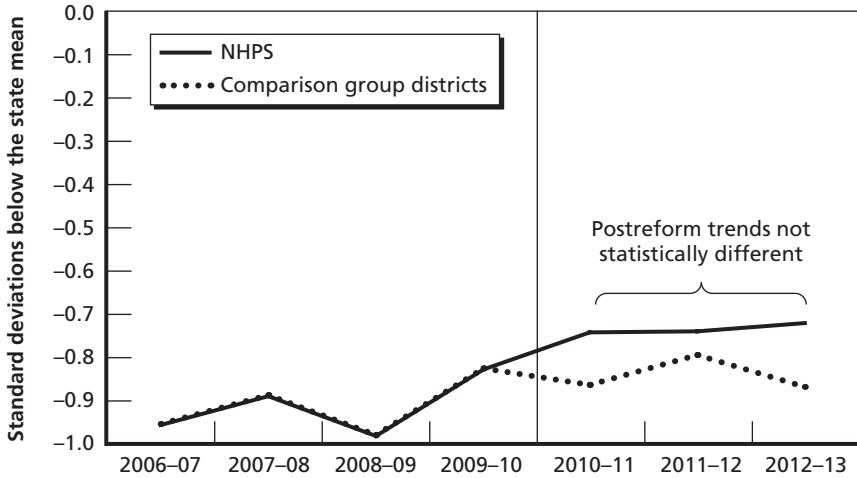
SOURCE: Connecticut Department of Education.
NOTE: NHPS and comparison group district trends in test scores from 2010–2011 through 2012–2013 are not statistically different.
RAND *RR777-3.3*

the prereform years because the districts included in the comparison group were weighted to be similar to NHPS in terms of CAPT scores, race-ethnicity composition, and family income before the reform was implemented. In the years following the implementation of School Change, there was little improvement in math achievement in NHPS relative to the state, increasing only from 0.74 of a standard deviation below the state mean in 2010–2011 to 0.72 of a standard deviation below the state mean in 2012–2013, although New Haven's scores were higher in all three postimplementation years. However, there were no statistically significant differences in the scale math scores between NHPS and the comparison group districts.[4] Despite this improvement, it should be noted that students in NHPS remained below the state mean by more than 0.50 of a standard deviation.

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[4] Appendix B in the companion volume provides detailed information on the statistical tests used to compare the trend lines for NHPS with those of the comparison group districts.

Figure 3.4
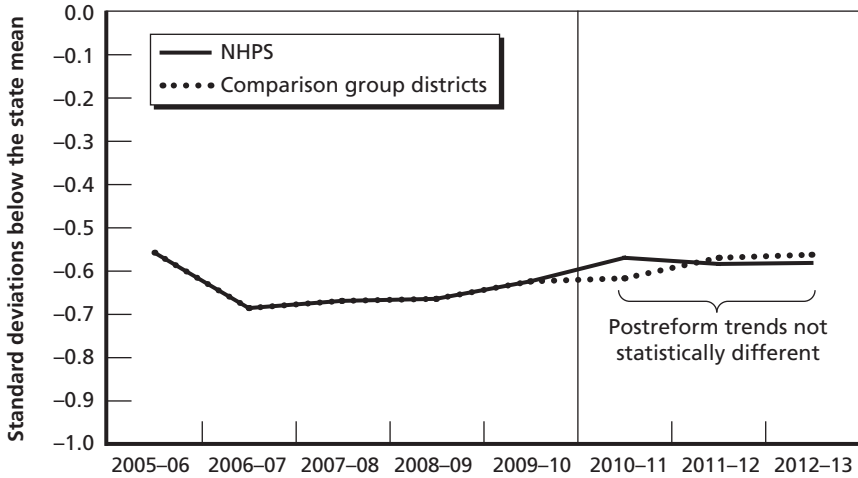**Reading Connecticut Academic Performance Test Scale Scores: NHPS and Comparison Group Districts**
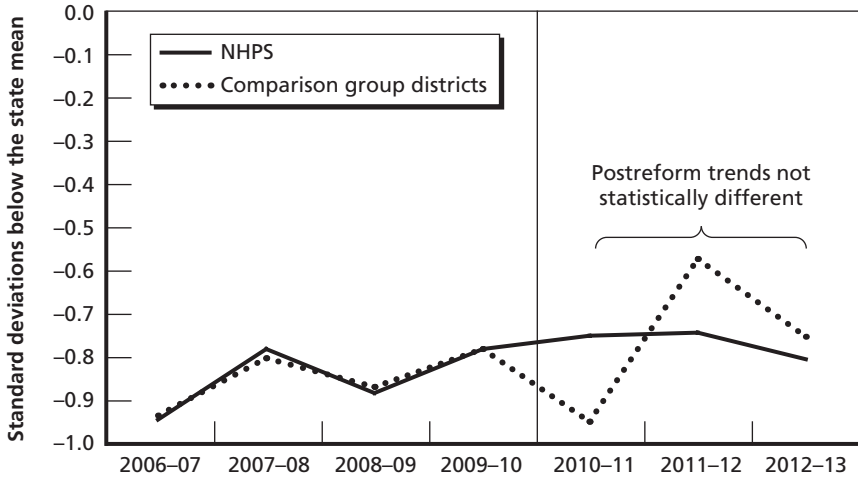
SOURCE: Connecticut Department of Education.
NOTE: NHPS and comparison group district trends in test scores from 2010–2011 through 2012–2013 are not statistically different.
RAND *RR777-3.4*

Figure 3.4 shows reading CAPT scores for NHPS and the comparison group districts from 2006–2007 through 2012–2013. In 2010–2011, NHPS outperformed the comparison group districts; in the subsequent two years, the comparison group districts outperformed NHPS. However, it should be noted that, in both the five prereform school years and the three postreform years, there were no statistically significant differences in the scale reading scores between NHPS and the comparison group districts.[5]

The overall trends in scale reading scores are similar to those observed for math scores. First, we examined NHPS's overall scores relative to the state average. In the five school years leading up to the implementation of the reform efforts, reading achievement improved overall in the district relative to the state, from 0.94 of a standard devi-

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[5]   Appendix B in the companion volume provides detailed information on the statistical tests used to compare the trend lines for NHPS with those of the comparison group districts.

ation below the state mean in 2006–2007 to 0.78 of a standard deviation below the state mean in 2009–2010. In the school years following the implementation of School Change, reading achievement declined slightly in the district relative to the state, from 0.78 of a standard deviation below the state mean in 2010 to 0.80 of a standard deviation below the state mean in 2012–2013.

Next, we compared NHPS students with the comparison group districts. In 2010–2011, NHPS slightly outperformed the comparison group districts; in the subsequent two years, the comparison group districts slightly outperformed NHPS. As with the math CAPT score analysis depicted in Figure 3.3, however, the postreform results for NHPS and the comparison group districts were not significantly different from each other.

Taken together, Figures 3.1 through 3.4 indicate that NHPS's CMT and CAPT test scores generally improved in the years following the implementation of School Change, yet NHPS performed as well on the math and reading CMT and CAPT as school districts in other parts of the state of similar size, racial or ethnic composition, family income, and prereform test scores. On the one hand, this is positive news, in that there are overall improvements in the district following the launch of the reform efforts. On the other hand, peer districts that were not exposed to School Change had similar test score trajectories through time after 2010–2011. This suggests that, in these early years, the reform efforts had not yet made distinctive contributions to achievement in math and in reading CMT or CAPT scores.

To test the robustness of our findings, we also conducted a synthetic control group difference-in-difference analysis. In this analysis, we used a broad set of covariates to match individual schools within the NHPS district with similar schools across the state. We then compared the difference between New Haven schools and the matched schools before School Change was implemented with the difference between New Haven schools and the matched schools after School Change was implemented. In comparing the difference in these differences (hence the name "difference-in-difference"), we were able to gauge whether achievement gains (or losses) observed in New Haven deviated from those observed for similar schools over time. The trend line for the

comparison groups serves to gauge aggregate temporal changes not caused by School Change and, in doing so, attenuates potential bias that could be induced by broader economic and policy changes outside School Change. In these supplementary analyses, we found that differences between New Haven and comparison schools were consistent before and after the reform was launched, corroborating the findings from the more simplistic synthetic control group comparison approach shown here. Appendix B in the companion volume describes the difference-in-difference approach and the findings more thoroughly.

Note that, in an ideal situation, we would want to compare NHPS to similar districts that had no reform efforts or school improvement policies in place. This would allow us to isolate the unique effect that School Change was having on students in New Haven. It is unlikely that schools in our comparison groups are not actively trying to improve the performance of their students—be it through districtwide reforms, such as School Change, or through more-targeted programs. *Therefore, our finding of no difference does not necessarily mean that School Change is ineffective but rather that, in its initial years, it is not improving the achievement of students beyond what measures comparable districts across the state are taking.*

Variation by School Tier

Methodology

A central component of the School Change initiative is to annually assign schools a ranking, or a "tier," that serves as a metric of school performance that would in turn help focus district attention and resources on the schools most in need of assistance. CMT scores, along with growth (or decline) in CMT scores over time and measures on the SLE survey, contribute to the tier assignment. There are three tiers: Tier I schools yield consistently high performance; tier II schools yield mixed or average performance; and tier III schools are deemed low performing. Tier III schools are of critical importance: Schools so labeled receive intensified focus and support to help them improve.

Given that the purpose of the tiering system is to galvanize support and resources for the schools most in need, one test of School Change's progress toward its goal to improve achievement scores is to examine whether test scores for students attending tier III schools improved in the years following tier assignment. To test this, we used data from NHPS students' CMT test scores in 30 elementary (K–5 and K–8) schools in the district spanning the school years 2007–2008 through 2012–2013: three academic years of prereform data (2007–2008 through 2009–2010) and three academic years of postreform data (2010–2011 through 2012–2013). Within the district, 32 elementary schools (including one transition school) were operational in 2013. We excluded two schools that had no tested grades and two schools that closed prior to School Change and, hence, were never assigned a tier. Four schools merged prior to School Change (from four schools to two schools), so we assigned the tier provided to the combined schools in the 2010–2011 school year. Lastly, we excluded the transitional school because it was not assigned a tier.

For students in the remaining 27 schools, we calculated the trend in performance using prereform years and forecast that trend for the three postreform school years, taking into account changes in the sociodemographic composition of the student population over time (i.e., increase or decrease in the number of students who are racial or ethnic minorities, recipients of free or reduced-price lunch).[6] These performance projections can be interpreted as estimates of what achievement trends might have looked like in the district had School Change initiative never been implemented. Our analyses compared NHPS students' actual performance with their predicted performance for schools in each of the three tiers.

A finding that students' actual performance outpaced their predicted performance would be suggestive evidence that School Change may have contributed to improvements in student achievement in the district. However, in lacking a comparison group external to the NHPS district, this analysis cannot account for the broader economic

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[6]   Appendix C in the companion volume provides detailed information on the construction of these achievement score projections.

and policy changes that occurred at the same time as the launch of School Change. Any observed improvements here could also be due to the end of the Great Recession, changes in state and national education policy, or other policies that may have indirectly affected youth well-being in New Haven.

Findings

Trends for Tier I Schools

Tier I schools are those that consistently exhibit high performance on standardized tests and yield high rankings on the SLE survey. As of the first year of the reform, the district had classified five schools as tier I. Because these schools were already high achieving, we anticipated that there would not be much achievement growth for these schools. Figures 3.5 and 3.6 plot the actual and projected math and reading CMT scores from 2007–2008 through 2012–2013 for students attending the five tier I schools. As in the previous figures in this chapter, the scores were standardized by the state mean (which is set to 0 for ease

Figure 3.5
Math Connecticut Mastery Test Scale Scores: Tier I Actual and Predicted
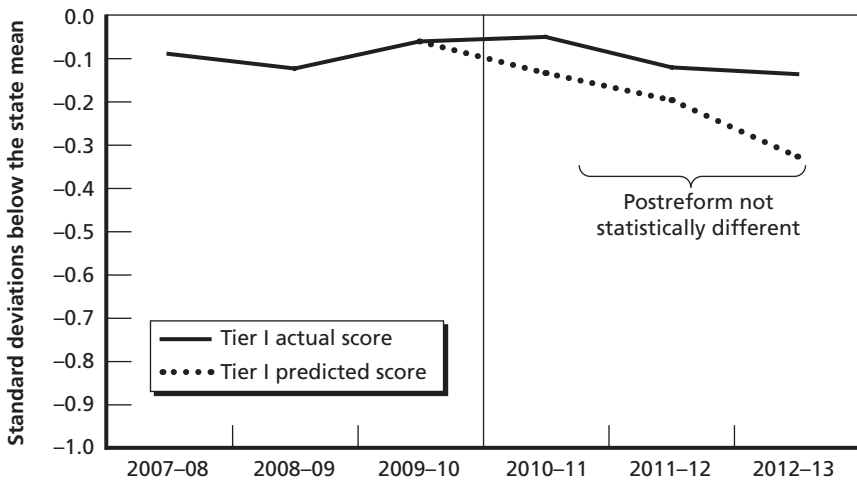
SOURCE: NHPS.
NOTE: Tier I actual test score trend from 2010–2011 to 2012–2013 is not statistically different from RAND's predicted test score trend.

RAND *RR777-3.5*

Figure 3.6
Reading Connecticut Mastery Test Scale Scores: Tier I Actual and Predicted

SOURCE: NHPS.
NOTE: Tier I actual test score trend from 2010–2011 to 2012–2013 is not statistically different from RAND's predicted test score trend.

RAND *RR777-3.6*

of interpretation) and standard deviation in each year. The vertical axis in these two figures ranges from –1.0 to 0.0 to visually accommodate the scores of this select group of schools, which were close to the state average.

Both math and reading scores for students attending tier I schools were at their highest during 2010–2011, the first year of the reform: Reading scores matched the state average, and math scores were only 0.05 of a standard deviation below the state mean. Scores in both subjects declined slightly in the two subsequent years. The actual performance of students attending tier I schools was higher than the forecast performance of students in tier I schools, which was projected to go downward in the postreform years, based on changing sociodemographic compositions. The difference between the actual trend line and the predicted trend line in the postreform years, however, was not statistically significant. Thus, as expected, *students in tier I schools did not exhibit statistically significant growth or decline in math or in reading following the implementation of School Change.*

Trends for Tier II Schools

Tier II schools yield mixed or average performance. As of the first year of the reform, 13 schools were classified as tier II. Although these schools were not achieving as highly as tier I schools, the district did not deem them to be in as much need of assistance as tier III schools. Tier II schools thus did not receive the substantial additional focus or resources from the district that tier III schools received. Figures 3.7 and 3.8 plot the actual and projected math and reading CMT scores from 2007–2008 through 2012–2013, respectively, for students attending the 12 elementary and middle schools classified as tier II.

The scores for students in tier II schools follow a similar pattern to those in tier I schools but are substantially lower overall. As in tier I schools, scores for students in tier II scores peaked during 2010–2011, the first year of the reform, then declined somewhat the next year and recovered the following year. The actual scores of students in the postreform years were only statistically different from the forecasted scores for math. *Reading scores for students in tier II schools did not grow substantially following the implementation of School Change, but math scores did increase slightly.*

Trends for Tier III Schools

Tier III schools consistently have low performance. As mentioned earlier, tier III schools received intensified focus and support to help them improve. Identifying schools as tier III and providing them with resources is at the heart of the School Change reform initiative. Accordingly, for School Change to be considered effective, we would expect the greatest gains in test scores to be among students enrolled in these schools. During the launch of the reform, 11 elementary and middle schools were identified as tier III. As with tier I and tier II, Figures 3.9 and 3.10 plot the actual and projected math and reading CMT scores, respectively, from 2007–2008 through 2012–2013 for students attending these ten schools.

Prior to the reform, math scores were on the decline for students in tier III schools. Following the launch of School Change, however, math scores stabilized. In the postreform years, the actual performance of students in NHPS was substantially higher than the forecast per-

Figure 3.7
Math Connecticut Mastery Test Scale Scores: Tier II Actual and Predicted
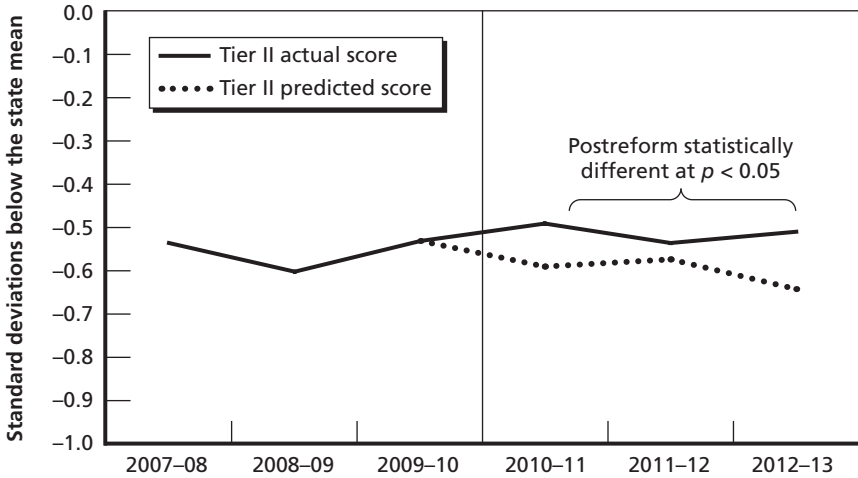
SOURCE: NHPS.
NOTE: Tier II actual test score trend from 2010–2011 to 2012–2013 is statistically
different from RAND's predicted test score trend ($p < 0.05$).
RAND *RR777-3.7*

formance, which was projected to decline. The difference between
the actual trend line and the predicted trend line in the postreform
years was statistically significant at $p < 0.01$. This suggests that School
Change was potentially effective in stabilizing math achievement
among students attending the lowest-performing schools. Reading
scores were also on the decline prior to the reform and then began to
increase. These improvements, however, were more modest. The differ-
ence between the actual trend line and the predicted trend line in the
postreform years is statistically significant at $p < 0.05$.

Taken together, these two figures show that *students in tier III*
schools exhibited sustained growth in math and reading following the
implementation of School Change. Although the gains observed here
were not dramatic, they do portend a positive direction for schools
with the greatest need in the district. However, as noted earlier, our
analytical strategy for examining trends over time by tier cannot rule
out the influence of other economic or policy variables. Thus, we cau-

Figure 3.8
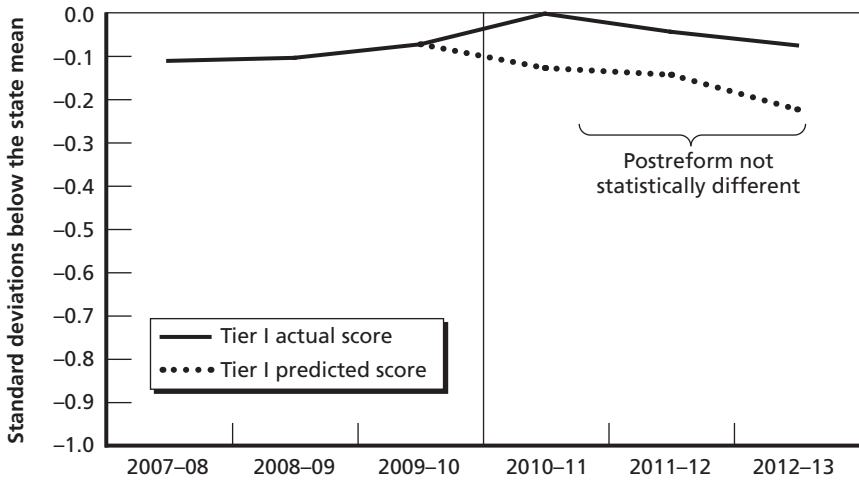**Reading Connecticut Mastery Test Scale Scores: Tier II Actual and Predicted**
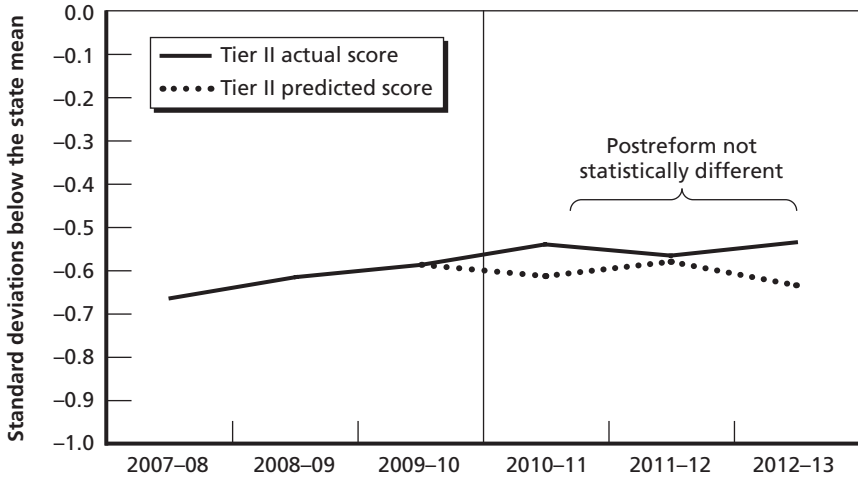
SOURCE: NHPS.
NOTE: Tier II actual test score trend from 2010–2011 to 2012–2013 is not statistically
different from RAND's predicted test score trend.
RAND *RR777-3.8*

tion that the changes observed may not be entirely due to the imple-
mentation of School Change.

Why Some Schools' Test Scores Might Have Improved
More Than Others

Methodology

School Change is predicated on improving the learning of students, so
identifying the characteristics of schools that are initially succeeding in
raising the achievement of their students provides a better understand-
ing of the early implementation of the reform. To explore why some
schools have improved more than others, we used student-level data
NHPS provided for 27 elementary and middle schools. Recall that 31
elementary schools were operational in 2013. Comparing school-level
changes in scores over time requires data on schools that were open
before and after the launch of the reform. Therefore, we excluded the

Figure 3.9
Math Connecticut Mastery Test Scale Scores: Tier III Actual and Predicted
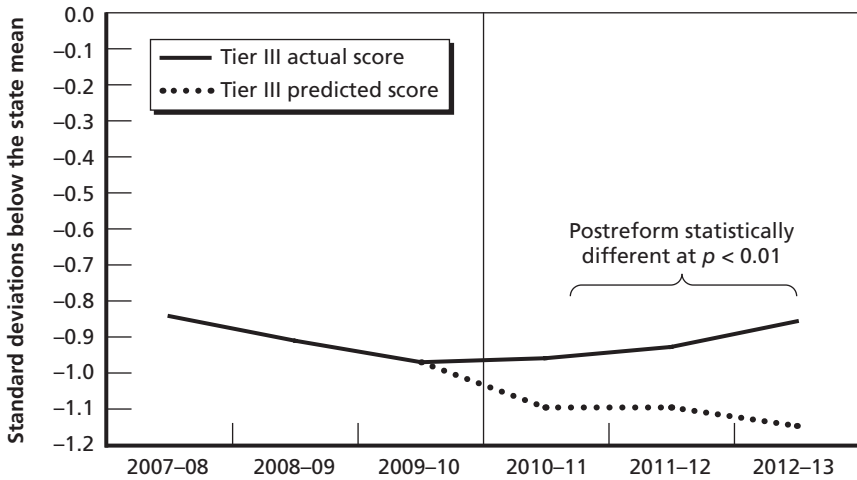
SOURCE: NHPS.
NOTE: Tier III actual test score trend from 2010–2011 to 2012–2013 is statistically
different from RAND's predicted test score trend ($p < 0.01$).
RAND *RR777-3.9*

schools that merged during this period ($n = 2$) and those that had no
tested grades ($n = 2$). We classified the remaining 27 schools in terms
of their early success at improving student performance in postreform
years (between 2010–2011 and 2012–2013) and then explored these
successful schools' student body sociodemographic characteristics and
teaching staff characteristics. Currently, the district comprehensively
documents the average proficiency level for each school as part of its
tiering process and No Child Left Behind reporting requirements.
Rather than rely on these indicators, we classified schools according to
changes in scale scores to closely examine school improvement, which
is a fundamental goal of the School Change initiative. Schools were
classified as having demonstrated early improvements if their actual
school-specific postreform scores were significantly different from pre-
dicted school-specific postreform years' scores in math and reading
(determined via our linear spline analysis, as described in Appendix C
in the companion volume).

Figure 3.10
Reading Connecticut Mastery Test Scale Scores: Tier III Actual and Predicted
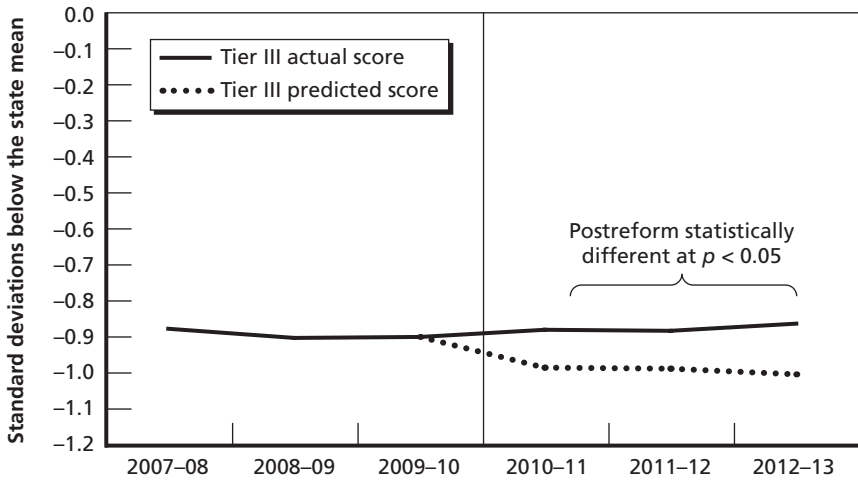
SOURCE: NHPS.
NOTE: Tier III actual test score trend from 2010–2011 to 2012–2013 is statistically
different from RAND's predicted test score trend ($p < 0.05$).
RAND *RR777-3.10*

We used four sociodemographic characteristics of a school's stu-
dent population, from the student-level district data in 2010–2011:
(1) racial or ethnic composition, measured by the percentage of stu-
dents who are black or Hispanic; (2) family income, measured by the
percentage of students receiving free or reduced-price lunches; (3) pro-
ficiency in English, measured by the percentage of students classified as
ELLs; and (4) the presence of a disability, measured by the percentage
of students receiving special-education services. We used four charac-
teristics of a school's teaching staff, from the teacher-level district data
in 2010–2011: (1) average years of teaching experience, (2) percent-
age of teachers with a master's degree, (3) the percentage of teachers
on staff who are new to the school; and (4) the percentage of teachers
who received a "strong" or above rating as part of their TEVAL eval-
uations. We plotted the distribution of the student body and teach-
ing staff characteristics for each school improvement category and
tested whether the distributions were statistically different between the

schools that improved in both reading and math and the schools that did not improve in either subject. To attenuate potential measurement error, we bootstrapped the standard errors in our linear spline estimation used to classify schools and in our tests comparing student and teacher characteristics.[7]

Findings

Table 3.1 shows the distribution of schools classified as demonstrating "no improvement" or "improvement" in reading and math, comparing the actual and predicted school-specific postreform years' scores. The majority of elementary and middle schools in the district improved in both critical subjects. Of the 27 schools, 13 improved in both subjects; six experienced improvement in math only; one school improved in reading only; and seven showed no evidence of improvement in either subject.

In the following sections, we explore whether the schools in these four categories have different student and teacher characteristics.

School Improvement and Student Sociodemographic Characteristics

Figure 3.11 shows whether schools that varied in their ability to improve student achievement also varied by racial or ethnic composition. For each of the four school improvement categories, we show the

Table 3.1
Distribution of Schools According to Their Improvement on the Math and the Reading Connecticut Mastery Test

		Reading	
		No Improvement	Improvement
Math	No improvement	7	1
	Improvement	6	13

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[7]   We randomly resampled schools from the original data set and fitted the linear spline to the resampled data. Parameter estimates were based on the resampled data, and schools were classified according to their estimated trends (improvement, no improvement). We then conducted T-tests on the resampled data to explore differences in demographics across classification categories. We repeated this process for 1,000 bootstrapped data sets.

Figure 3.11
School Improvement in Student Achievement, by Racial or Ethnic
Composition
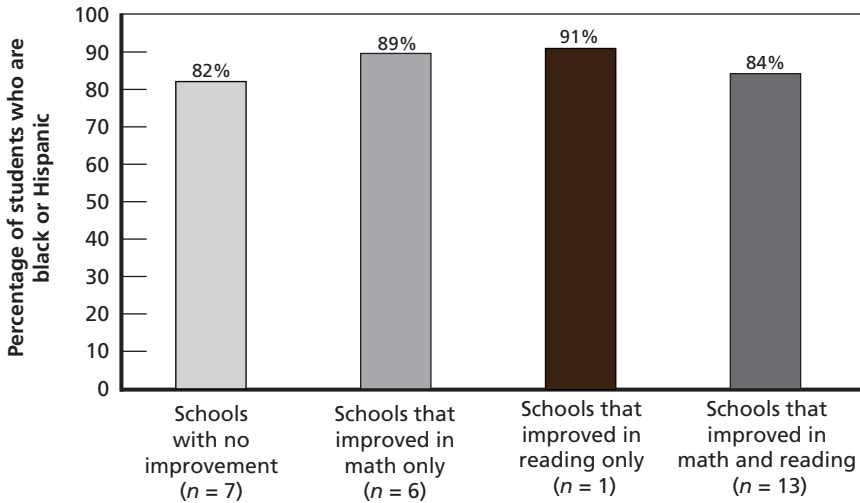
SOURCE: NHPS.

percentage of students enrolled who were black or Hispanic. Schools that improved in both subjects did not have a statistically different percentage of students who were black or Hispanic (84 percent) from schools that did not improve (82 percent). Schools that improved in a single subject had the largest percentage of black or Hispanic students, although these differences are not statistically significant.

Next, we assessed whether schools that varied in their ability to improve student achievement also varied by family income. For each of the four school improvement categories, Figure 3.12 shows the percentage of students enrolled who received free or reduced-price lunches. Schools that improved in both subjects did not have a statistically significantly different percentage of students receiving free or reduced-price lunch (85 percent) from schools that did not improve (85 percent). *Taken alongside the lack of statistical differences in the share of black or Hispanic youth across these achievement categories, our analyses suggest that, in the early years of the reform, the district was able to maintain the*

Figure 3.12
School Improvement in Student Achievement, by Family Income
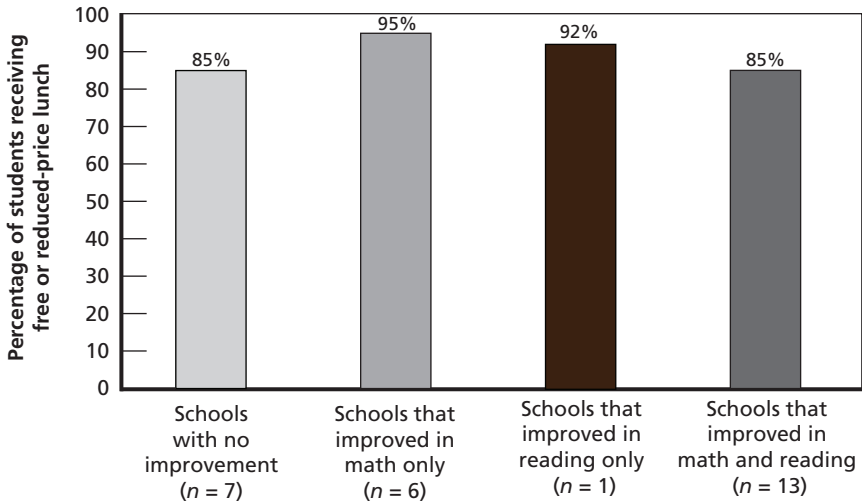
SOURCE: NHPS.

RAND *RR777-3.12*

level of support for students who are traditionally disadvantaged in the classroom.

Figure 3.13 illustrates variation in students' level of proficiency in the English language by school improvement classifications. Schools that improved in both subjects had a statistically lower percentage of students classified as ELL (7 percent) than schools that did not improve (20 percent). This difference—significant at $p < 0.01$—suggests that some schools may have been unable to serve the needs of students who were not proficient in English, which in turn impeded their achievement growth.

Figure 3.14 illustrates variation in percentage of students enrolled who received special-education services by school improvement classification. *School-level improvement in test scores was unrelated to students' disability: Schools that improved in both subjects were not significantly different in terms of the percentage receiving special-education services from schools that did not improve.*

Figure 3.13
School Improvement in Student Achievement, by English Proficiency
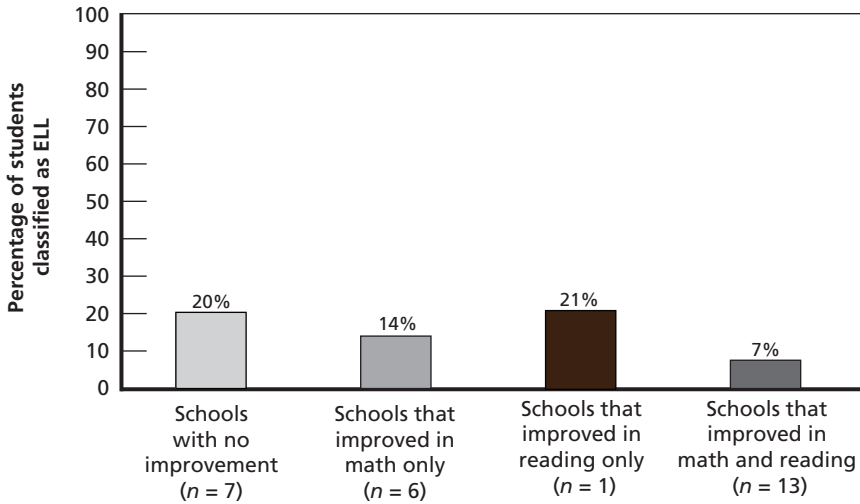
SOURCE: NHPS.

School Improvement and Teacher Characteristics

Figure 3.15 shows variations in the average number of years of experience for teachers in the schools in each school improvement category. Schools that showed the most improvement in math only had the highest average levels of teaching experience. However, the difference in teachers' average years of experience between schools that grew in both reading and math (12 years of experience) and schools that did not grow (11) was not statistically significant.

Figure 3.16 illustrates our examination of whether schools that varied in their ability to improve student achievement also varied in the percentage of teachers who had a master's degree. The seven schools that did not improve had the highest percentage of teachers with a master's degree. However, they were not significantly different from schools that improved in both math and in reading. This suggests that *schools with a higher proportion of teachers with higher degrees were not necessarily improving more than schools with a lower proportion of teachers with higher degrees.*

Figure 3.14
School Improvement in Student Achievement, by Disability
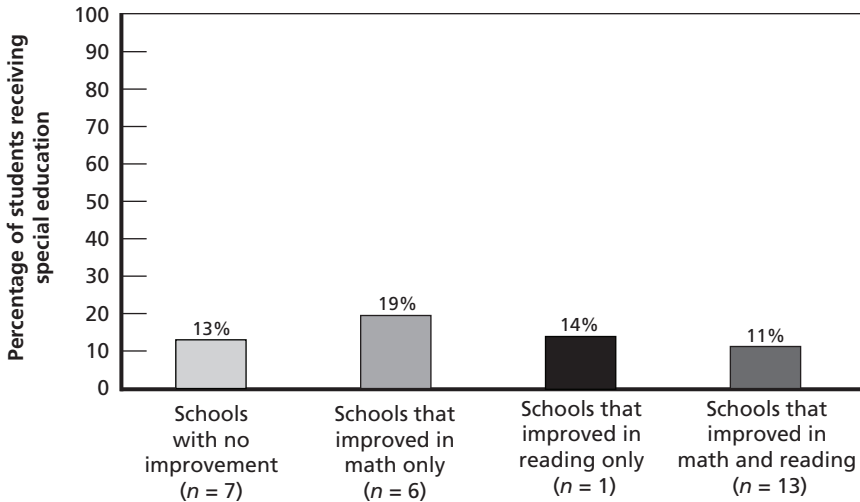
SOURCE: NHPS.

RAND *RR777-3.14*

Next, we looked at the percentage of teachers who were leaving the school as a measure of teacher turnover. Figure 3.17 shows the percentage of teachers leaving schools during the first year of the reform, by school improvement category. Schools that improved in both subjects had a statistically significant ($p < 0.05$) higher percentage of teachers (7 percent) leaving in 2010–2011 than did schools that did not improve (1 percent).

Finally, we looked at the relationship between schools' improvement on test scores and aggregated teacher evaluation scores, as measured through the TEVAL system in 2010–2011. In the TEVAL system, teachers can receive one of five ratings: exemplary, strong, effective, developing, or needs improvement. Figure 3.18 shows the percentage of teachers in schools who were rated as "strong" or above, by school improvement category. Schools that improved in both subjects had a higher percentage of teachers rated strong (48 percent) in 2010–2011 than did schools that did not improve (40 percent). However, this difference is not statistically significant. Schools with the highest percent-

Figure 3.15
School Improvement in Student Achievement, by Teacher Experience
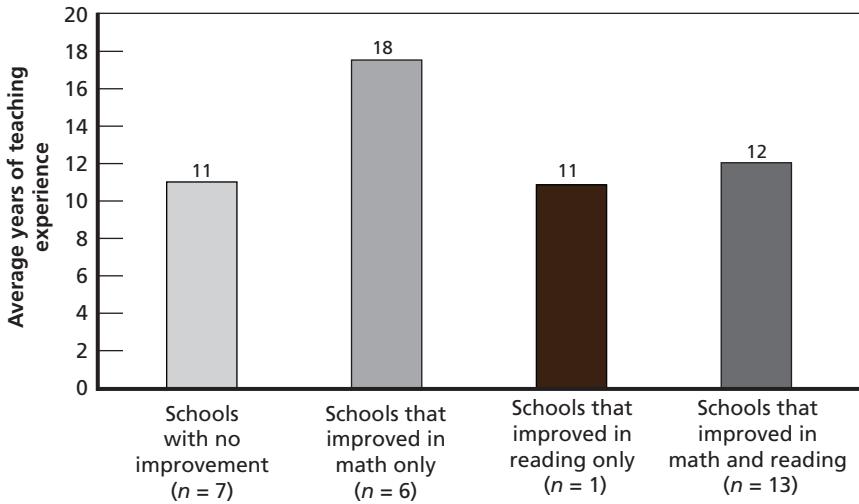
SOURCE: NHPS.

RAND *RR777-3.15*

Figure 3.16
School Improvement in Student Achievement, by Teacher Education
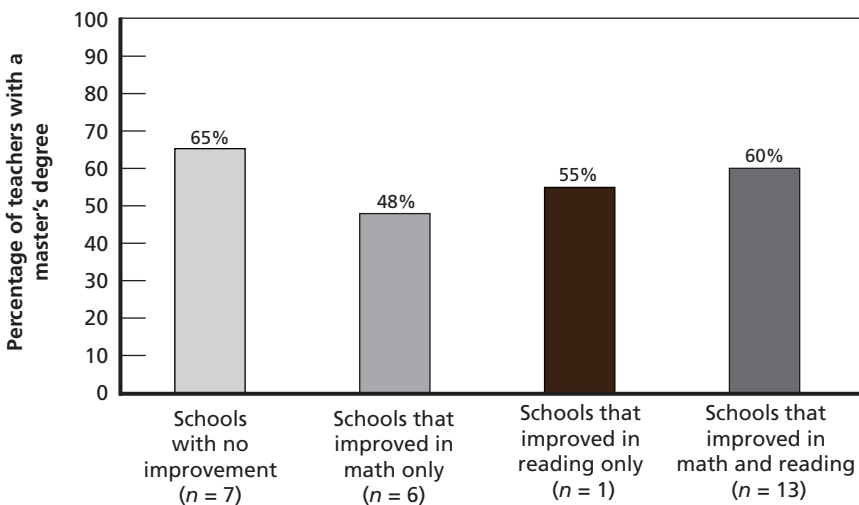
SOURCE: NHPS.

RAND *RR777-3.16*

Figure 3.17
School Improvement in Student Achievement, by Teacher Turnover
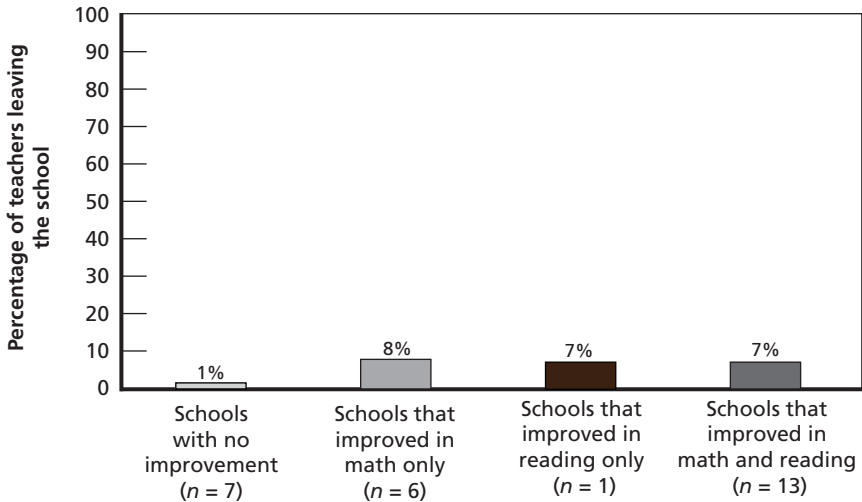
SOURCE: NHPS.

RAND *RR777-3.17*

age of teachers with a strong TEVAL rating were those that improved in math but not in reading.

Concluding Remarks

This chapter examined CMT scores in math and reading for elementary and middle school students and CAPT scores for 10th grade students to assess the extent to which NHPS has made progress toward meeting its goal of eliminating the gap in academic performance between students in NHPS and students in the rest of the state. On average, scores improved in the years immediately following the launch of School Change over previous years and were even higher than expected. This improvement was most notable in schools designated as tier III in 2010–2011.

To summarize the main points,

Figure 3.18
School Improvement in Student Achievement, by Percentage of Teachers Rated "Strong" or Above on TEVAL Ratings
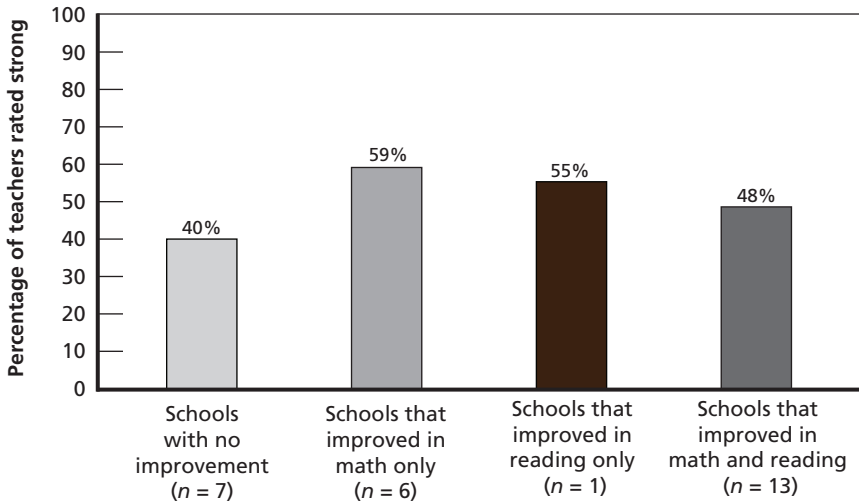
SOURCE: NHPS.

RAND *RR777-3.18*

- In the postreform years, students in NHPS performed as well as students in districts elsewhere in Connecticut that had a similar sociodemographic and academic profile.
- Test scores for tier III elementary and middle schools, which received intensive focus and resources, were higher than expected following the launch of School Change. This finding is particularly salient, given that the tiering system was put in place to turn around the schools most in need.
- It is positive news that almost one-half of elementary and middle schools (13 of the 27 schools we examined) improved in both math and in reading.
- Compared with the seven schools that did not improve, the 13 schools that did improve in math and in reading had lower percents of students who were not proficient in English and higher rates of teacher turnover.

Cutting the Dropout Rate: Analysis of NHPS District High School Dropout Rates

In this chapter, we examine the progress the district has made cutting the dropout rate in NHPS. We analyzed three years of data directly preceding the implementation of School Change and the first two years of the reform's staged implementation to answer three research questions:

1. **How does NHPS's dropout rate compare with those of similar districts in the state?** How did NHPS' progress in improving dropout rates compare with the progress that sociodemographically comparable districts across the state made?
2. **Did a school's tier make a difference?** Did trends in dropout rates vary across NHPS high schools with different tier designations?
3. **Why might some schools have improved more than others?** Did NHPS high schools that significantly improved their dropout rates have different student body or teacher characteristics from schools that did not?

Analytic Approach

To answer research question 1, we calculated event dropout rates for NHPS and comparable districts across the state. An event dropout rate indicates the percentage of students who leave high school in a given year without earning a diploma out of the total population of students

in the school who were enrolled at the start of the school year. We compared NHPS event dropout rates for all 9–12 students in a given year to the dropout rates of districts in the state with student bodies with sociodemographic and dropout profiles similar to that of NHPS. Given that a higher proportion of students identify as racial-ethnic minorities in the NHPS district than in most districts across the state and that the concentration of poverty in the City of New Haven is higher than in the rest of Connecticut, our approach provides a relevant baseline for gauging progress. We used the same methodology—synthetic control group comparisons, with synthetic control group difference-in-difference as a robustness check—that we used to assess trends in achievement test scores in Chapter Three. We compared NHPS with a purposefully selected comparison group of Connecticut public school districts similar to NHPS both in terms of sociodemographic characteristics and in dropout trends prior to School Change. Finding that NHPS outperforms the comparison group districts in the postreform years would suggest that the reform efforts contributed to improved dropout rates in the district.[1]

The second and third research questions closely explored factors that could have contributed to trends in dropout rates over time. Our analysis for these two questions makes use of cohort dropout rates, which indicate the percentage of students leaving high school without a diploma out of the total number of students that started the 9th grade at the same time.

To compare NHPS's dropout rate with those of similar districts in the state, we examined the differences in cohort dropout rate trends by tier designations as of the 2010–2011 academic year. We anticipated that any improvement in dropout rates would be amplified among students attending tier III schools. To test this, we tracked trends in NHPS's cohort rates by 10th grade within the district before and after the reform efforts were implemented, juxtaposing actual dropout rates with predicted dropout rates and using a spline analysis to test for differences between the two. For students in the nine high schools and

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[1]   Appendix B in the companion volume provides technical details on the synthetic control group comparisons and synthetic control group difference-in-difference analyses.

two transitional schools in NHPS that we analyzed, we calculated the predicted dropout rate as a forecast of expected dropout rate of students given changes in the sociodemographic composition (i.e., increase or decrease in the number of students who are racial or ethnic minorities, recipients of free or reduced-price lunch) and academic profile (i.e., increase or decrease in students with varying achievement scores) of the student population over time.[2]

Our forecasts used 8th grade CMT test scores, which is important because they account for the achievement of incoming high school students, which in turn is strongly related to high school dropout. However, it is important to note that substantial numbers of students transfer into and out of the district between 8th and 9th grade, so approximately 35 percent of 9th grade students are new to the district and do not have 8th grade test scores in the data. Lacking an 8th grade CMT score, we were unable to use transfers in our predictions. The analysis therefore focused on the 9th and 10th grade dropout rates of students who entered an NHPS high school and were enrolled in an NHPS middle school in 8th grade.

These forecasts provided an estimation of what dropout trends might have looked like in the district had School Change never been implemented and, in turn, allowed us to assess whether these reforms might have affected cohort dropout rates. We calculated the actual and predicted dropout rates using the student-level data separately for students attending schools in tier II and tier III. We did not examine the dropout rates for the single tier I high school because no students dropped out of that school during our period of analysis.

The third research question extends the spline analyses used to graph differences by tier to explore possible factors that could have contributed to trends in dropout rates through time. To address this question, we classified schools according to whether dropout rates improved following the inception of School Change and examined whether

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[2] Appendix C in the companion volume provides additional detailed information on the construction of these dropout rate projections.

schools whose dropout rates improved had distinctive student body or teacher characteristics.[3]

Limitations of Analyses

All three limitations of the achievement test score analyses described in Chapter Three also apply to the analyses in this chapter. Given that Promise and School Change were conceived and initiated at the same time, it is challenging to identify a comparison group to assess the impact of these changes. As a result, we could not determine with certainty whether the reforms had a causal impact on student outcomes. Second, while we were able to document the sociodemographic characteristics of students, we were not able to observe a range of other school characteristics in the data. So, while we could describe how schools with better dropout rates had different student populations, the available data could not definitively explain variations in dropout rates among schools. Third, it is not possible to entirely sort out dropout trends that were due to School Change from dropout trends that may have been caused by concurrent economic and policy changes—most notably, the end of the Great Recession.

Additionally, two limitations are specific to our analyses in support of research questions 2 and 3. First, we were only able to track cohort dropout rates through 9th and 10th grade, not for cohorts progressing from the end of 10th grade through the end of 12th grade. If the reforms simply delayed but did not eliminate dropout, our analyses may overestimate the relationship between the reforms and student dropout rates. Second, our forecast models required students in the district to have valid 8th grade achievement test scores, which effectively limited our analysis to those who remained in the district for both middle and high school. Those who transferred into the district in 9th grade were excluded. There is reason to suspect that dropout rates for students who remained in the district for middle school and high

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[3]   Appendix C in the companion volume provides technical details on the linear spline analyses for research questions 2 and 3.

school may differ somewhat from the rates for those who transferred into the district prior to 9th grade. Our analysis can speak only to dropout rates for continuous district enrollees and cannot be generalized to new entrants to the district.

Comparison of NHPS's Dropout Rates with Those of Similar Districts in the State

Figure 4.1 shows annual high school event dropout rates for NHPS and the comparison group between 2005–2006 and 2011–2012. Recall that event dropout rates event indicate the percentage of students who leave high school in a given year without earning a diploma out of the total population of students who were enrolled at the start of the school year. The solid line in this figure and those that follow represents the actual dropout rate for NHPS, and the dotted line represents the weighted dropout rate for the comparison districts. The vertical solid

Figure 4.1
Annual High School Dropout Rates: NHPS and Comparison Group Districts
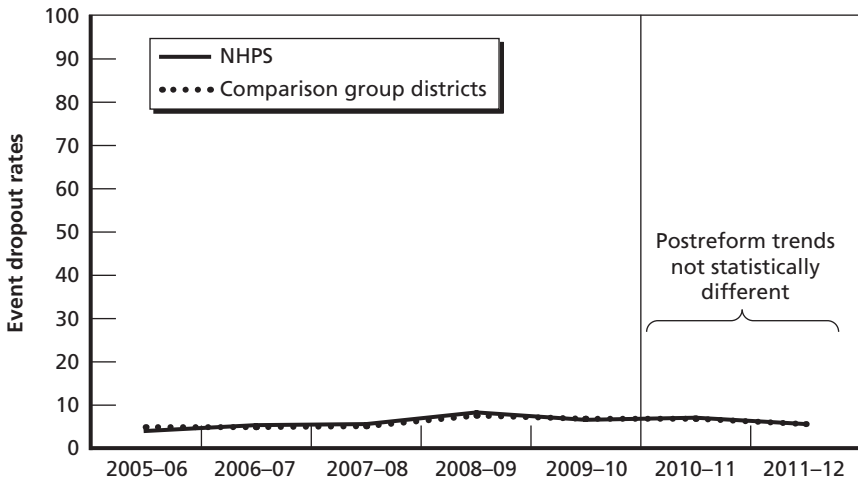
SOURCE: Connecticut Department of Education.

RAND *RR777-4.1*

line separates the five prereform school years and the three postreform school years.

The dropout rate in NHPS started near 4 percent in 2005–2006; by 2008–2009, the dropout rate had nearly doubled, to 8.5 percent. Since that time, dropout rates have declined somewhat, to less than 6 percent by 2011–2012. In the postreform period, the dropout rates for both NHPS and the comparison group were nearly identical. Overall, the trends indicated that NHPS's dropout rates improved in the years following the implementation of School Change, yet NHPS performed similarly to school districts in other parts of the state of similar size, racial or ethnic composition, family income, and prereform dropout rates.

As with our analysis of achievement test scores, we tested the robustness of our findings using a synthetic control group difference-in-difference analysis. In this analysis, we used a broad set of covariates to match individual schools within the NHPS district with similar schools across the state. We then compared the difference in event dropout rates between NHPS high schools and the matched schools before School Change was implemented with the difference in event dropout rates between NHPS high schools and the matched schools after School Change was implemented. In this supplementary analysis, we found that the difference in event dropout rates between NHPS and comparison schools was consistent before and after the reform was launched, corroborating the findings from the more-simplistic synthetic control group comparison approach shown here.[4]

Taken together, *these findings suggest that, in the early years, the reform efforts had not yet made distinctive contributions to improving dropout rates in the district.* Note that it is likely that schools in the comparison group were also actively trying to improve the dropout rates of their students. Therefore, our finding of no difference does not necessarily mean that School Change is ineffective but rather that it was not improving dropout rates beyond what measures comparable districts across the state were taking.

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[4]   Appendix B in the companion volume describes the difference-in-difference approach and the findings more thoroughly.

Examining Differences in Dropout Rates by School Tier

Given that the purpose of the tiering process is to target support and resources to the schools most in need, one test of School Change's potential effect on dropout rates is to examine whether students attending schools designated as tier III have improved their dropout rates to a greater degree than students in other schools in the district. In what follows, we graph and discuss the trends in scores for students attending schools in each of the tiers, starting with tier I. In these figures, the solid line represents the actual dropout rates for NHPS students attending school in a particular tier, and the dotted line represents the postreform projected dropout rates for NHPS students attending school in a particular tier. The vertical solid line separates the prereform years and the postreform years. The horizontal axis refers to the school year in which the cohort of students entered the 9th grade.

Trends for Tier I Schools

By definition, tier I consistently exhibit high performance on standardized tests and yield high rankings on the SLE survey. As of the first year of the reform, the district classified just one high school as tier I. The high school had no dropouts during any of the years for which we are examining trends, so we were not able to forecast a dropout rate and compare this forecast to the actual dropout rate.

Trends for Tier II Schools

Tier II schools are defined as those that yield mixed or average performance. As of the first year of the reform, the district classified six high schools and one transitional program as tier II. Although these schools were not achieving as highly as tier I schools, the district did not deem them to be in as much need of assistance as tier III schools. tier II schools thus did not receive additional focus or resources from the district as substantial as what tier III schools received. We plotted the actual and projected dropout rates from 2007–2008 through 2011–2012 for students attending the high schools classified as tier II in Figure 4.2.

The data indicate that dropout rates remained relatively steady in tier II schools, varying from 3.5 to 5 percent for the cohorts enter-

Figure 4.2
Cohort Dropout Rates Through 10th Grade: Tier II Actual and Predicted
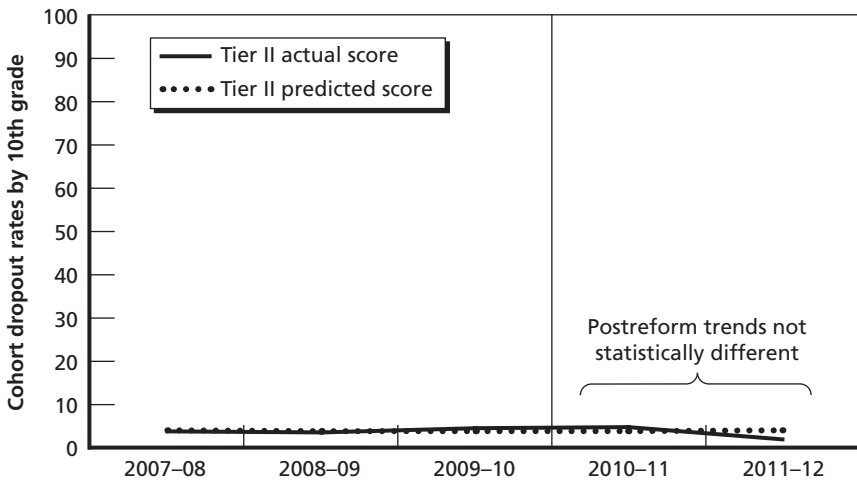
SOURCE: NHPS.

ing between 2007–2008 and 2010–2011. However, for the 2011–2012 cohort, the dropout rate improved to its lowest level over the period, just over 2 percent. The actual dropout rate was lower than the forecast dropout rate for students in tier II schools, although it was not statistically different. Note, however, that forecast dropout rates were quite low in these schools, so it would be difficult for these schools to outperform their already low dropout rates.

Trends for Tier III Schools

Tier III schools are those that consistently exhibit low performance (Figure 4.3). As mentioned earlier, tier III schools received intensified focus and support to help them improve. Identifying schools as tier III and providing them with resources is at the heart of the School Change reform initiative. Accordingly, were School Change effective, the greatest improvements in dropout rates should be among students enrolled in these schools. During the launch of the reform, two high schools and one transitional school were identified as tier III. As with tier II,

Figure 4.3
Cohort Dropout Rates Through 10th Grade: Tier III Actual and Predicted
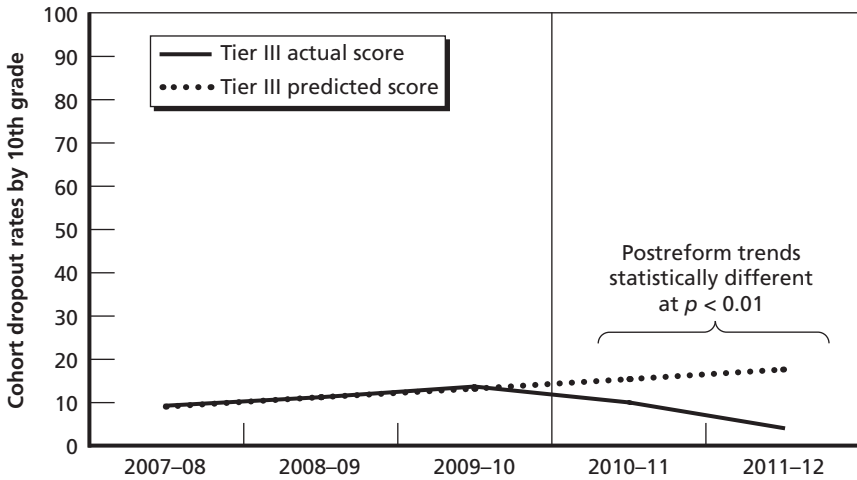
SOURCE: NHPS.

RAND *RR777-4.3*

we plotted the actual and projected dropout rates from 2007–2008 through 2011–2012 for students attending these three schools.

Prior to the reform, dropout rates were rapidly worsening for students in tier III schools. Following the launch of School Change, the trend in dropout rates reversed, and between 2009–2010 and 2011–2012, dropout rates had improved from 13.8 percent to just 4.4 percent. In the postreform years, the actual dropout rates of students in NHPS were substantially better than the forecast dropout rate, which was projected to continue to worsen, given prior trends and sociodemographic characteristics. The difference between the actual trend line and the predicted trend line in the postreform years is statistically significant at $p < 0.01$. This suggests that School Change was potentially effective in reversing the worsening dropout rates at the lowest performing schools. Remember, however, that our analytical strategy for examining trends over time by tier cannot rule out the influence of other economic or policy variables. Thus, we caution that the improvements in retaining students observed in tier III schools may not be entirely due to the implementation of School Change.

Why Some High Schools' Dropout Rates Might Have Improved More Than Others

Overall, dropout rates improved significantly at seven schools at the time School Change was initiated, while two schools did not improve. To explore the reasons for this, we compared the sociodemographic characteristics of the student population and some teacher characteristics of the seven schools whose dropout rates declined with those for the two schools that did not see declines. We focused on four sociodemographic characteristics from the student-level district data in 2010–2011: (1) racial or ethnic composition, measured by the percentage of students who are black or Hispanic; (2) family income, measured by the percentage of students receiving free or reduced-price lunch; (3) proficiency in English, measured by the percentage of students classified as ELLs; and (4) the presence of a disability, measured by the percentage of students receiving special-education services. We also looked at four characteristics of school teaching staffs, from the teacher-level district data in 2010–2011: (1) average years of teaching experience, (2) percentage of teachers who have master's degrees, (3) the percentage of teachers who are new to their schools, and (4) the percentage of teachers who received a "strong" rating in their TEVAL evaluation. In the remainder of this section, we describe the distribution of the student body and teaching staff characteristics and test whether the distributions were statistically different between schools with improving dropout rates and those with dropout rates that were not.

School Improvement and Student Sociodemographic Characteristics

Table 4.1 presents the sociodemographic characteristics of schools with improvement or no improvement in dropout rates.[5] The data indicated that greater proportions of the students at high schools whose dropout rates improved were participating in ELL and special-education programs. Given that tier III schools were more likely to have disadvantaged student populations, these results aligned with our findings in

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[5]   Appendix C in the companion volume describes the statistical tests that undergird this table.

Table 4.1
**School Improvement and Sociodemographic Characteristics,
2010–2011**

	No Improvement (*n* = 2)	Improvement* (*n* = 7)
Black or Hispanic (%)	87	91
Free or reduced-price lunch (%)	68	75
ELL (%)	4*	11
Special education (%)	8*	14

SOURCE: NHPS.
NOTE: * $p < 0.05$.

the previous section. *In the early years of the reform, dropout rates at schools with students who typically face challenges in the classroom were more likely to improve.*

School Improvement and Teacher Characteristics

Educators are an important piece of the School Change initiative, so it is useful to examine the relationship between characteristics of teacher populations and changes in outcomes. Table 4.2 shows the average number of years of experience for teachers in the schools whose dropout rates did and did not improve. While the average years of experience for teachers differed slightly, the difference was not statistically significant.

Table 4.2 also presents data on the percentage of teachers with graduate degrees for schools whose dropout rates did and did not improve at the time of the School Change. There appear to be no differences in the average level of education at schools whose dropout rates improved. Taken alongside the findings for years of experience, this suggests that *dropout rates at schools with teachers that were more experienced or who had higher degrees were no more likely to improve after the implementation of School Change.*

Next, we looked at the percentage of teachers who were leaving the school as a measure of teacher turnover. As noted in Chapter Three, teachers new to a school may have positive or negative impacts on out-

Table 4.2
School Improvement and Teacher Characteristics, 2010–2011

	No Improvement (*n* = 2)	Improvement (*n* = 7)
Average years of experience for teachers	10.9	13.2
Teachers with a graduate degree (%)	63	62
Teachers leaving school (%)	7	4
Teachers rated strong and above (%)	53	49

SOURCE: NHPS.

comes. In some cases, new teachers can improve outcomes by adding new instructional strategies and enthusiasm to a reform. On the other hand, turnover may disrupt continuity in teacher-student-parent relationships, and new teachers might lack skills or knowledge that are important for success in that school. Table 4.2 shows the percentage of teachers who left the school during the first year of the reform by school improvement category. While turnover rates appeared to be somewhat higher for schools whose dropout rates did not improve, we found that this relationship was not statistically significant.

Finally, we compared changes in TEVAL scores for the two different school classifications. In the TEVAL system, teachers can receive one of five ratings: exemplary, strong, effective, developing, or needs improvement. Figure 4.4 shows the percentage of teachers in a school who were rated as "strong" or above, comparing the first year of the reform (2010–2011) with the most recent year of data (2012–2013). We chose these two years because the district anticipates improving the efficacy of its overall teaching staff as part of the School Change initiative. This figure shows a statistically significant increase ($p < 0.05$) in the percentage of teachers receiving strong TEVAL ratings at the schools whose dropout rates improved, from 49 percent of teachers in such schools being rated as strong in 2010–2011 to 65 percent of teachers in such schools being rated as strong in 2012–2013. Thus, schools that significantly improved their dropout rates also had a significant growth in the percentage of teachers rated as "strong" or above. How-

Figure 4.4
School Improvement and Percentage of Teachers in School Rated as "Strong" or Above on TEVAL, 2010–2011 and 2012–2013
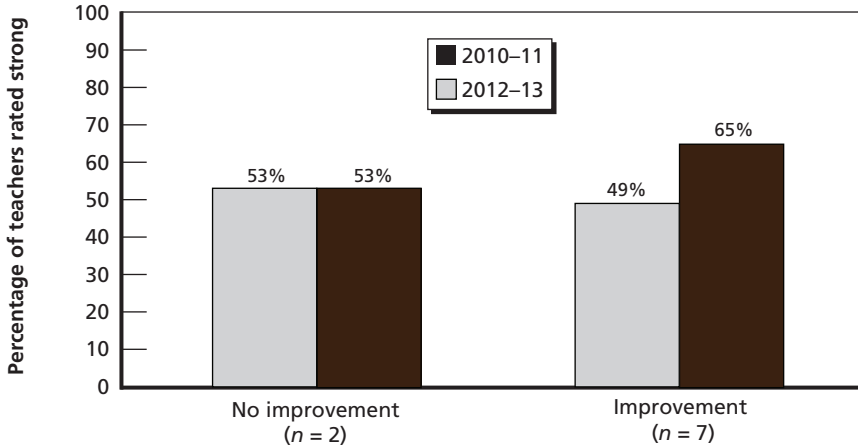
ever, we caution that this relationship is correlational and does not imply that one caused the other.

Concluding Remarks

This chapter examined dropout rates for high school students to assess the extent to which the NHPS district made progress toward meeting its goal of cutting the dropout rate. *On average, we found that dropout rates in the district improved somewhat in the years immediately following the launch of School Change, but this improvement was also observed in similar schools across the state.*

To summarize the main points,

- In the postreform years, students in NHPS had dropout rates that looked similar to districts elsewhere in Connecticut with similar sociodemographic and academic profiles. The peak in event drop-

out rates was in 2008–2009, and rates have since improved in both NHPS and the comparison districts.

- Dropout rates improved at all but two high schools. Schools whose rates improved were more likely to be tier III and have higher percents of students participating in ELL or special-education programs.
- Teacher qualifications, as measured by years of experience and possession of a master's degree, were unrelated to school-level improvements in dropout rates. Teacher turnover rates were also unrelated to changes in dropout rates.
- Schools that significantly reduced their dropout rates also had a significantly greater percentage of teachers scoring "strong" or above on TEVAL.

Ensuring That Students Attend and Succeed in College: Analysis of Trends in College Enrollment, Promise Eligibility, and Students' Perspectives on College Readiness

This chapter examines the progress the NHPS district has made toward meeting its goal of ensuring that every graduating student in the district has the academic ability and financial resources to attend college, and the progress Promise has made toward meeting its goal of cultivating an aspiration for a college education. We first look at overall trends in college enrollment for graduates to assess whether changes took place at the time of School Change and Promise. This aggregate look at trends in college enrollment rates provides a context for understanding the role of the entire series of reform efforts in supporting college enrollment among all graduates. Then, we specifically examine the impact of Promise by comparing outcomes for students by eligibility for Promise. We conclude with a qualitative exploration of how Promise Scholars and parents of Promise Scholars perceived the quality of the preparation they received for making (Promise Scholars) or supporting (parents) the transition to college. We ask four research questions:

1. **Has NHPS' college enrollment rate improved over time?** Did more NHPS students enroll in college after Promise and School Change implementation began in 2010?
2. **Are more NHPS students meeting the eligibility requirements for a Promise scholarship?** Did more students earn

the GPAs, attendance rates, and rates of continuous enrollment requirements once Promise was made available?

3. **Did the implementation of Promise increase college enrollment among those eligible for the scholarship?**

4. **What are Promise Scholars' and Promise Scholar parents' perspectives on preparation for college and college enrollment?**

Data Used

To analyze rates of college enrollment by graduates from NHPS schools, we used NSC data. We classified NHPS graduates as on-time college enrollees if they had enrolled in a postsecondary institution on October 1 of the year following high school graduation and as not if they had never enrolled in college, dropped out of college prior to October 1, or enrolled in college after October 1 of that year. Measures of on-time enrollment typically use October 1 as the cutoff date to maintain comparability with the U.S. Census Current Population Survey, which measures school enrollment in its October survey supplement. We obtained data on these students from NHPS from school years 2007–2008 through 2012–2013. The School Change Initiative and Promise went into effect at the start of the 2010–2011 school year, providing us with two years of preintervention data and two years of postintervention data.

In addition to the analysis of districtwide trends in college enrollment, we looked specifically at the potential impact of Promise on college enrollment. To do this, we determined which students were eligible for Promise funding. To determine eligibility, we used data available from NHPS on three of the five Promise eligibility criteria: high school grades, attendance records, and date of enrollment in the district. We did not have data on whether students were residents of the City of New Haven or their number of community service hours. We therefore classified NHPS graduates as Promise-eligible if they met three eligibility criteria:

- had a minimum cumulative GPA of 3.0
- had a 90-percent attendance rate (an average of 18 absences per year or fewer)
- had been enrolled in an NHPS school continuously since at least the 9th grade (including no expulsions).

As explained in Chapter One, Promise eligibility requirements differed depending on the year of graduation. High school graduates in the first year of Promise (2010–2011) were required to have a 3.0 GPA and no more than 18 absences in their senior year. Graduates in the second year of Promise (2011–2012) were required to meet the 3.0 GPA and have no more than 36 absences in their junior and senior years combined. Starting in 2013–2014, Promise eligibility requirements stabilized, with all students required to meet GPA and attendance requirements based on their full high school record.

To calculate student GPAs, we used annual course files from NHPS from 2003–2004 through 2012–2013. These data included credits earned, grades, and course level (e.g., honors, Advanced Placement [AP]).[1] Annual district files also provided data on attendance and enrollment. Continuous high school enrollment is defined as being in an NHPS school on October 1 of each year. These files also provided information on race or ethnicity, gender, ELL status, special education status, and the school from which a student graduated.

To explore perspectives on preparation for college and college enrollment, we analyzed responses from Promise Scholars and parents Promise Scholars in focus groups we conducted in October and November 2013.

Analytic Approach

To understand whether the district has made strides in improving the college-going of its graduates, our approach separated improvements in

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[1]   Appendix C in the companion volume describes the approach used to calculate GPAs in more detail.

college enrollment rates due to trends in the sociodemographic com-position or academic profile of students from improvements that could be due to the implementation of Promise or School Change. Research questions 1 and 3 specifically address this issue.

To determine whether NHPS students' college enrollment rates have improved over time, we tracked trends in the enrollment rates of NHPS graduates from the district before and after the reform efforts were implemented, juxtaposing actual performance with predicted performance. We calculated predicted enrollment rates by using prior enrollment rates and trends to forecast the expected enrollment out-comes of students given changes in the sociodemographic composition and academic profile (as measured by GPA) of the student population over time. These forecasts provided an estimate of what enrollment rates may potentially have looked like in the district had Promise or the School Change initiative never been implemented. By comparing these predicted outcomes to actual outcomes, we could determine whether there was a statistically significant shift in enrollment rates at the time of School Change and Promise.

To determine whether more graduates were meeting the three Promise eligibility requirements we examined over time, we first looked at the most recent cohort of graduates and estimated the percentage of students meeting each individual requirement described above, as well as the percentage meeting all three of the requirements. We then examined the percentage of students who met these standards before and after Promise by comparing graduates in the post-Promise gradu-ating cohorts to graduates in the year immediately preceding Promise (2009–2010).

To find out whether the implementation of Promise had increased college enrollment among those meeting three eligibility requirements for the scholarship, we conducted a difference-in-difference analysis comparing NHPS graduates who met three Promise eligibility require-ments to graduates who did not. We started by comparing graduates who met GPA, attendance, and enrollment standards prior to 2010–2011 with those meeting the standards in post-Promise years to esti-mate the change in enrollment rates. Then, we compared this difference with the pre-Promise and post-Promise changes in enrollment rates for

graduates who did not meet GPA, attendance, and enrollment standards. A change in enrollment over time for Promise-eligible graduates that was significantly greater than the change in enrollment over time for noneligible graduates could be evidence of an impact of Promise on college enrollment rates.

Finally, to examine perspectives on preparation for college and college enrollment, we drew on the analyses from the focus group discussions RAND conducted in October and November 2013 with a purposefully selected sample of Promise Scholars and parents of Promise Scholars.[2]

Limitations of Analyses

Our analysis of college enrollment rates has three central limitations. First, as with all analyses presented in this report, Promise and School Change were conceived and initiated at the same time, and many components of the reforms applied to all students attending NHPS. Since both reforms were likely to affect enrollment rates, it will be difficult to distinguish differential impacts of the reforms on overall college enrollment. Further, research design decisions were made retrospectively after the reforms had already been implemented. These two factors precluded the application of randomization, which is the most optimal strategy to determine whether educational policies and programs have a causal effect on student outcomes. In the absence of randomization, we used rigorous analytical methods that allowed us to estimate *potential* causal relationships. However, we cannot determine with certainty whether the reforms were or were not influencing observed changes in college enrollment.

Second, we were not able to track data for all Promise eligibility requirements. Promise requires community service, and while some schools record these data in administrative records, tracking was not done consistently at the time of our research. We could thus not accu-

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2 Appendix D in the companion volume provides more information about the methodology undertaken to analyze the focus group responses.

rately estimate the amount of community service each student did with the data on hand. Promise also requires that a student be a resident in the City of New Haven. Presently, the district allows students who live outside city limits to attend NHPS district schools. For these reasons, we may have misclassified students as eligible when in fact they were not.

It is also important to note that the difference-in-difference analysis estimates the impact of Promise for students who *qualified* for Promise, not the impact of Promise for students who actually completed the application and received the scholarships.

Finally, while NSC is the best available resource for postsecondary data, it is not a complete record of all college attendees in the state. The data cover only 95 percent of all colleges, and those that are not accounted for in the data are largely private, for-profit institutions. In addition, given the newness of the intervention and a lack of data in some cases, we were not able to assess other key postsecondary variables of interest in this study. College persistence and graduation are important goals for Promise and can be assessed in future studies to identify the longer-term impacts of the Promise and School Change reforms.

NHPS's College Enrollment Rates Over Time

Figure 5.1 presents the percentage of all graduates who were enrolled in a college on October 1 following high school graduation. The solid line in the figure represents the actual enrollment rates for graduates of NHPS, and the dotted line represents the postreform projected enrollment rates for NHPS graduates based on prior trends in the sociodemographic composition of the district and students' GPAs. The vertical solid line indicates the point at which School Change and Promise were implemented.

Figure 5.1 indicates that college enrollment rates for NHPS high school graduates were approximately 53 percent in the few years prior to the start of School Change and Promise. In the first year of the reforms, there was an increase of more than 4 percentage points in college enrollment. The enrollment rate was roughly equivalent for the

Figure 5.1
Percentage of Graduates Enrolled in College in the First Fall After Graduation
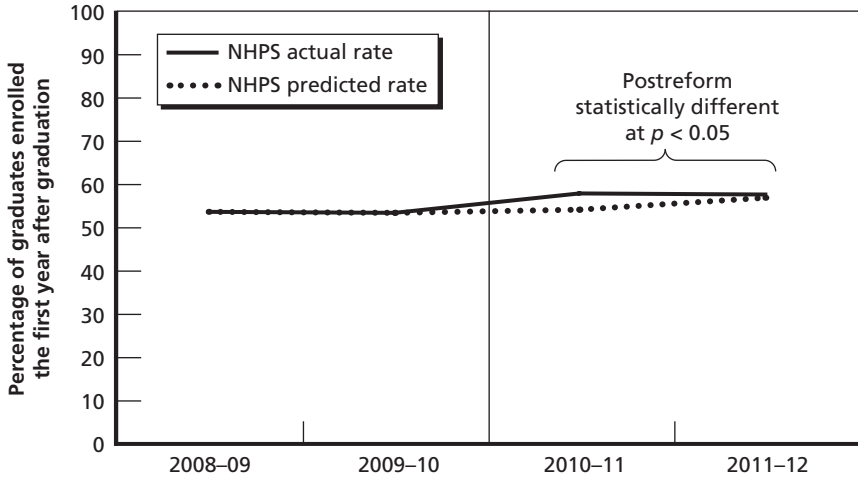
SOURCE: NHPS and National Student Clearinghouse.
RAND *RR777-5.1*

first two cohorts of graduates after School Change and Promise were established. The difference between the actual trend line and the predicted trend line in the postreform years was statistically significant at $p < 0.05$, suggesting that Promise and School Change might have distinctively contributed to improvements of students' postsecondary enrollment rates relative to what might have been expected in the absence of these reforms.[3] Note, however, that the differences between the actual and predicted rates were substantively negligible, and both rates were nearly identical for graduates in 2011–2012.

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[3] Appendix C in the companion volume provides detailed information on the statistical tests used to compare NHPS graduates' college enrollment actual trend line with the predicted trend line.

Trends in NHPS Students' Meeting Three Eligibility Requirements for a Promise Scholarship

As described above, we defined students as eligible for Promise if they had a 3.0 GPA, a 90-percent attendance rate, and were continuously enrolled throughout high school (i.e., no expulsions). The requirements were phased in, so that only the years of data subsequent to start of Promise were included in student calculations. Figure 5.2 illustrates the percentage of NHPS graduates in the 2013 graduating cohort who met each of these Promise eligibility requirements. More than 80 percent of graduates had been continuously enrolled in NHPS schools throughout high school, and two-thirds of graduates met attendance requirements. All graduates met the requirement of having no expulsions because, by definition, they would not have been able to graduate from high school had they been expelled. However, fewer than one-half of all graduates met the requirement for a GPA of 3.0 for sophomore- through senior-year courses. Overall, only 36 percent of students

Figure 5.2
Percentage of 2013 Graduates Meeting Promise Eligibility Requirements
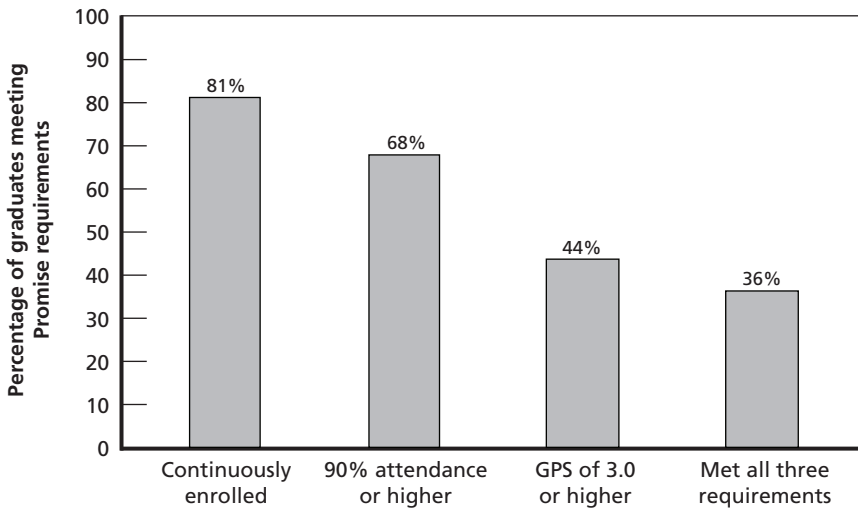
SOURCE: NHPS.

met the three requirements we examined to be eligible for a Promise scholarship.

Table 5.1 presents average sociodemographic characteristics by Promise eligibility status for 2013 graduates. NHPS high school graduates who met the three Promise eligibility requirements we examined were less likely to be minority, less likely to participate in the free or reduced-price lunch program, and less likely to be classified as ELL or special-education students.

One potential early impact of Promise is an increase in the GPA and attendance of students as they strive to meet the eligibility requirements. In addition, students may be more likely to enter the district prior to 9th grade and remain continuously enrolled to qualify for a Promise scholarship. Figure 5.3 presents data on the percentage of graduates who met eligibility requirements in the first three years of Promise, comparing the post-Promise cohorts to the 2010 graduating cohort as a measure of pre-Promise performance. *The data indicate that students in the post-Promise cohorts were more likely to have the GPA and attendance required for Promise eligibility.* This is particularly true for the 2013 cohort, for which the percentage of graduates meeting the eligibility requirements increased to 36 percent, compared to 31 percent in the previous two graduating cohorts. It is important to keep in mind that, while only senior-year GPA and attendance were used to determine eligibility for the 2010–2011 cohort, sophomore-through

Table 5.1
Sociodemographic Characteristics by Promise Eligibility, 2013 Graduates

	Did Not Meet Promise Requirements	Met Promise Requirements
Black or Hispanic (%)	87	64
Free or reduced-price lunch (%)	87	76
ELL (%)	10	2
Special education (%)	15	2

SOURCE: NHPS.

Figure 5.3
Percentage of Graduates Meeting Promise Eligibility Requirements,
Pre-Promise Cohort Versus Post-Promise Cohorts
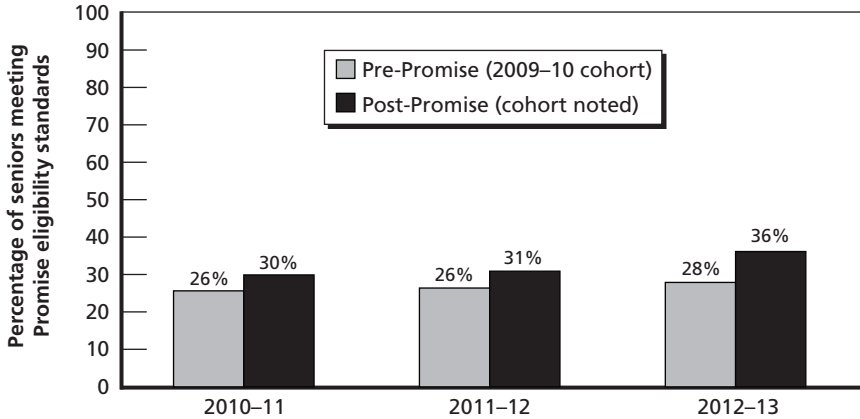
SOURCE: NHPS.

RAND *RR777-5.3*

senior-year data were used to determine eligibility for the 2012–2013 cohort. In essence, this means that requirements were more challenging for more-recent graduates.

College Enrollment Rates Over Time for NHPS Students Meeting Three Eligibility Requirements for a Promise Scholarship

One goal of Promise is to increase college enrollment and college completion by providing scholarships to cover the cost of tuition. While Promise may increase college enrollment rates for students regardless of whether they qualify by creating a college-going culture in the district and encouraging students to better prepare for college, the program should have had a stronger impact on enrollment for qualifying students because they were eligible to receive the scholarship as well. To determine whether this was the case, we conducted difference-in-difference analysis, comparing the change in college enrollment rates for students meeting the three eligibility requirements for which we

had data to the change in college enrollment rates for students who did not.

Figure 5.4 presents college enrollment rates by Promise eligibility status. We used the 2011–2012 eligibility requirements to determine Promise eligibility. The data indicate that college enrollment rates increased after the implementation of Promise and School Change for students who were eligible for Promise *as well as for students who were not eligible for Promise.* The difference-in-difference analysis indicates that *there was no difference in post-Promise college enrollment changes by Promise eligibility status.*[4] This suggests that, while college enroll-

Figure 5.4
College Enrollment Rates, by Promise Eligibility Status
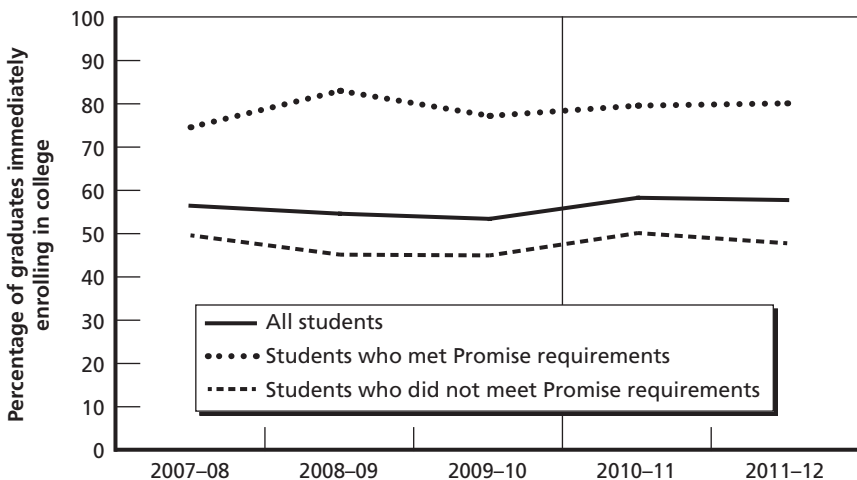
SOURCE: NHPS and National Student Clearinghouse.

RAND *RR777-5.4*

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[4] We tested the robustness of this finding by reestimating the difference-in-difference model using a subset of the sample whose GPAs ranged from 2.5 to 3.5. In restricting the range, we more closely tested the potential effect of Promise on those most affected by its implementation. In this supplementary analysis, available in Appendix C in the companion volume, we found that the difference in college enrollment rates between students who met three Promise eligibility requirements and students who did not within this narrower range of GPAs was consistent before and after Promise became available, corroborating the findings from the more-inclusive difference-in-difference analysis described here.

ment increased in the early years of implementation, Promise does not appear to have *directly* induced that increase.

Promise Scholars' and Parents' Perspectives on Preparation for College and College Enrollment

Perspectives of College Readiness and Preparedness Among Promise Scholars

When probed about whether or not they felt prepared for college, Promise Scholars in our focus groups provided a wide range of responses. Only a small portion of students (all of whom had graduated from tier II high schools) said they felt prepared academically. They felt well equipped to manage their time to study and complete a heavy course load. When probed, participating students cited writing papers as a skill set for which they felt generally well prepared. The major themes that emerged from our conversations with Promise Scholars and parents of Promise Scholars in our focus groups are summarized in the remainder of this section.

Feelings of Insufficient Academic Preparation

The majority of Promise Scholars who graduated from tier II and tier III high schools said they had struggled academically in their first year in college, regardless of the postsecondary institution they attended. The reasons students cited the most were feeling they had inadequate skills in math and science and that grading standards were higher in college than in their high schools. Students who said they received straight As in high school later faced difficulty in college in math and science courses. Of all the Promise Scholars who reported such complaints, a majority came from students who had graduated from tier III high schools. Students perceived that grade inflation and lower academic standards in high school contributed to their struggles transitioning to college, where academic standards were more strict and rigorous than what they experienced previously.

For example, one Promise Scholar noted:

I felt like I slid by a lot in high school. At my high school, if you were one of the smarter ones, you got As very easily. I just felt like I didn't have to do much in high school to get As at all. . . . [High school teachers] didn't push you. I didn't take AP Lit or AP English or anything like that, so when I came here [to college], I wasn't going to be able to slide through. I wasn't one of the smart kids on campus anymore, and that was hard for me. I felt like I wasn't prepared for any of my coursework. Even though I was getting straight As in high school, [getting As] here was very hard.

Despite students earning high marks in their high school courses, many of them reported struggles with the advanced college curriculum. This finding aligns with researchers who advise schools to place more emphasis on the quality and intensity of the high school curriculum. These factors have been proven to be more important predictors of bachelor's degree completion than test scores or rank, particularly for African-American and Latino students (Swail and Perna, 2002). Moreover, taking one advanced math course is associated with higher probability of enrolling in a four-year college or university among students who are at risk of dropping out of high school (Adelman, 1999; Swail and Perna, 2002).

Nonacademic Barriers to Transitioning to College

A large number of Promise Scholars in our focus groups said that they had struggled transitioning to college because they lacked time-management, self-discipline, and self-motivation skills. These students noted that they had a hard time managing their free time in college while keeping themselves motivated to study and meet deadlines in their first year. A few students also mentioned having difficulty getting adjusted to being on their own and having roommates, which in turn affected their performance over the freshmen year. A few other students felt lost navigating college and struggled to find the resources they needed. This is a crucial point because possessing the skills and habits that facilitate time management, study techniques, taking notes, meeting deadlines, and using information resources have been shown to increase the likelihood of good college academic performance (Credé and Kuncel, 2008; Robbins et al., 2004), as well as retention among

students (Robbins et al., 2004). In fact, study motivation and study skills exhibit the strongest relationships with both GPA and grades in individual classes in college (Credé and Kuncel, 2008).

Services Requested by Promise Scholars and Parents

Promise Scholars in our focus groups unanimously reported feeling confusion when asked their opinions about the services Promise provides. Overall, a significant number of Promise Scholars explicitly stated they were not aware that Promise provided services other than funding. Only a few knew that Promise organizes internship fairs and provides assistance with Free Application for Federal Student Aid (FAFSA) applications. Similarly, most parents were not aware that Promise offered services other than funding. Nonetheless, Promise Scholars and parents suggested a wide array of services they would like to be offered related to college application and admission, transition to college, and attending college.

College Access and Entry

Many Promise Scholars in our focus groups would have liked to have received help with navigating the financial aid process, not only filling out FAFSA applications but also getting a better understanding of loan application forms. Receiving such assistance could be hugely beneficial to students; research shows that students who receive financial aid are more likely to enroll and persist in college than students who do not (St. John et al., 2004).

Focus group participants also frequently requested more help with organizing visits to colleges, both during the application process to gain more insight and after admission to a specific school to speak with students and professors. Parents' suggestions for other services included information sessions, financial navigation, college visits, and student representation at the district level. Although students are the ones who receive the scholarships, parents still take financial responsibility for them in many cases, a fact the literature supports (Wartman and Savage, 2008). Hence, many parents requested an introductory workshop or even a question-and-answer session with Promise staff to understand the terms of the scholarship. Some parents also requested

help understanding financial aid applications and learning about other scholarships. A few parents of Hispanic and African-American backgrounds said it would be good to get help with college visits, even if only in the way of gift cards to allow them to pay for gas, food, or lodging. In one case, a parent suggested that Promise staff could represent students in the school district so they are taken more seriously by district personnel.

Transitioning to College

The transition from high school to college has proven to be challenging for minority students, particularly those from a Hispanic background (Hurtado, Carter, and Spuler, 1996). Several Promise Scholars in our focus groups expressed desire for some type of transitional support services. Promise Scholars suggested that this transitional support might comprise a program or a set of services provided over the summer before the academic year starts intended to help freshmen navigate the first year of college and ease the transition. Promise Scholars repeatedly mentioned their desire to network with other Promise Scholars. Students perceived that this could work as a stepping stone toward having peer mentors at the same institution who could provide academic and nonacademic guidance. The peer network could also serve as an opportunity to create a sense of community among Promise Scholars and facilitate information sharing (e.g., about professors, coursework, or study tips). Research has demonstrated that a lack of peer support among students was one key predictor of poor college adjustment and lower GPAs (Dennis, Phinney, and Chuateco, 2005). Strong social networks support students' academic and emotional development, which can influence their likelihood of enrolling in college (Spradlin et al., 2010). Similarly, mentors can play a key supportive role in helping low-income students overcome obstacles in pursuing postsecondary education (Levine and Nidiffer, 1995).

College Persistence and Completion

Promise Scholars expressed great appreciation for the personal communication they had with Promise staff and would like more of it. Specifically, they mentioned the desire for more phone calls and more in-person contact. Promise Scholars recurrently brought attention to the

fact that advisors are difficult to contact in college and expressed the desire for a constant source of guidance, someone who could provide more social or emotional support and motivation and help connect them with academic tutoring services. Finally, some students would like to receive more financial support while in college for such things as food and school supplies and equipment (e.g., calculators or computers).

Promise's Reported Influence on Scholars' Decision to Attend College

Most Scholars pointed to Promise funds as having had an impact on making their aspirations become a reality. Yet, only in a few cases did Promise Scholars and parents state that obtaining the Promise scholarship was *the* deciding factor that led them to want to attend college.

A majority of Promise Scholars said they had intended to go to college before receiving Promise funds, but that Promise funding was a financial bonus that opened opportunities they had not considered before Promise existed. These included

- attending a four-year rather than a two-year community college
- attending an in-state rather than an out-of-state institution
- living on campus rather than at home
- saving money for graduate school.

Similar responses that explained how the scholarship broadened post-secondary school options were found in other college-access programs (Miron, Spybrook, and Evergreen, 2008).

When asked how Promise influenced their decision to send their child to college, if at all, a majority of the parents in our focus groups stated that Promise did not make a substantial difference in the intentions they had for their children because most parents had already expected their children to attend college even before Promise was announced. They explained that Promise funding made it possible for them to avoid taking on debt and, as a result, served as a financial relief more than the deciding factor that allowed them to enroll their children in college. Nevertheless, as with the Promise Scholars' responses, obtaining Promise funding influenced parents' decisions in several dif-

ferent ways, in that it broadened their choice to have their child live on campus instead of at home and to save money.

In two cases, parents (both of whom were Hispanic) said Promise made the expectations they have for their children real because they did not have the financial resources to send their children to college or were not able to qualify for parent loans.

One parent said,

> Without Promise, my daughter would've been in community college. That is what I can afford.

Sense of Community Impact

Some Promise Scholars who had attended a tier II high school reported feeling proud of living in or coming from New Haven since Promise was announced. In the students' own words, "the program enhances the feeling of community and gives hope to future generations for a college-going culture." Promise creates a goal, something for students to aim for, students said. Various Promise Scholars reported experiencing a stronger sense of community in New Haven since the Promise scholarship was announced. They expressed a feeling of encouragement and support for themselves, as well as hope for future generations. (All those making such comments were from minority backgrounds.) One Promise Scholar, in particular, even stated that he was debating whether he wanted to go to college at all and that it was not until he received Promise that he made his final decision:

> Among minorities . . . there isn't a college-going culture. . . . It was more of a motivational factor for me. . . . This is an opportunity that I can take. It was probably the final discriminating factor because I was deciding whether or not I was going to college or not. . . . It was nice to see that an interest is being taken in the community. New Haven, in general, I feel like, there's this change, like [from] this separate, isolationist . . . that's changing to a more community-building thing. Though the Promise isn't perfect and has its structural problems, it's a sign that steps are being taken to change that, to have a more college-going culture.

Likewise, several parents shared personal anecdotes of Promise Scholars originating from Latino communities for whom attending college was unprecedented in their family histories. These parents believed that the very existence of Promise would provide hope for future generations of minority families. Research on the effects of other college-access programs has uncovered similar findings among scholarship recipients, parents, and community leaders. These studies suggest that, with the introduction of a scholarship college-access program, students are more focused and target their ambitions to capitalize on these new opportunities. In fact, in one study, one-third of the students reported that knowing that their college education would be funded by a Promise-like program, they worked harder in school (Miron, Spybrook, and Evergreen, 2008).

Perceptions of High School's College Emphasis and Preparedness
Internal School Efforts

More than one-half the Promise Scholars acknowledged that the high schools they attend had put in place a wide variety of activities, events, classes, or changes in curricula intended to promote a college-going culture and prepare students for college (e.g., talks with alumni, college preparation "flex" time periods, advisory classes, more AP classes, college-credit courses, or workshops on filling out FAFSA and college applications). Although some Promise Scholars who graduated from tier II high schools expressed appreciation for new features, such as a peer-student class or committed teachers who held additional hours after school or on weekends to help students with college preparation activities, one-quarter of these students mentioned that several of these activities could be of greater benefit if planned better. For instance, according to students, flex time at one high school was held in large rooms with up to 170 students and led by teachers who did not seem to be informed or prepared to discuss college preparation. In these cases, the students described college preparation periods as not being a valuable use of time. These comments regarding the implementation of school reform initiatives are not unique to NHPS. When implementing innovative education programs, public schools face similar issues with poor management of time and other resources and insufficient

attention to the qualifications of the adults executing the activities, so students might not benefit from the original intent of these new initiatives (Elias, 2003).

Parents noted an overall push by schools to promote college-going cultures. They noticed more AP-level classes and college-credit courses being offered, as well as opportunities to join science and art programs in local colleges. In addition to learning about Promise, parents shared that some schools had resources on scholarships, although these were typically made apparent only after a student or parent explicitly requested information.

Outside-of-School Efforts and Partnerships

Promise Scholars generally had positive comments on partnerships developed between their high schools and external agencies, such as museums, postsecondary education institutions, nonprofits, and Promise. Most Promise Scholars in the focus groups were well informed on these external resources and reported having taken advantage of them. Overall, Promise Scholars perceived that such partnerships were intended to enrich their academic and nonacademic experience. In particular, Promise Scholars who had graduated from a tier II high school perceived increased opportunities for them as a consequence of their school being moved downtown.

Most parents in our focus groups mentioned that local museums, colleges, universities, nonprofits, and Promise had provided various enriching resources and opportunities to enhance the academic and nonacademic experiences of high school students. Parents in our focus groups were well informed on these partnerships and were enthusiastic about having taken advantage of them. Similarly, because their children were on a college-going track before Promise was announced, they seized these opportunities by pursuing programs offered by local nonprofits or organizations.

College Counseling

Overall, Promise Scholars in our focus groups highlighted the importance of having qualified counselors during high school, given the key role they play assisting on college applications and financial aid. There was very high agreement among Promise Scholars that counselors in

the high schools they graduated from seemed to be spread too thin or were not well informed about scholarship opportunities. Some Promise Scholars who graduated from a tier III school said their counselor changed every year, which they perceived as negative for building rapport. Parents of Promise Scholars in our focus groups repeatedly brought attention to the fact that counselors play a key role in college applications and noted, similar to the Promise Scholars' comments, that they appeared to be spread thinly or to be poorly prepared to do their job. Some parents in our focus groups also commented that counselors were difficult to reach. These concerns are in line with findings researchers have consistently highlighted, which assert that improving counseling could have a significant impact on college access for low-income urban students as well as students of color. This would specifically entail increasing the number of counselors available to students as well as the amount of time they devote to college advising. Despite their ability to positively impact students' aspirations, achievements, and financial aid knowledge, however, counselors face a range of responsibilities that compete for their time (McDonough, 2005; Perna, 2002).

Concluding Remarks

This chapter presented results from our analysis assessing progress toward meeting School Change and Promise goals of supporting college enrollment. We examined rates of college enrollment for NHPS high school graduates, the percentage of students meeting three of the five Promise eligibility standards, and the perspectives of Promise Scholars and parents of Promise Scholars on how well prepared these NHPS graduates felt for college-level work.

We found that college enrollment rates have increased for all NHPS graduates over time. However, college enrollment rates have not increased more for graduates who met three eligibility requirements for a Promise scholarship than they have for students who did not:

- In the postreform years, college enrollment rates for all NHPS high school graduates increased by approximately 4 percentage points over pre-Promise enrollment rates.
- In 2012–2013, more than one-third of all NHPS high school graduates met three of the five eligibility requirements for a Promise scholarship. The GPA requirement is the most difficult requirement for students to meet, with fewer than one-half of all graduates achieving a 3.0 GPA or higher.
- NHPS high school graduates who met three of the Promise eligibility criteria were less likely to be minority, less likely to participate in the free or reduced-price lunch program, and less likely to be classified as ELL or special education than students who did not meet the criteria.
- In 2012–2013, the percentage of students who met three of the Promise eligibility criteria increased by 5 percentage points relative to the previous two cohorts.
- College enrollment increased at similar rates for NHPS high school graduates who met three of the Promise eligibility criteria and graduates who had not.

These findings suggest that, in the early years of Promise and School Change, reform efforts seemed to have prompted college-going across the district. However, we are not able to determine the extent to which Promise funds or which specific School Change reforms contributed to the improved attitudes and college-going behaviors.

The findings from focus groups with Promise Scholars and parents of Promise Scholars suggest that, overall, there is a general agreement that, in the early years of reform efforts, *Promise's funding opened up greater opportunities for students' higher education options* and that they recognize that the district is trying to improve the education environment. However, *Promise Scholars in our focus groups reported that they did not feel fully prepared for college-level coursework*, even after the curriculum and instructional changes that had been put in place since the inception of School Change. Promise Scholars specifically mentioned struggling with study skills, time management, and self-discipline—skills that only a handful of these students said they learned

in high schools. Some noted that their teachers adjusted their instruction to accommodate the new curriculum that was implemented with School Change, yet this did not seem to adequately prepare them for college-level expectations. Promise Scholars reported that, outside the classroom, their schools organized scheduled "college preparation" workshops, yet these were deemed unhelpful because teachers either were not fully knowledgeable or were not adequately trained to conduct the sessions or because the workshops were conducted in less-effective, large group sessions.

Conclusions and Recommended Next Steps

School Change was announced in 2009, and Promise was announced in 2010, with the first year of each reform starting in the 2010–2011 academic year. By design, both reform efforts were to be implemented incrementally. School Change will be fully implemented in the 2015–2016 academic year. The graduating class of 2014 will be the first cohort of Promise Scholars eligible to receive the full amount of the scholarship. This study was conducted from 2013 to 2014, using available data through the 2012–2013 academic year. Since the reforms had not yet been fully implemented at the time of this study and had been in existence for only three years, the purpose of this study was to track the early progress NHPS schools and students have made in outcomes that School Change and Promise were designed to improve and to provide a baseline for future analysis to draw upon. This report summarizes our analyses of how students, teachers, and parents of Promise Scholars' perceptions of school climate, safety, and engagement have changed since the 2010–2011 school year and tracks trends in state student assessment scores, dropout rates, college entrance rates, whether the NHPS student body has met three Promise eligibility criteria, and Promise Scholars' perceptions of college readiness.

The analyses presented in this report set the foundation for evaluations that could occur in later years to determine the reforms' effectiveness. This approach allows time for organizational conditions to be put in place, instruments to be validated, data systems and internal dashboards to be established, and for the reforms to take hold.

In the remainder of this chapter, we summarize the key findings from this baseline trend analysis and suggest next steps for NHPS, the district's school board, and the Promise board to undertake future evaluations.

Summary of Findings

Reports of school climate were positive in the early years of the reforms. Chapter Two examined changes in perspectives on school climate and school organization from student and teacher responses on the SLE surveys and Promise Scholar and parent discussions in focus groups. Our analyses revealed the following key findings:

- On average, on most dimensions of the SLE survey, students and teachers rated their schools favorably. The prevailing trend was that between 2009–2010 and 2010–2011 SLE surveys, students' and teachers' responses improved significantly on most dimensions of the survey. However, there was little measurable change in subsequent years and, for some domains, scores returned to 2009–2010 levels.
- For most of the domains of school climate we examined in the SLE survey, there tended to be statistically significant differences through time between tier III and tier I schools. Responses from students and teachers in tier I schools were, on average, more positive than responses from students and teachers in tier III schools. This relationship was to be expected given that a school's average SLE score is one factor used to determine a school's tier. However, given the intense supports provided to tier III schools upon their initial designation in 2010–2011, one would have expected gaps among and between schools in different tiers to have narrowed over time.
- In focus groups, Promise Scholars and parents of Promise Scholars noted changes in the high schools from which they graduated, typically personnel changes and shifts toward a more positive school climate. Promise Scholars reported that they noticed an increase in their peers' engagement. However, parents of Promise

Scholars did not notice changes in outreach or engagement from schools or NHPS.

Analyses of state student achievement tests revealed that, in the early years of School Change, scores improved slightly on average. Chapter Three examined CMT scores in math and reading for elementary and middle school students and CAPT scores for 10th grade students to assess the extent to which the NHPS district has made progress toward meeting its goal of eliminating the gap in academic performance between students in NHPS and students in the rest of the state. Our analyses revealed the following key findings:

- Although overall NHPS scores in both math and reading remained below the Connecticut state average, the majority of elementary and middle schools experienced gains in CMT math test scores. These improvements were statistically significant: Our forecasting model anticipated that NHPS math scores would decline through time in the years following the implementation of School Change. Instead, the scores improved.
- While they were still the lowest performing, elementary and middle schools designated as tier III yielded the largest gains in math test scores, relative to what our forecasting model expected— suggesting that schools that were targeted for improvement by School Change's school turnaround efforts were making steady and significant progress.
- Reading scores in tier III schools were also expected to decline but began to increase after the inception of School Change. However, these improvements were more modest than those for math.
- However, evidence is not strong enough to suggest that these improvements were directly attributable to School Change.

On average, high school dropout rates improved in the years immediately following the launch of Promise and School Change. Chapter Four explored differences in dropout rates through time. Analysis revealed that dropout rates of NHPS students looked similar to dropout rates of students in Connecticut public school districts whose sociodemographic and academic profile were similar to those of

NHPS. There was a peak in dropout rates in the 2008–2009 academic year, with rates improving since then in both NHPS and comparison districts. Other key findings include the following:

- The cohort dropout rate through grade 10 for the district as a whole improved substantially, from 9 percent for the 2008–2009 cohort to just 3 percent for the 2011–2012 cohort.
- Dropout rates improved in two-thirds of high schools. Schools whose rates improved were more likely to be tier III and have student populations with larger percents of disadvantaged students than other schools. This suggests that, over time, more and more students in these high-risk environments have chosen to stay in school.
- Teacher qualifications, as measured by years of experience and possession of a master's degree, were unrelated to school-level improvements in dropout rates. Teacher turnover rates were also statistically unrelated to changes in dropout rates.

College enrollment rates have increased for all NHPS graduates. However, college enrollment rates have not increased significantly *more* for NHPS graduates who met three Promise eligibility criteria (GPA, continuous enrollment, and attendance) than for students who were did not. Chapter Five examined trends in college enrollment rates for NHPS graduates and in the percentage of NHPS high school graduates who met three of the five Promise eligibility requirements for which we had data. We found that, for the graduating class of 2013, only about one-third (36 percent) of all graduates met three eligibility criteria for a Promise scholarship, but the percentage of students who met those criteria increased by 5 percentage points relative to the previous two cohorts. Other key findings include the following:

- The GPA requirement seems to be the most difficult requirement for students to meet: Fewer than one-half of all NHPS high school graduates achieved a 3.0 GPA or higher.
- NHPS high school graduates who met three Promise eligibility requirements were less likely to be minority, less likely to partici-

pate in the free or reduced-price lunch program, and less likely to be classified as ELL or special education.

Promise Scholars and parents of Promise Scholars noted that Promise's funding opened up greater opportunities for students' higher education options. Promise scholars and parents in our focus groups reported a strong appreciation for Promise because it helped facilitate their hopes and plans to attend college. When asked about Promise, Promise Scholars and parents reported that the funding provided by the program expanded their higher education options—allowing them to consider applying to or attending a more-selective postsecondary school than they would have otherwise for cost reasons.

Areas in Need of Attention for Promise and New Haven Public Schools

Analysis of focus group discussions revealed that Promise Scholars and parents of Promise Scholars felt as though changes in staffing or instruction were not adequately implemented or had counterproductive consequences that hindered district improvements. This sense of dissatisfaction seemed to be driven by two primary factors. Promise Scholars and parents found the staff restructuring or movement across schools that occurred in the early years of the reform confusing and felt that it did not always produce improvements in instruction, classroom practice, or in school climate.

Parents of Promise Scholars did not feel that the district engaged directly with them or wanted their input. As an example, few parents in our focus groups completed the SLE surveys after the first year, citing concerns about whether the district read their responses because most reform elements had already been planned or designed by the time the first SLE survey was administered.

Although there were some signs of progress in CMT math scores among elementary and middle school students, gains were small. Students did not make considerable gains in reading, and, overall, students in NHPS still lagged considerably behind the rest of the state in both subjects we examined.

With respect to preparing students for college, discussions with Promise Scholars yielded an array of barriers that they believed hindered their college-going efforts. These included a lack of information about college or FAFSA application processes from both Promise and the district; confusion about Promise eligibility requirements and funding distribution processes; and a lack of a streamlined or accurate reporting on Promise Scholars' attendance, community service hours, and GPA—all of which are needed in the Promise application. Furthermore, parents reported feeling that high school counselors could provide better advice and be more available to answer questions about college and financial aid application processes.

Promise Scholars in our focus groups reported that they did not feel fully prepared for college-level coursework, even after the curriculum and instructional changes that had been put in place since the inception of School Change. They specifically mentioned struggling with study skills, time management, and self-discipline—skills that only a handful of Promise Scholars said they learned in high school. Some noted that their teachers strove to adjust their instruction to accommodate the new curriculum that was implemented with School Change, yet this did not seem to adequately prepare them for college-level expectations.

Next Steps for NHPS, New Haven Promise, and the City of New Haven

Given that this study provides a first snapshot of progress on a variety of schooling and student outcomes to determine the extent to which School Change and Promise are reaching their articulated goals, it is too early to determine with certainty whether each reform is a success. In conducting the analyses used in this study, we intentionally used a wide range of indicators and methodologies to capture the breadth of possible changes occurring within the district to match the scale and complexity of the School Change and Promise initiatives. Although the three pillars in School Change are aimed toward improving the broader goals articulated in the reform, each pillar and its individual

programs and initiatives are directed toward different populations (e.g., teachers, students, parents) and have varying levels of organization and resources. Furthermore, although Promise and School Change overlap in their goal of supporting students in their efforts to go on to and succeed in postsecondary education, Promise is not a component of NHPS and therefore cannot be directly associated with *all* the specific goals School Change endeavors to meet. Given the complexity of these two reforms, the remainder of this chapter suggests other analyses and approaches that NHPS and Promise can consider going forward to support future learning from research and evaluation.

Continue to Conduct Evaluations to Inform Continuous Improvements and to Determine the Reforms' Effectiveness

Evaluation is an integral part of an ongoing cycle of program planning and development, implementation, and improvement (Patton, 1987). In the coming years, it will be imperative for NHPS and Promise to use the analysis presented in this report as a launching point for future evaluations as part of the reforms' continuous improvement cycle: process evaluations, outcome evaluations, and impact evaluations.

Figures 6.1 and 6.2 illustrate a suggested framework for evaluating School Change and Promise, respectively. These figures model which inputs, activities, and outputs we recommend as key for a process evaluation (in blue) to determine whether systems are in place and programs are implemented as designed. The figures note the key constructs that we recommend measuring for an outcomes evaluation (in green). Figure 6.2 also includes the kinds of broad social changes that could be measured since Promise's inception (in orange).

A process evaluation allows identification of areas of strength and areas needing improvement within a program. To date, School Change has not undergone a process evaluation. The early years of a reform effort are optimal for conducting a process evaluation. An ongoing process evaluation can provide feedback for continuous monitoring and improvements.

An outcomes evaluation can help stakeholders assess a program's performance. Such an evaluation gauges effectiveness by whether goals are being met. When coupled with a process evaluation, such an

Figure 6.1
Suggested Framework for Evaluating the School Change Initiative

Process evaluation			Outcomes evaluation
Inputs →	**Activities** →	**Outputs** →	**Outcomes**

Inputs
- Staff
- Time
- Money
- Materials
- Equip-ment
- Facilities
- Tech-nology
- Data systems

Activities

School pillar
- School tiering
- School improvement plans
- Turnaround schools
- SLE survey
- Central office survey

Talent pillar
- TEVAL
- PEVAL
- CEVAL
- Differentiated professional development
- New teacher mentoring and support
- (Minority) teacher recruiting
- Teaching leadership program
- Leadership pipeline programs

Community and parent engage-ment pillar
- Boost!
- Promise
- Citywide parent-teacher organization

Outputs

School pillar
- Each school is provided with sufficient flexibility, autonomy, and resources to make decisions about how to improve
- School climate promotes connections
- Professional development for central office staff is available

Talent pillar
- Professional learning communities are created
- Tailored professional development is provided

Community and parent engage-ment pillar
- Social services are provided to students in need
- Promise provides services and scholarships to eligible students
- District employs culturally appropriate outreach to parents

Outcomes

Quality of schooling
- School climate
- Tailored school organization
- Quality of instruction
- District's engagement with parents

Attitudes
- **Students:** Engagement in learning; socioemotional well-being; college-going expectations
- **Parents:** Expectations for child's college going, perception of engagement with district
- **Teachers, school leaders, and staff:** Perceptions about professional learning environment

Student K–12 learning, actions, and behaviors
- Average test scores
- Growth in test scores
- High school course taking
- High school attendance
- High school graduation rates

Student postsecondary learning, actions, and behaviors
- College enrollment rates
- College persistence rates
- College course taking and major
- College GPA
- College graduation rates

evaluation can help determine what changes could improve potential effectiveness. An outcomes evaluation of School Change could assess whether the School Change initiative can be associated with positive changes in four core areas: quality of schooling; stakeholders' attitudes;

Figure 6.2
Suggested Framework for Evaluating New Haven Promise

Process evaluation			Outcomes evaluation	Impact evaluation

Inputs	→ Activities	→ Outputs	→ Outcomes	→ Social impact

Outcomes:

Attitudes
- **Students:** college going expectations
- **Parents:** expectations for child's college going, perception of engagement with district

Student learning, actions, and behaviors
- High school course taking
- High school GPA
- High school attendance
- High school graduation rates

Student postsecondary learning, actions, and behaviors
- College enrollment rates
- College persistence rates
- College course taking and major
- College GPA
- College graduation rates

Social impact:

Promote economic development in the City of New Haven

Inputs:
- Staff
- Time
- Money
- Materials
- Equipment
- Facilities
- Technology
- Data systems

Activities:
- Scholarships
- Services

Outputs:
- Students understand eligibility requirements
- Students have the resources and knowledge to apply to college
- Parents have the resources and knowledge to support their children in the college application process
- Students are provided with resources and knowledge to navigate college

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NHPS K–12 students' learning, actions, and behaviors; and NHPS high school graduates' learning, actions, and behaviors in postsecondary education institutions. Quality of schooling can be measured through the following:

- **school climate**—Is there an atmosphere of professionalism and engagement in which students, faculty, staff, and parents feel they are welcome and included?

- **tailored school organization**—Are schools organized to be "highly functioning"—each school's operational processes and quality of education focus on helping students improve?
- **quality of instruction**—Are teachers' instructional practices improving for all students and for the most disadvantaged students (i.e., pedagogy matches the learning needs of each student)? Are teachers, school staff, and school leaders well qualified and culturally competent? Are there leadership pipeline programs for improving the quality of school leaders?
- **district engagement with parents**—Does the district have methods and tactics for promoting parents' involvement in their children's schooling?

According to the model presented in Figure 6.1, each pillar is expected to promote improvements in the quality of schooling, which are then expected to shift student, parent, school teaching and administrative staff, and central office staff attitudes. An outcomes evaluation could therefore examine whether there have been any improvements in the following:

- **students**—Are students more engaged in learning? Is their socio-emotional well-being stronger and more stable? Do they have high aspirations toward college-going?
- **parents**—Do parents have high expetations for their children's college-going? Do they feel more connected to their children's school and to the district?
- **teaching and administrative staff at the school and district**—Do staff members have stronger and more effective working relationships?

Improvements in the quality of schooling are also expected to improve students' learning, actions, and behaviors so that students are more engaged in learning, display consistent attendance, graduate from high school, improve performance on state assessments, and enroll and succeed in postsecondary education institutions. According to Figure 6.1, this can occur directly or indirectly through shifts or improvements in stakeholders' attitudes.

The types of questions a process evaluation for Promise could examine are whether the scholarship and services Promise provides are adequate. It could ask students and parents what they know about college and financial aid application processes and about whether students believe they are receiving ample and appropriate resources to prepare themselves for the application process. It could also gauge whether the amount provided in Promise's scholarship is sufficient to meet students' financial needs.

Many of the parent- and student-level outcomes that are of key importance to Promise listed in Figure 6.2 are also key to School Change, such as shifts in community attitudes and students' actions and behaviors in high school and in college. However, because Promise is a specific program with its own operations, processes, and goals, its evaluation would need to focus on a subset of key activities, outputs, and outcomes. For example, a number of postsecondary student outcomes could be measured when evaluating Promise that are not necessarily directly related to School Change. Furthermore, Promise is an eight-year program, providing support and services to high school students and to Promise Scholars while they are enrolled in college. Therefore, key outcomes that should be included in an outcomes evaluation of Promise are constructs measuring NHPS graduates' success in postsecondary education: course taking or designated major and GPA while in school.

Impact evaluations examine whether longer-term community-wide or social changes have occurred as a result of a program or a reform effort. An impact evaluation of Promise would assess whether the long-term city- and community-level goals, including promoting the economic development of the City of New Haven, are being reached. The descriptive analyses presented in Appendix E in the companion volume offer a first look at some longer-term impacts. Other indicators should also be examined, such as the employment rates or labor force participation rates in the City of New Haven and whether more Promise Scholars are moving back to the City after graduating from college.

Use Internal Reporting Mechanisms to Improve Decisionmaking

Concurrent with process, outcomes, and impact evaluations, district and Promise administrators should be gathering and reporting information on key outcomes and broad community-level impacts to track progress toward reaching their goals over time. An analysis of such trends can serve as a barometer of how well NHPS is faring overall as School Change and Promise evolve, reaching more students, schools, teachers, district staff, and parents over time. The programs and initiatives within School Change are intended to work together to bring about a large districtwide transformation. Many schools, organizations, and people are involved in School Change; thus, there are many moving parts to track. Each part needs its own set of measurements and its own kind of data; for example, evaluating how a professional learning community is developing throughout the district requires different methods from assessing the capabilities of individual instructors.

In the coming years, Promise plans to report progress of the district and Promise annually in a web-based tool or internal "data dashboard." This web-based report to the public will track the status of key activities and outcomes each year. It will present summary statistics graphically, using easily understood charts. Annual progress reports have two benefits. First, they are one method of supporting transparency and engagement between the district and Promise and the broader stakeholder community. This type of annual reporting will allow funders of the Promise and School Change initiatives, parents, school teaching and administrative staff, and district central office and Promise staff to ascertain what kind of incremental changes are being made over time in the outcomes of interest. Second, tracking progress through time of key indicators can also help ensure that data systems and linkages among data sets are in place and viable for an evaluation.

The current emphasis on using data to drive internal decisionmaking is similar to movements in the private sector to develop business information systems that allow management decisions to be guided by an electronic distillation of the vast amount of information accumulated while operating a firm (Chaudhuri, Dayal and Narasayya, 2011). Within districts and schools, much of the recent work on data dashboards has focused on providing information on student achievement

to meet the needs of teachers and principals. Many information systems have been developed using diagnostic information from instruction and testing to aid data-driven decisionmaking (Hamilton et al., 2009). The most ambitious of these systems integrates computer-aided instruction and diagnostic testing to allow teachers to understand individual student learning styles and pinpoint individual deficits. The more-sophisticated dashboard systems allow users to interact with the data by choosing subgroups and measures, simultaneously viewing multiple measures or multiple groups, thereby allowing comparisons among students and across time.[1] A sophisticated dashboard system would allow administrators not only to view annual progress on many of these measures but also to incorporate real-time information from diagnostic tests, disciplinary actions, human resources reports, and other indicators. Such a system would allow managers to intervene in a timely fashion to correct problems at an early stage.

To further improve decisionmaking about whether systems are functioning well, we suggest that the district and Promise staff complement the public annual web-based reporting with internal memoranda, in which district or Promise staff report the results of internal monitoring or process evaluations using standardized guides or checklists.[2]

Concluding Remarks

As the City of New Haven and NHPS continue on the path to reform the school system, measuring the progress of change and whether School Change and Promise are meeting expected outcomes is an important step. With knowledge about how well the these reforms are doing, the extent to which expectations are being met, and how well internal

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[1] Some popular examples include Dreambox (DreamBox Learning, 2014) and Assistments (Worcester Polytechnic Institute, 2012).

[2] Example checklists to determine whether systems are in place or programs are being implemented as designed are available from The Evaluation Center at Western Michigan University. One example is Volkov and King, 2007. Additional examples are available on the center's website and can be modified and tailored to best meet the district's or Promise's needs.

organizational processes are performing, the NHPS and Promise will be in a strong place to make any necessary midcourse corrections to improve the success of School Change and Promise and to leverage areas that are working well. The study summarized in this report is a first step in a broader evaluation effort. Tracking baseline trends sets the foundation for the process and outcome evaluations that can occur in later years, thereby allowing NHPS Board of Education, the Promise Board of Directors, and the broader New Haven City community to determine whether the reforms are meeting success.

Abbreviations

AP   Advanced Placement

CAPT   Connecticut Academic Performance Test

CEVAL   Central Office Staff Evaluation and Development
            System

CMT   Connecticut Mastery Test

ELL   English language learner

FAFSA   Free Application for Federal Student Aid

GPA   grade point average

NHPS   New Haven Public Schools

NSC   National Student Clearinghouse

PEVAL   Principal Evaluation and Development System

SLE   School Learning Environment

TEVAL   Teacher Evaluation and Development System

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In 2009, the City of New Haven and New Haven Public Schools (NHPS) announced a sweeping K–12 educational reform, New Haven School Change. The district had three primary goals for School Change: (1) close the gap between the performance of NHPS students' and Connecticut students' averages on state tests, (2) cut the high school dropout rate in half, and (3) ensure that every graduating student has the academic ability and the financial resources to attend and succeed in college. Concurrent with School Change, the City of New Haven partnered with the Community Foundation for Greater New Haven, NHPS, and Yale University in 2010 to create New Haven Promise, a scholarship program that aims to improve the college-going culture in the city and postsecondary enrollment and graduation rates of NHPS graduates as a way to enhance the economic development of the city, attract more residents to New Haven, reduce crime and incarceration, and improve residents' quality of life. The 2010–2011 school year marked the first year of a staged implementation for both efforts. In June 2013, the New Haven Promise Board of Directors asked the RAND Corporation to conduct a study to document and describe baseline conditions and early progress of these programs. Researchers worked with state and district data and conducted interviews with Promise Scholars and parents to document early trends and possible areas for improvement. This report and its companion volume document the resulting study.

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