

INSTITUTE FOR EDUCATION & SOCIAL POLICY
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**STABILITY IN STUDENT AND TEACHER
CHARACTERISTICS
IN THE FIRST TEN YEARS:
A STUDY OF SMALL HIGH SCHOOLS IN NEW
YORK CITY**

April 2007

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*A STUDY OF SMALL HIGH SCHOOLS IN
NEW YORK CITY***

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Introduction

Growing concern about the quality of public education in the United States has driven numerous educational reform efforts across the last three decades. These reforms include increased accountability as exemplified by *No Child Left Behind (NCLB)*, the introduction of new curriculum and instructional methods in response to the standards movement, and the redesign of American public high schools, including an increased focus on small learning communities. Several national foundations and city school systems have invested considerable resources in reducing school size as a way to improve poorly performing schools and revitalize urban high school systems. But while research has shown that small high schools may facilitate the creation of positive learning environments, urban school systems face a host of challenges—such as the transience of teacher and student populations—that may influence the implementation of this reform. Indeed, changes in student or teacher populations may affect small high school environments more intensely than larger schools, because of the interpersonal and interdependent nature of small schools (Wasley et al, 2000). Because most studies of small high schools are conducted with data from only a few school years, little is known about whether transience is an issue for small high schools, and how changes in student and teacher demographics may impact small high school operations or school development over time.

The New York University Institute for Education and Social Policy (IESP) conducted a two-year mixed methods study to explore the process and outcomes of small high school development in New York City over the past decade. We examine how school-level student and teacher populations change over time in small New York City

public high schools, the organizational and instructional practices that contribute to positive small school learning environments, and how changes in these populations over time may influence school practices. The results from these analyses are available in the companion publication, *The Effectiveness of Small High Schools, 1994-95 to 2003-04*.

The current report focuses specifically on how student and teacher populations at these new high schools change from year to year as they develop during their first ten years. We anticipate that our findings will have important implications for how new small urban high schools are established and supported, as well as for the development of mechanisms to help new small high schools achieve the necessary stability.

Methods

We used a mixed-methods framework to explore the process of small high school development over time in New York City and to examine how student and teacher populations of these small high schools change over time.

Data

Quantitative Sample

Data for the study comes from the *Annual School Reports (ASR)*, which are published yearly by New York City Department of Education's Division of Assessment and Accountability. Additional data on high school start dates come from the *School Based Expenditure Reports (SBER)*, which are produced by the New York City Department of Education.

The sample consists of public high schools that opened between September 1993 and June 1998.¹ We identified 80 high schools that opened during this time period. Because this

¹ This sample does not include charter schools because New York State charter school legislation was not enacted until December, 1998.

study focuses on small high schools that are being developed to replace larger high schools, we excluded from the analyses high schools that enroll only new immigrant students and high schools that enroll students only after they have left a traditional high school (referred to as transfer alternative schools), since these students are unlikely to apply to these small high schools.² The final sample for the analysis includes 67 schools. We define 41 of these schools as “small” (they have 500 or fewer students in grades 9 through 12) and 26 as “medium” schools (these have over 500 students in grades 9 through 12).³ (See Appendix A for a list of schools included in the sample and their start dates.)

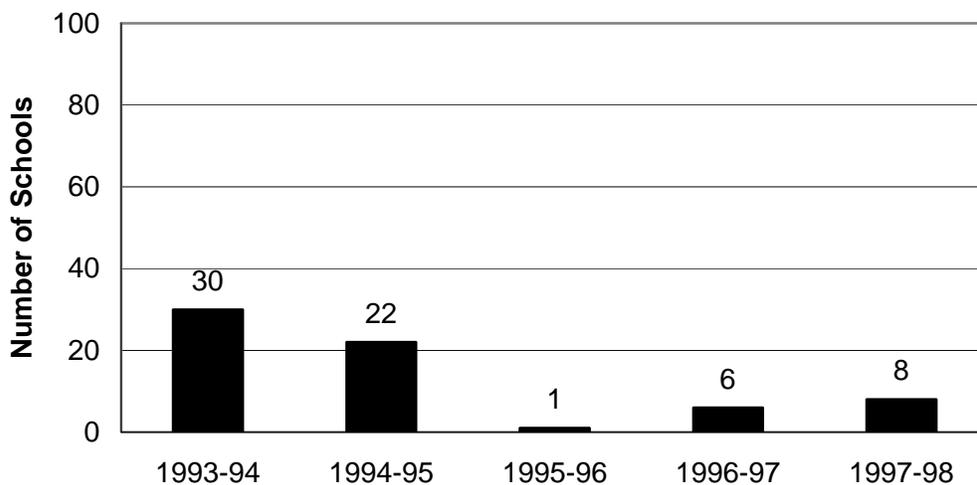
We chose this sampling strategy for a number of reasons. First, the 1993-1994 school year marked the first year of the wave of small schools that began with the New Visions and Coalition Campus small school efforts. Second, schools that opened prior to the 1997-98 school year provide us with multiple years of demographic and outcome data; for example, for each school in our sample, we have at least two years of graduation data. Third, by including only those schools that opened after 1993, we were able to track changes in their entering student populations over time, since data on entering students was not made publicly available in the *Annual School Reports* prior to the 1993-1994 school year. Finally, we chose this strategy because we believe that the comparison of small high schools to a set of similar high schools that opened during the same time period would enable us to control for some of the unobservable characteristics that may influence school outcomes over time. For example, new schools often face complications—such as facilities that have recently been constructed or are undergoing

² Transfer alternative high schools are excluded from this analysis because the admissions process for students differs from that of the general high school population. Students are accepted into these schools only after they have been discharged from other academic or articulated city high schools. We also excluded schools that target new immigrant students since admission to these schools is based on students’ immigrant status.

³ We chose 500 students as our cutoff since this is the enrollment number that is currently being supported as “small” by many funders and districts.

renovation, lack of supplies, textbooks that have not been received by the time school begins, incomplete faculty and other school staffs, or limited curricula and administrative policies—that older schools do not. These characteristics will be more similar in schools that opened during the same time period. Whatever their size, new schools of similar age provide a better comparison group than schools that have existed for a longer period of time.

**Number of Sample Schools Opening Between
1993-94 and 1997-98**



Qualitative Sample

The quantitative analyses are supplemented with data from our more in-depth qualitative study. (See *The Effectiveness of Small High Schools, 1994-95 to 2003-04* for more information on our qualitative sample and methods.) The data used in this report comes primarily from the principal interviews and school-site observations of the six schools that participated in our qualitative study. Due to budget constraints, we chose to focus our attention on small high schools only so that we could obtain a sufficient number of interviews and observations for analysis. While we tried to include schools with a wide range of student performance, the

schools that participated are more representative of the city's low-performing small high schools rather than the overall pool of small high schools.

In what follows, we detail our findings from both the qualitative and quantitative research. We frame our analysis in the literature of organizational growth and development because this literature offers valuable insights into the impact of transience on developing organizations.

Findings: Change at Small High Schools Over Time

When an organization is initially established, its evolving culture aims to create a stable, predictable environment (Schein 1985). Over time, organizations can either continue to maintain a stable environment, or be subject to externally induced crises or internal forces that affect their stability. Turnover in staff, and even changes in clientele, represents such destabilizing forces. Small organizations are particularly susceptible to personnel fluctuations because they disrupt the interpersonal connections that often reinforce the infrastructure and culture of the organization (Wasley et al, 2000). Indeed, some organizational researchers (Kimberly, 1979) describe a very personal process of organizational development regardless of size; in Kimberly's conceptualization, organizations begin as innovative entities, often dependent on the energy of a charismatic leader and an enthusiastic staff. They then evolve through a series of developmental stages including the formation of an organizational identity, the development of commitment and cohesiveness among staff members, and, finally, the institutionalization of policies, rules and formalized structures. Fluctuations in staffing and clientele can interrupt this process, thus impeding the overall growth and development of an organization.

Small high schools are particularly vulnerable to fluctuations in staffing and student demographics. First, small high schools are often dependent on the vision and enthusiasm of founding staff, and turnover means a loss of that original energy and vision. As start-up organizations, staffing fluctuations detract from the creation of infrastructure, cultural development and policies that allow the school to proceed through Kimberly's stages of organizational growth. Second, many small high schools are designed around a particular focus or theme, such as social justice, business, law, or art. As such, small high schools form a kind of niche market, offering specialized educational programs that are geared toward specific student interests. Staff turnover means that the school is engaged in a constant process of generating investment among teachers rather than focusing on the development and implementation of its theme. Likewise, when student characteristics change dramatically from year to year, the school shifts energy away from its primary focus to adjust to and accommodate unanticipated student needs. The specialized focus of the school can be diluted, and the school's overall development can be neglected in the urgency of initiating new staff and addressing unanticipated student needs. Many small schools may, as Kimberly's framework predicts, abandon their innovative origins in favor of characteristics, both structural and interpersonal, that correspond to the school's more mature and more traditional counterparts.

Our qualitative data reflect this phenomenon. One principal spoke of the difficulty of sustaining the school's vision as some of the founding teachers left and new teachers, not yet fully invested in the mission, were hired. The principal felt that the school's theme was diluted as these teachers were, at least initially, unsure of how to integrate the school's theme into their teaching. The theme then became a nominal focus, as its implementation was dependent on the agency of individual teachers. The same school had also experienced a large increase in special

education students in recent years, as well as students with a wide range of abilities, and struggled to educate these students. The school had limited experience providing for students with special needs, and their small size made them unprepared to accommodate their specific needs. This principal stated, “It is hard in a small school to offer as wide a range of opportunities as one would like. . .it is difficult to differentiate instruction to deal with a wide range of [student needs].” Such difficulties can further erode the school’s mission; the theme focus was suspended as the staff used their instructional time to design plans to meet the wide range of student abilities in their classrooms. At the time of our fieldwork, the principal and lead teachers were working to create a strategic planning process that would engage teachers in reviving the school’s theme, while simultaneously accommodating new teachers’ interests and addressing students’ needs.

These were not isolated incidents. Indeed, staff interviews in several other schools in our qualitative sample suggested similar dynamics. Given this trend, we decided to explore whether there were quantitative indicators of staffing and student fluctuations in small high schools. To conduct this analysis, we explored whether our sample schools experienced significant changes in the characteristics of their entering students and teachers, and at what point in their development these changes might occur. We did this in two ways. First, we estimated these changes in teacher and student populations for all the schools in our sample. Second, we analyzed patterns over time for a subsample of schools that opened during the 1993-94 and 1994-95 schools years, and for which there was data for all ten years.

Quantitative Findings

Total Sample

As the analysis of the data presented in “*The Effectiveness of Small High Schools, 1994-95 to 2003-04*” show, there were few significant differences between the small and medium high schools over time in both teacher and student populations. Among entering 9th and 10th grade students, the small high schools had a significantly higher percentage of free lunch eligible students and lower attendance rates for the semester prior to enrollment than the medium-sized schools. No significant differences were found for measures of teacher experience or education between the small and medium-size schools.

In this report, we present analyses where we used regression analyses to estimate quadratic equations. The quadratic equation is most appropriate here because we believe that these trends are better represented by a curve than by a line. For example, the share of students receiving free lunch at a new school declines for a few years and then begins to increase. The basic quadratic model employed in our analyses is as follows:

$$Y_j = \beta_0 + \beta_1 Schoolyear_j + \beta_2 Schoolyear_j^2 + \varepsilon$$

where Y_j = is a variable representing a characteristic of teachers or entering students at school; $Schoolyear_j$ is the number of years that each school has existed in a particular school year; and $Schoolyear_j^2$ is the squared value of the number of years that each school has existed in a particular school year. Teacher characteristics examined are the percentage of teachers at the school for two years or more, and the percentage of teachers with five or more years of experience. Student characteristics examined include percentage of entering 9th and 10th grade students who are English Language Learners, in full-time special education, or overage for

grade, and those students who meet the standards on 8th grade English Language Arts and Mathematics examinations.

The following charts show the trends predicted by the quadratic models for several of the variables measuring student and teacher characteristics. Charts showing the trends for additional variables are included in the appendix. Note that these charts are not drawn to scale, so the curves as shown indicate the direction but not the magnitude of the relationship.

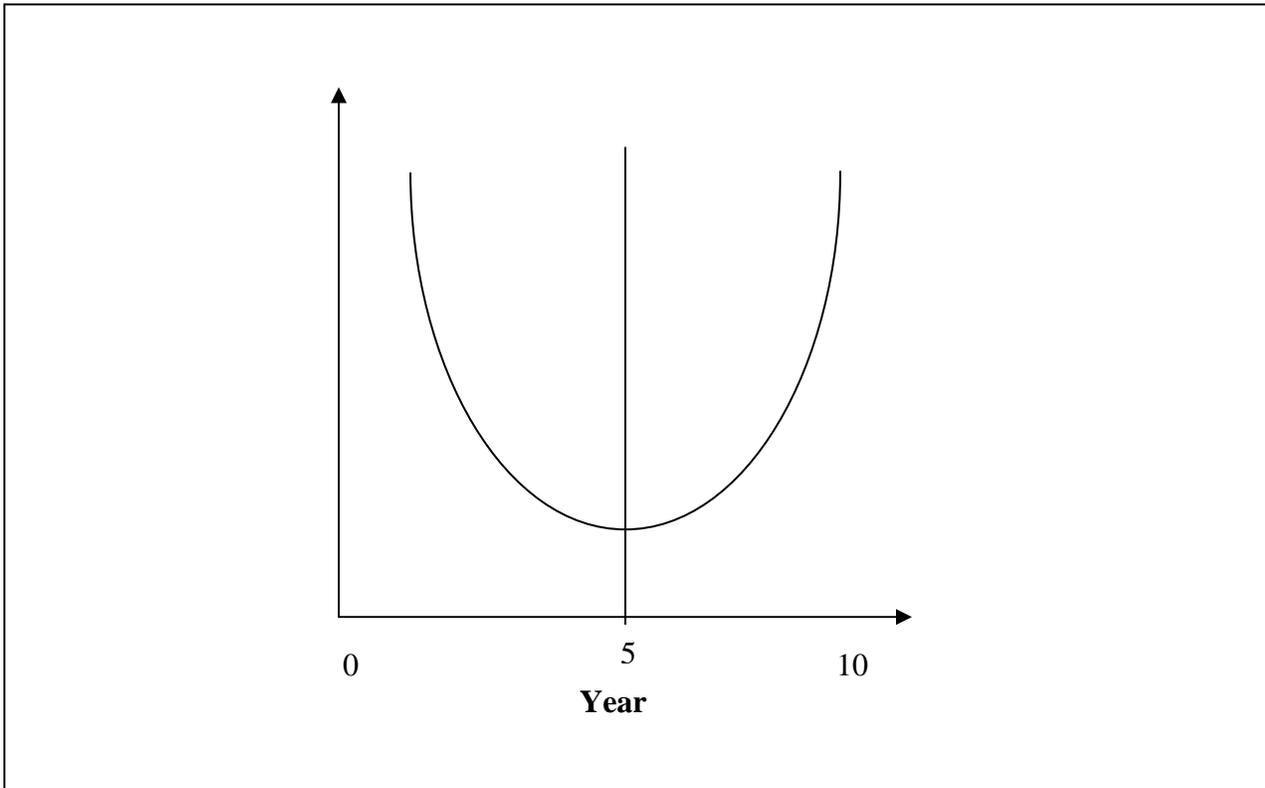
Teacher Experience

Attracting and retaining qualified teachers may be the most challenging personnel issue new schools face. New schools may be far more likely to attract novice teachers, and as our previous analysis showed, new small and medium-size high school were more likely to have a higher percentage of teachers with less than five years of experience than the citywide high school average (Jacobowitz, et al 2007). The analysis also shows that even after the schools have established their full complement of grades, they are also less likely to retain teachers for long periods of time, compared to citywide high schools. For example, in 2001-02, the new schools in our sample had only 52.4% of teachers who had been at the school for two years or more, compared to the citywide average of 68.3% and this difference was consistent throughout the years we studied.

To calculate the point these new high schools may lose teachers, two quadratic models were estimated. These analyses showed that both new small high schools and new medium size high schools had similar trends in variables associated with teacher tenure and experience. In each category of school, the percentage of teachers with five or more years of experience declined until the school's fifth year, and then began to rise (Figure 1). This pattern supports the

idea that many of the experienced teachers that help to establish a new high school tend to leave over the subsequent years, and are replaced by less experienced teachers.

Figure 1: Percent of Teachers with Five Years or More Teaching Experience Over Time, Small and Medium-Size High Schools



A similar pattern was observed for the percentage of teachers remaining at the same high school for two years or more. Both new small and new medium high schools show declines in this measure of teacher retention until the sixth year of operation, at which point teacher retention rates begin to improve. Teachers at these new high schools could be experiencing a higher rate of “burn-out” than teachers at more established high schools, given the intense demands on their time and energy. Even with fewer students to teach, smaller, newer schools make greater demands on teachers and require them to spend more time on developing

curriculum, and other school-wide infrastructure issues, than more traditional and/or established schools.

Characteristics of Entering 9th and 10th Grade Students

This analysis indicates that new small high schools have different trends than the group of new medium-size high schools on some measures of the characteristics of entering students. Differences were found for the percentages of entering students receiving special education services, the percentage of students overage for grade, and the percentage of students who scored below grade level on the 8th grade state ELA and Mathematics exam. While the number of special education students at these small high schools is tiny, we found that the percentage of entering students who are full-time special education increased at small high schools until about the sixth year of operation, and then began to decline (Figure 2). In contrast, the new medium-size high schools showed a trend of decreasing percentages of special education students over the period studied (Figure 3). While the percentage of entering students overage for grade does not change over time at the small high schools, there appears to be a steady decrease over time in the percentage of entering students who are overage for grade at the medium-size high schools (Figures 4 and 5). While the percent of entering students who are ELL is similar to that for entering special education students, neither type of new high school had a significant trend in the percentage of ELL students admitted in their early years.

Figure 2: Percent of Entering Students in Full-Time Special Education at Small High Schools

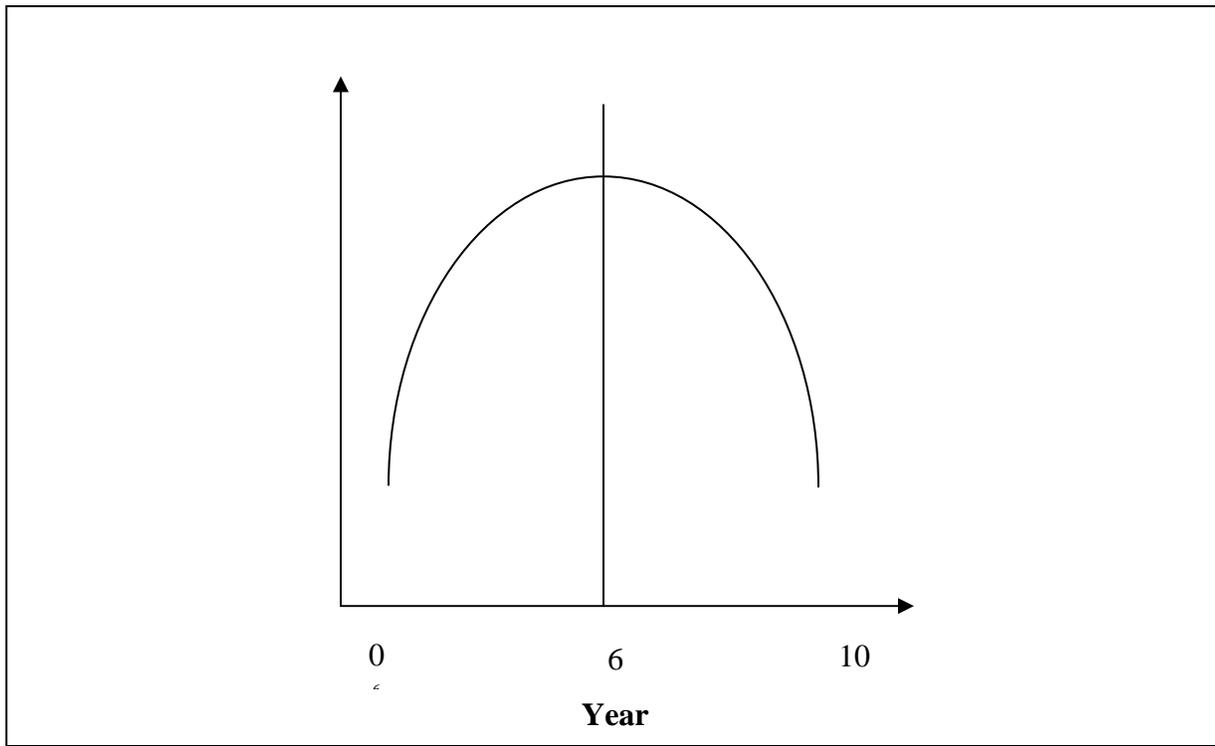


Figure 3: Percent of Entering Students in Full-Time Special Education at Medium-Size High Schools

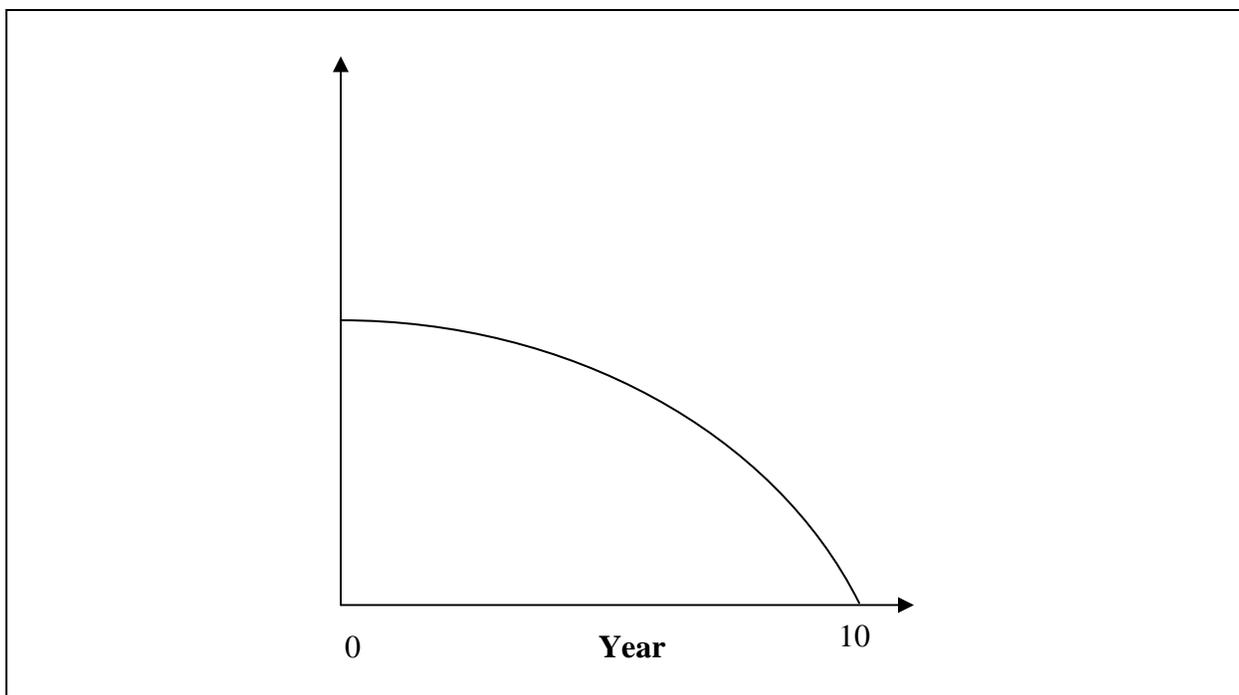


Figure 4: Percent of Entering Students Overage for Grade at Small High Schools

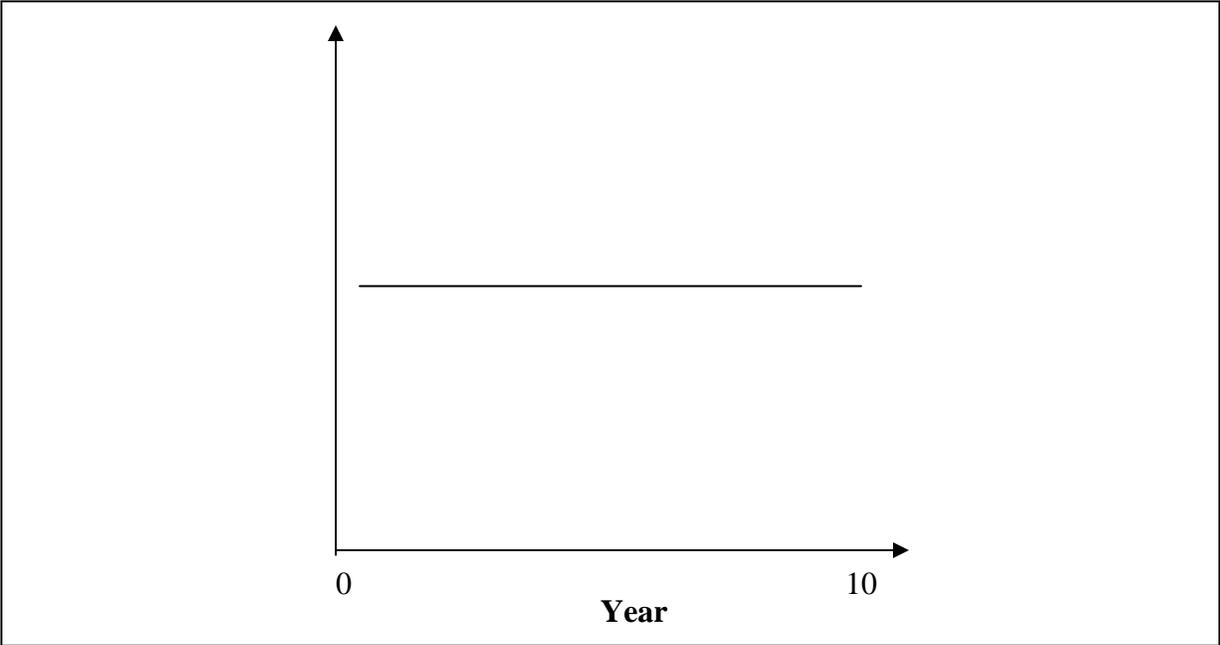
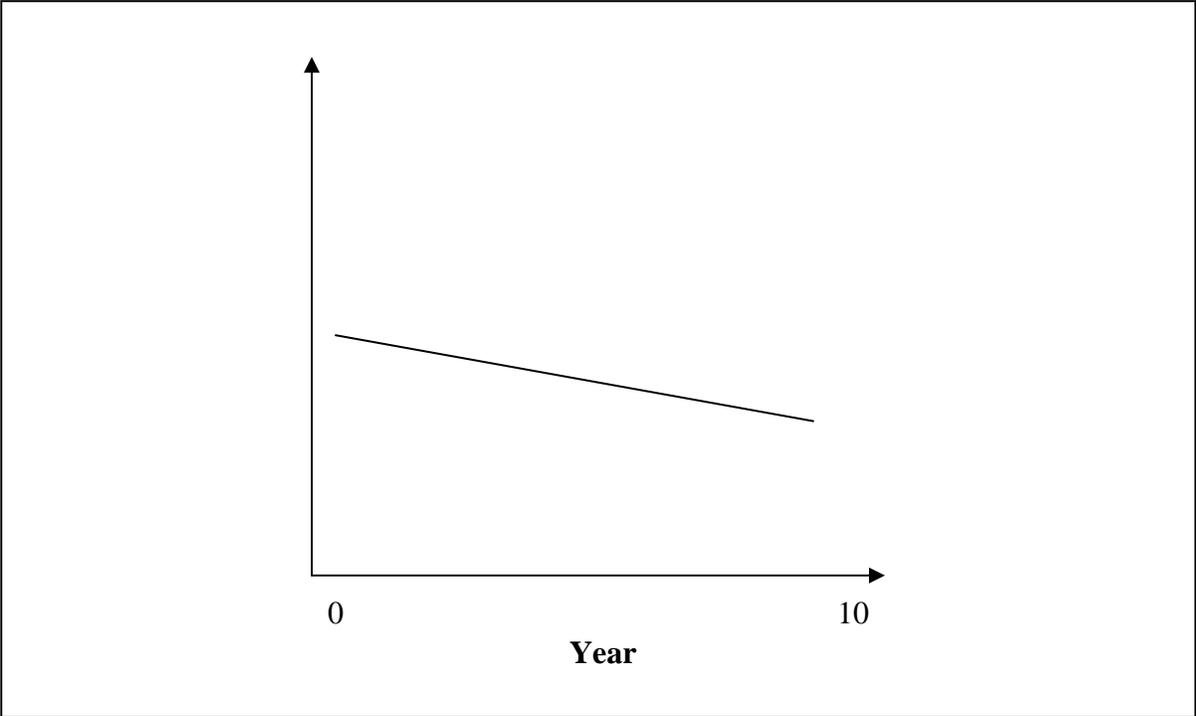


Figure 5: Percent of Entering Students Overage for Grade at Medium-Size High Schools



In terms of the prior achievement level of entering students, small schools differed from medium schools in math achievement, but not in ELA achievement. The percentage of entering students scoring at or above grade level on 8th grade ELA examinations remained stable for both new small and new medium high schools over time. However, small high schools saw declines in the percentage of entering students meeting the standards in math over time, while the percentage of entering students meeting the standards in math remained stable at medium-sized high schools over time (Figures 6 and 7).⁴

Overall, these results imply that new small schools are less stable in terms of student population over time than larger new schools, and face an increasingly challenging student population in the early years of operation.

⁴ As the results might have been confounded by a change in the way these variables were calculated in the 1999-2000 school year, these models used the deviation from the citywide mean as the dependent variable.

Figure 6: Percent of Students Meeting Standards in Eighth Grade Mathematics, Small High Schools

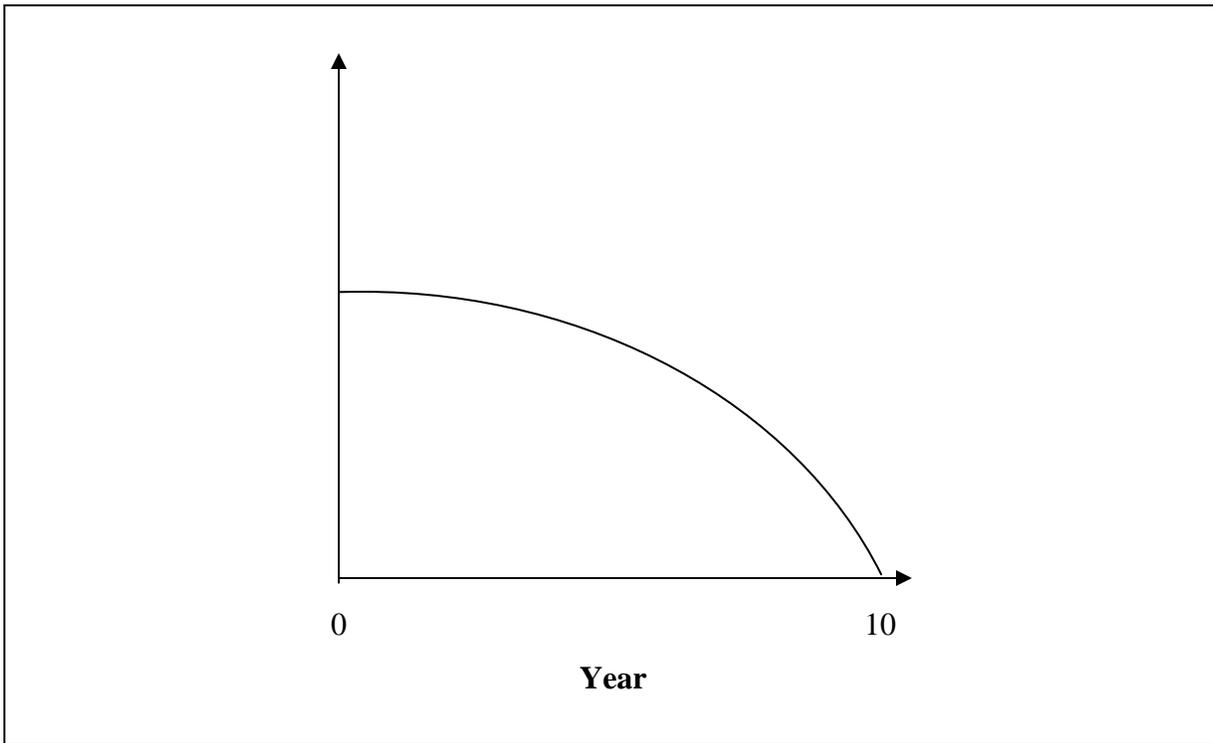
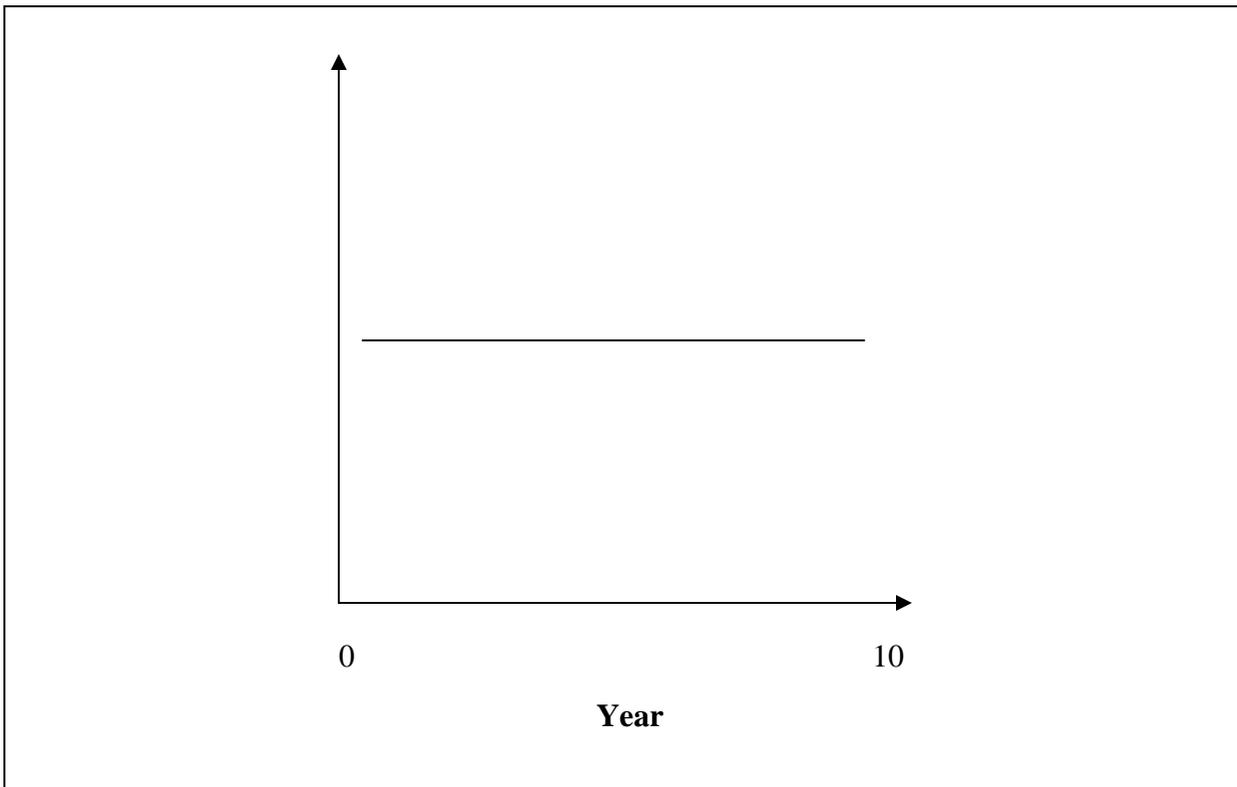


Figure 7: Percent of Students Meeting Standards in Eighth Grade Mathematics, Medium-Size High Schools



The results indicate that new high schools, regardless of size, face considerable fluctuation in teacher and student population. Specifically, new high schools have difficulty retaining teachers during the first few years of their existence. While these schools have a high percentage of experienced teachers when they open, this percentage decreases over the first five years, as does the percentage of those who remain at the school for two years or longer. Additionally, the small high schools are also faced with changing student demographics, particularly increases in the percentage of full-time special education students. Such instability can threaten schools that have tailored their program to serve specific teacher and student needs and interests, but then are forced to amend their programs to meet the needs of unanticipated teacher and student populations.

Analysis of Individual Schools

We also wanted to examine more in-depth the specific trends in teacher and student characteristics at individual schools over time. To have the most data points, this analysis is limited to schools that opened in the 1993-94 or 1994-95 school year. The results indicate that almost all of the schools in our sample, regardless of size, have a difficult time achieving a level of stability in student and teacher characteristics for any significant amount of time across their first ten years.

Teachers Characteristics at Small High Schools Over Time

We analyzed two measures of teacher stability at small high schools: the percentage of teachers with five or more years of experience, and the percentage of teachers at the school for two years or longer. Our sample has complete data on 15 of the 32 small schools that began in

the 1993-94 or 1994-95 school years. The data for all 15 small high schools indicate that, in general, the teaching staff at these schools is particularly unstable when compared to the citywide high school teaching force. While the city high schools as an aggregate show decreases in the experience and retention of the teaching staff in high schools across the city, stability did not vary dramatically from year-to-year (see Appendix B).

The pattern across the small or medium-size high schools was very different. For example, six of the small schools opened with more than 50% of the teaching staff having five years or more of teaching experience. By year four, this had decreased to less than 30% in some schools (see Appendix B for a more detailed analysis of the patterns found at the schools). As has been stated previously, the small high schools in our sample had difficulty developing a stable cohort of teachers during the early years of their existence. Twelve of the 15 schools had 50% or fewer of their teachers who had been at the school for two years or longer by year three. By year six, only three of the schools had been able to retain a majority of teachers who had been at the school for two years or longer to create a stable cohort of teachers.

Data on teacher characteristics exists for 18 of the 20 medium-size schools in our sample, and we find patterns of teacher stability in medium high schools similar to the pattern in our small high schools. Few of the schools, however, saw as high levels of teacher turnover or loss of experienced teachers as did the small high schools we analyzed.

Student Characteristics at Small High Schools over Time

We also examined five student characteristics over time in both the new small high schools and the new medium high schools— the percentage of entering 9th grade students overage for grade, English Language Learners, full-time special education students, and the percentage of

students who met the standards in ELA and mathematics. Complete data is available for 16 of the 32 high schools that opened during the 1993-94 and 1994-95 schools years.⁵

While the small high schools in the sample had relatively small ELL and special education populations, any increase in the percentage of these populations, particularly among a small student population, can disrupt a school that has limited resources.⁶ We found that 11 of the 16 schools experienced a sharp upward spike in the percentage of special education students in year seven, which disappeared during year eight. This corresponded with the 2001-02 school year, in which the city school system as a whole actually experienced a slight decrease in the percent of students entering 9th grade as full-time special education students. We found similar results for the medium-size high schools. Eight of the nine schools for which we have data saw a rise in the percentage of special education students in year seven, which quickly disappeared in the following year. The increases in ELL and special education students that many of the small high schools in our sample experienced correspond to the reorganization of the New York City Department of Education. In this restructuring, the specialized district that had served small schools was eliminated, and they were reassigned to geographic districts. Some principals we interviewed claimed that prior to this restructuring, the citywide admissions process had allowed them to admit only the special needs students they could accommodate, given their small size. These principals suggested that this enrollment protection ended once the restructuring took place.

More of the small high schools experienced year-to-year changes in the percentage of students who are overage for grade than they did for special education or ELL students. Six of the 16 schools in our sample remained relatively stable for these two student characteristics over

⁵ Missing data issues for the small high schools appear to be more severe than for the medium-size high schools.

⁶ The patterns for ELL students were found to be very similar to those for full-time special education students.

the ten-year period. The remaining 10 schools showed one of two patterns (see Appendix C for a more detailed description): (1) Either the schools remained relatively stable for the first eight years and then experienced an increase in students who are overage for grade beginning in year nine, or, (2) they experienced turmoil on a year-to-year basis. This student characteristic is important because it is highly correlated with a lower percentage of students who met the standard on 8th grade ELA and Mathematics examinations.

Unlike the small high schools, however, most of the medium-size high schools opened with high percentages of students overage for grade, but these percentages steadily decreased over time.

8th Grade Test Scores of Entering Students

Because New York State changed the reporting of the 8th grade state test results during the time period we studied, we compared student test score outcomes to the citywide mean. Calculating the citywide mean as zero, we compared how far from zero the percentage of entering students at each school were on 8th grade ELA and mathematics examinations. We had complete data on test scores for 15 of the 32 small high schools in our sample. The results show that most of the small high schools had entering students who either consistently fell far below the citywide averages on 8th grade ELA and mathematics examinations, or who varied dramatically on the indicators from year to year.

Four of the small high schools consistently had entering students who were below the standards on the 8th grade ELA examination during all ten years we studied. Test scores for nine of the schools' entering students also remained relatively stable and quite low-performing over the study period, although some fluctuations were seen from year-to-year. Only two of the

schools consistently had higher percentages of entering students who met the citywide standards on the 8th grade ELA examinations. Interestingly, even these two schools experienced some fluctuations in the previous performance of their entering students, primarily in year one and year five. However, year five is when the reporting for the 8th grade exams changed, and we cannot be sure that this drop is not a scoring or reporting artifact.

The patterns at medium-size schools differ slightly from those at the small schools. At four of the 17 schools for which we have data on the 8th grade test scores, the percentage of entering students at these schools remains consistently below the citywide mean for the 8th grade English Language Arts across the ten years we studied. At an additional six schools, the percentage of their entering students exceeded the citywide average in 8th grade ELA result for one or two years, only to be followed by four or five years of percentages of students well below the citywide average. At most of the medium high schools, the percentage of students exceeding the citywide average occurred during the early years of their existence. In the latter years, the percentage of students below the citywide average increased.

Conclusion

Instability of teacher and student populations is not a new phenomenon in urban school districts. The data in this study shows fluctuations in teacher and student populations for small high schools, with greater turbulence in schools' early years. Our findings suggest that this fluctuation may disrupt, or at the least threaten, the implementation of schools' instructional programs. This instability is problematic because, as the management and organization literature states, "high levels of employee turnover are found to be both cause and effect of problematic conditions, and low performance in organizations" (Ingersoll, 1999, pg 7). Indeed, research on

school reform has shown that organizational stability is an important component of a healthy school (Tesh, 1991; Hanushek & Rivkin, 2000; Purkey & Degen, 1985).

New organizations may be particularly vulnerable to fluctuations in staff and clientele. These shifts draw attention away from the creation of policies and practices that create the infrastructures to foster sustainability. Moreover, the interdependent nature of small schools makes them vulnerable to the repercussions of chronic instability (Wasley, et al 2000). Constant turnover disrupts the personal relationships that form the strength of small schools, particularly in their early years. For example, in small schools, teachers and administrators wear multiple hats, and the loss of one key staff member can leave a difficult void to fill. Additionally, turnover disrupts a school's ability to maintain their particular instructional and enrollment niche. It is difficult to sustain the instructional practices and structures that support a school's specialization if that school must constantly shift its focus to meet the needs of a population in flux. Moreover, given these challenges, small schools' size may actually come to be a liability, because their size can limit their capacity to address a wide range of student needs.

Understanding these patterns of instability provides an opportunity to develop supports that can help small schools succeed. Indeed, as the New York City Department of Education moves forward with small high school reform, it is important to learn from, and continue to address the needs of, already established small schools. Several principals we interviewed remarked that they felt neglected by the system, given the rapid expansion of small high schools. One principal insisted that before "a single new...school is opened, [the district] should address the needs of the existing schools." Moreover, as our research suggests, understanding the trajectory of small high school development yields information that can help shape effective supports for the newer waves of small high school creation. By addressing the needs and capacity of both established

and newer small high schools, it becomes possible to apply new lessons as well as to avoid the difficulties experienced by the earlier wave of new small high schools.

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Appendix A

Schools with Fewer than 500 Students

BDS	School Name	Year Opened	Included in Individual Analysis
179469	Choir Academy of Harlem	1993-94	x
179409	Coalition School for Social Change	1993-94	x
379645	EBC-HS for Public Safety and Law (East New York)	1993-94	x
376685	El Puente Academy for Peace and Justice	1993-94	x
272520	Foreign Language Academy of Global Studies (FLAGS)	1993-94	x
171407	Institute for Collaborative Education	1993-94	
179419	Landmark HS	1993-94	x
179429	Legacy School for Integrated Studies	1993-94	x
179439	Manhattan Village Academy	1993-94	x
171509	Martha Valle CMSP	1993-94	
102412	NYC Lab School for Collaborative Studies	1993-94	
477670	Robert F. Kennedy Community HS	1993-94	x
479560	Robert F. Wagner Jr. Institute for Art and Technology	1993-94	
179690	School for the Physical City	1993-94	x
171519	Talent Unlimited School	1993-94	x
171670	Thurgood Marshall Academy	1993-94	
179695	Urban Peace Academy	1993-94	x
179449	Vanguard HS	1993-94	x
174415	Wadleigh Arts Secondary School	1993-94	x
279680	Bronx Coalition Community HS	1994-95	
379409	East New York Family Academy	1994-95	x
171450	East Side Community HS	1994-95	x
279682	Fannie Lou Hamer Freedom School	1994-95	x
379509	Freedom Academy	1994-95	
279690	Monroe Academy for Business and Law	1994-95	
279692	Monroe Academy for Visual Arts and Design	1994-95	
102414	NYC Museum School	1994-95	
477680	Queens Gateway to Health Sciences School	1994-95	x
376429	The Brooklyn School for Global Studies	1994-95	x
279686	The New School for Arts and Sciences	1994-95	x
179500	Unity HS	1994-95	

BDS	School Name	Year Opened	Included in Individual Analysis
279684	Wings Academy	1994-95	x
179531	New York City Public Repertory Company	1995-96	x
477575	Academy of American Studies	1996-97	
171610	Young Women's Leadership Institute	1996-97	
272530	Banana Kelly HS	1997-98	
102411	Baruch College Campus HS	1997-98	
171685	Bread and Roses Integrated Arts HS	1997-98	
272505	Bronx School for Law, Government, and Justice	1997-98	
171680	Heritage School	1997-98	
171605	Humanities Preparatory Academy	1997-98	

Schools with 500 or More Students

BDS	School Name	Year Opened	Included in Individual Analysis
179479	Beacon HS	1993-94	x
313670	Benjamin Banneker Academy	1993-94	x
272525	Bronx Leadership Academy	1993-94	x
379545	EBC-HS for Public Service (Bushwick)	1993-94	x
171499	Frederick Douglass Academy	1993-94	x
171420	Health Professions and Human Services HS	1993-94	x
171489	HS of Economics and Finance	1993-94	x
171425	Leadership and Public Service HS	1993-94	x
373535	Leon M. Goldstein School for the Sciences	1993-94	x
373590	Middle College HS at Medgar Evers College	1993-94	x
373419	Science Skills Center	1993-94	x
477496	Business, Computer Applications, and Entrepreneurship HS	1994-95	x
373479	Erasmus Hall Campus: HS for Business and Technology	1994-95	x
373469	Erasmus Hall Campus: HS for Humanities	1994-95	x
373459	Erasmus Hall Campus: HS for Science and Math	1994-95	x
272670	Health Opportunities School	1994-95	x
477498	Humanities and the Arts Magnet HS	1994-95	x
171529	Jacqueline Kennedy Onassis HS	1994-95	x
477494	Magnet School of Law and Government	1994-95	x
477492	Math/Science Research Tech Center	1994-95	x
376499	Acorn Community HS	1996-97	
374477	HS for Legal Studies	1996-97	
374478	HS of Enterprise, Business, and Technology	1996-97	
374474	Progress HS	1996-97	
477550	Arts and Business HS	1997-98	
373690	Brooklyn Studio School	1997-98	

Appendix B

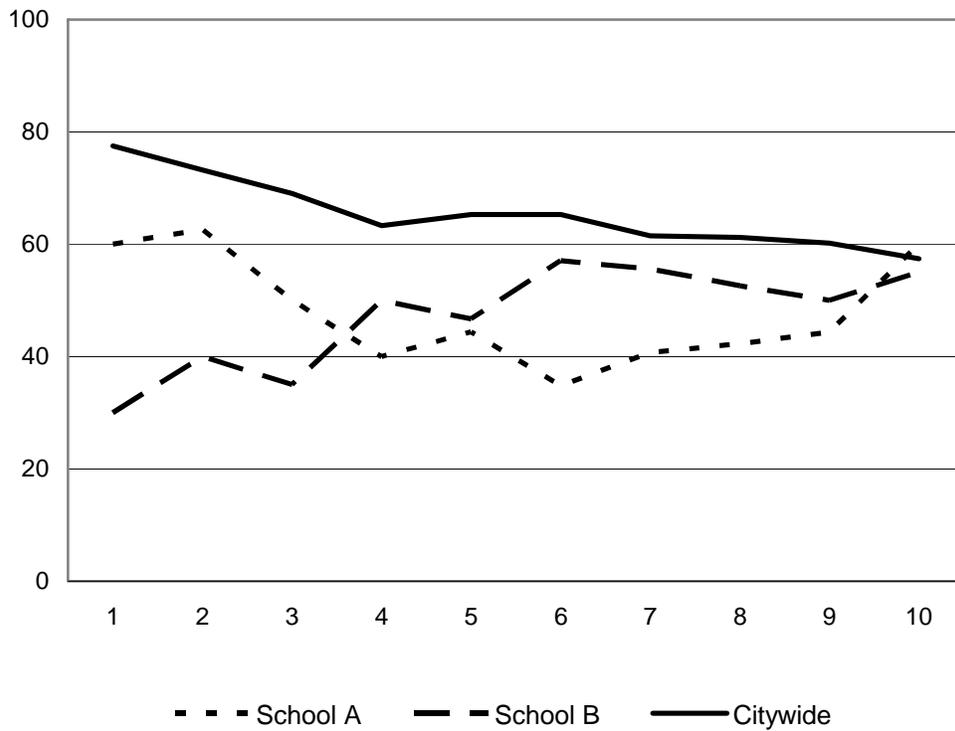
Teacher Characteristics at Small High Schools Over Time

In this section, we show examples of the patterns we found for change over time among individual small high schools. The data for each school presented is representative of the types of patterns we found among all small high schools in our sample.

Teacher Experience

School A, for example, opened with 60% of its teachers with five years or more of experience (Figure B1). By year three, the teacher experience category drops to almost 40%. However, by year seven, the school seems to develop an increasingly stable cohort of experienced teachers. School B, by contrast, opened with fewer than 40% of its teachers with five years or more of experience. Each year saw a steady increase in the percentage of experienced teachers and by year six, almost 60% of School B's teachers have five or more years of experience. While this decreases slightly across the next few years, the percent of experienced teachers continues to remain above 50%.

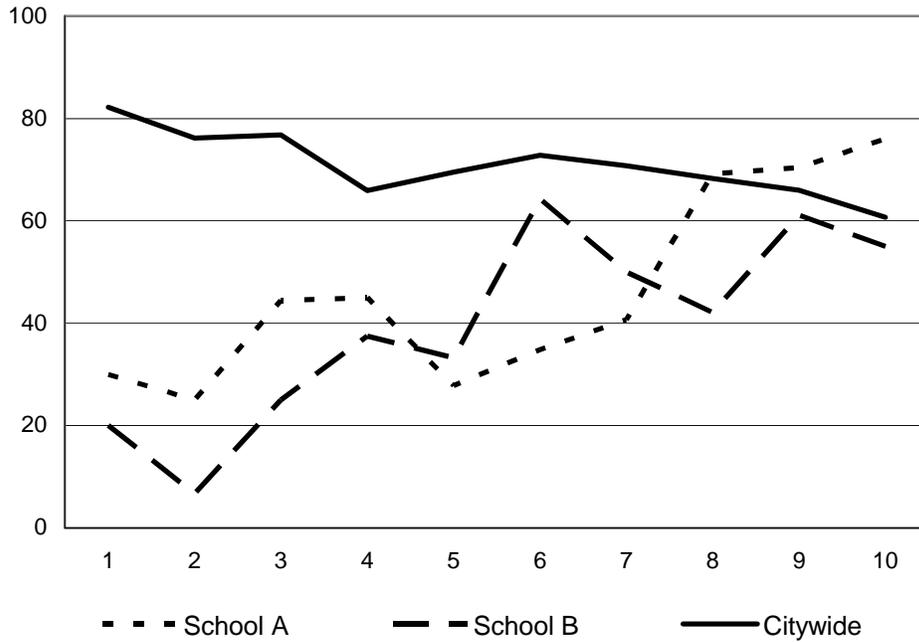
Figure B1: Percent of Teachers with Five Years or More of Teaching Experience, Small High Schools



Teacher Retention

Many of the schools in our sample also have difficulty developing a stable cohort of teachers during the early years of their existence (Figure B2). School A, for example, in year three, had slightly more than 40% of the teachers who had been at the school more than two years. By year six, however, less than 40% of the teachers have been at the school for two years or longer. However, by year seven, the school appears to have developed a cohort of stable and experienced teachers. School B saw a steady increase in the percentage of teachers who had been at the school for two years or more. Between years six and eight, however, there was an almost 20% decrease, which disappeared by year nine and decreased slightly in year ten.

Figure B2: Percent of Teachers at the School Two Years or Longer, Small High Schools



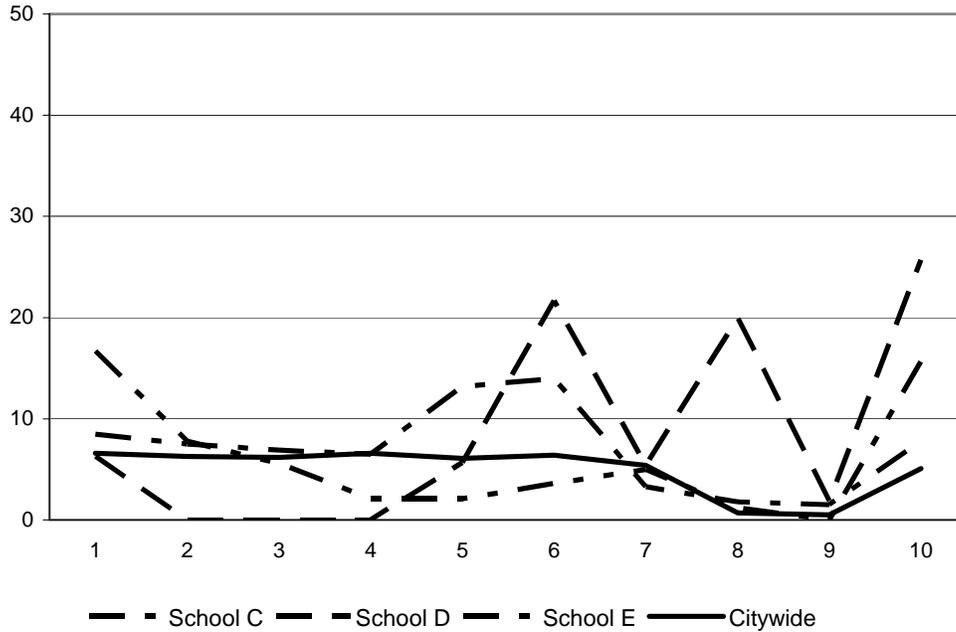
Student Characteristics at Small High Schools over Time

Special Education

School C, for example, had less than 5% special education students during its first five years, while in year ten its incoming student population grew to almost 20% (Figure B3).

School D saw a steady increase through year six, and has since seen a year-to-year change in the percent of special education students. At School E, the percentage remained consistently around 5%, except in years five and six where it approaches 20%. However, in years nine and ten, the percentage of entering students who are special education students begins to trend upwards, similar to the citywide average.

Figure B3: Percent of Full-Time Special Education Students, Small High Schools



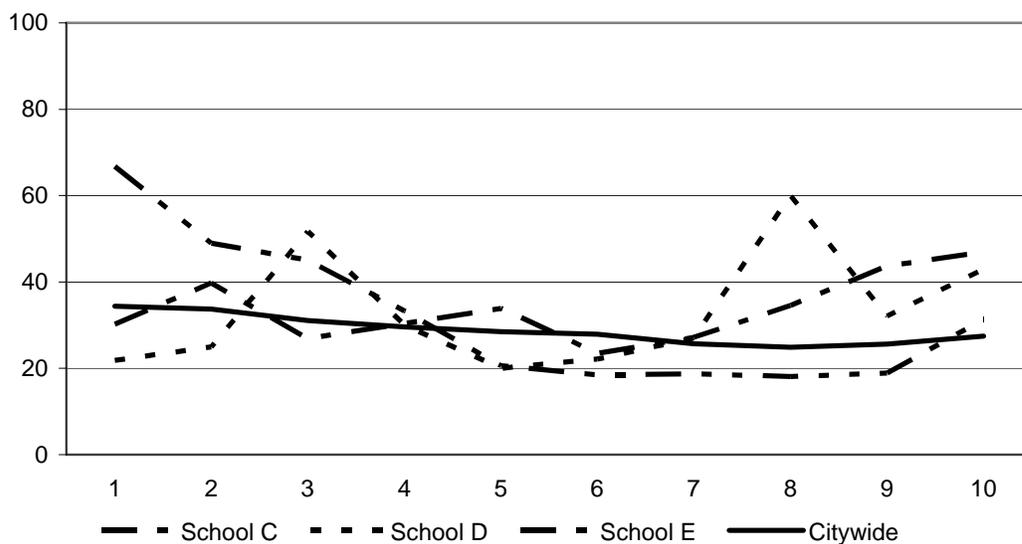
Overage for Grade

School C opened with almost 65% of its students overage for grade (Figure B4). This steadily decreased to almost 20% of students overage for grade through year five and remained stable until year nine. But at year 10, School C began to experience an increase in the percent of its students overage for grade. This student characteristic is important, because it is highly correlated with a lower percentage of students who met the standard on 8th grade ELA and Mathematics examinations.

School D, on the other hand, experienced more turmoil on a year-to-year basis. Between year two to year three, it experienced a jump in entering students who were overage for grade, from slightly over 20% to almost 50%. Over the next four years, the percentage dropped and then began to increase to almost 60% in year eight, dropped to below 40% in year nine, and increased to over 40% in year ten.

School E has almost 40% of its entering 9th grade class in year two who are overage for grade. Between years three and year six, the percent of entering students hovers between 22% and 36%. However, after year six, we see a steady increase and by year ten, over 40% of the entering 9th graders are overage for grade.

Figure B4: Percent of Students Overage for Grade



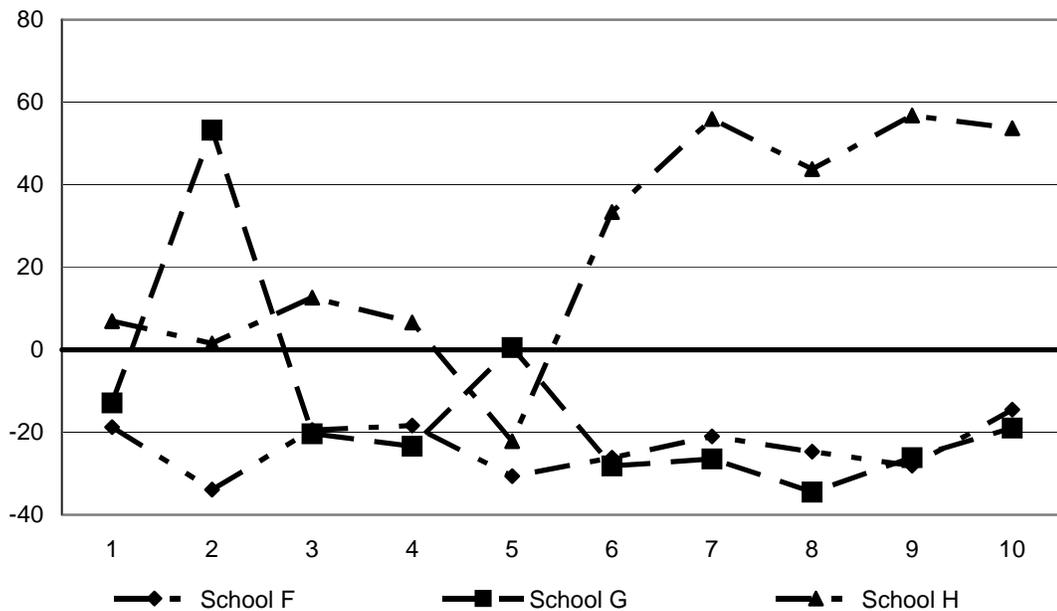
8th Grade Test Scores of Entering Students

Because New York State changed its reporting of the 8th grade state test results during the time period we studied, we compared student test score outcomes to the citywide mean. Calculating the citywide mean as zero, we compared how far from zero the percentage of entering students at each school were on 8th grade ELA and mathematics examinations. For example, in year five, which corresponded to the school year 1997-1998, 49.5% of 8th grade students were considered to have met the standards on the state ELA examinations. At School F, only 18.8% of students met the standards. If we calculate the citywide mean as zero, School F is

30.7 percentage points from that mean. School H, on the other hand, had 27.3% of its students who met the standard. Therefore, they are 22.2 percentage points from the mean.

We had complete data on test scores for 15 of the 32 small high schools in our sample. The results show that most of the small high schools had entering students who either consistently fell far below the citywide averages on 8th grade ELA and mathematics examinations, or who varied dramatically on the indicators from year to year. For example, similar to School F, four of the schools consistently had entering students who were below the standards on the 8th grade ELA examination during all ten years we studied.

Figure B5: Percent of Students Meeting the Standards 8th Grade English Language Arts



Similar to School G, some schools consistently had entering students who remained below the citywide average, but had one or two years in which the percentage of their entering students exceeded the citywide average in 8th grade ELA results, only to be followed by many years of enrolling students well below the citywide average.

Only two of the small schools consistently had higher percentages of entering students who met the citywide standards on the 8th grade ELA examinations. However, even these two schools experienced some fluctuations in the previous performance of their entering students, primarily in year one and year five. School H, for example, had a higher percentage of entering students who met the standards on 8th grade ELA compared to the citywide average for the first four years. While the percentage dropped below the citywide average in year five, it steadily increased above the citywide average in year six and remained consistently high. However, year five is when the reporting for the 8th grade exams changed, and we cannot be sure that this drop is not a scoring or reporting artifact.

The patterns at medium-size schools differ slightly from those at the small schools. Four of the 17 schools for which we have data on the 8th grade test scores for entering students exhibit patterns similar to School F. That is, the percentage of entering students at these schools remains consistently below the citywide mean for the 8th grade English Language Arts across the ten years we studied.

An additional six schools exhibited patterns similar to School G, where the percentage of their entering students exceeded the citywide average in 8th grade ELA result for one or two years, only to be followed by four or five years of percentages of students well below the citywide average. At most of the medium high schools, the percentage of students exceeding the citywide average occurred during the early years of their existence. In the latter years, the percentage of students below the citywide average increased.