THE TALENT DEVELOPMENT HIGH SCHOOL MODEL

Context, Components, and Initial Impacts on Ninth-Grade Students' Engagement and Performance

James J. Kemple | Corinne Herlihy

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June 2004

This report was funded by a subcontract from the Center for Research on the Education of Students Placed At Risk (CRESPAR), a national research and development center based at The Johns Hopkins University, with funds provided by contract number ED-99-CO-0155 from the U. S. Department of Education. Supplementary funding was made available for special initiatives within the evaluation by the Ford Foundation and the Bill & Melinda Gates Foundation.

Dissemination of MDRC publications is also supported by the following foundations that help finance MDRC's public policy outreach and expanding efforts to communicate the results and implications of our work to policymakers, practitioners, and others: The Atlantic Philanthropies; the Alcoa, Ambrose Monell, Bristol-Myers Squibb, Ford, Grable, and Starr Foundations; and the Open Society Institute.

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

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Overview

The Talent Development High School model is an education reform initiative that aims to improve the academic achievement of students in large, nonselective, comprehensive high schools. In operation at 33 high schools in 12 states across the country, the approach encompasses five main features: small learning communities, organized around interdisciplinary teacher teams that share the same students and have common daily planning time; curricula leading to advanced English and mathematics coursework; academic extra-help sessions; staff professional development strategies; and parent- and community-involvement in activities that foster students' career and college development.

MDRC is evaluating the model at the invitation of the organization that created it, the Center for Research on the Education of Students Placed At Risk (CRESPAR), based at The Johns Hopkins University. Funding for this report was provided, through CRESPAR, by the U.S. Department of Education's Institute for Education Sciences.

The report describes the context in which Talent Development operates, details the model's components, and documents its implementation in five high schools in a large, urban school district. It presents findings on Talent Development's effects on student achievement during the first three years of program operation, focusing on impacts for ninth-graders. The analysis is based on an innovative quasi-experimental research methodology.

Key Implementation Findings

- The high schools in the study are characterized by low student engagement, poor prior preparation among entering ninth-graders, low ninth-grade promotion rates, and continued problems in the upper grades.
- Each Talent Development high school focused its initial implementation on the ninth grade by creating small learning communities, enacting curricular reforms, and providing professional development for teachers. The implementation process was supported by a team of Talent Development organizational facilitators and coaches.

Key Impact Findings

- For first-time ninth-grade students, Talent Development produced substantial gains in academic course credits and promotion rates and modest improvements in attendance. The percentage of ninth-graders completing a core academic curriculum increased from 43 percent on average before the implementation of Talent Development to 56 percent after implementation began. This increase is about three times the level of increase in similar schools in the district. Promotion rates in the Talent Development schools increased by just over 6 percentage points, while they fell by 4 percentage points in the comparison schools.
- Improvements in ninth-grade course credits earned, promotion, and attendance were strongest in the first three schools to begin using Talent Development, and these schools sustained improvements into the second and third years of implementation.

Because these preliminary results are based on a small sample of schools in a single school district at the early stages of implementation, they should be interpreted with caution. Still, the initial evidence of Talent Development's capacity to keep ninth-grade students on track for graduation is encouraging. Future reports will track outcomes for up to five years, include analysis of students in all high school grades, and examine the extent to which the fidelity of program implementation varies across schools and over time.

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Technical Resources

Elaborating on the research method used in this report and on the findings, the Analytic Appendix and the supplementary tables are available only on the Web at www.mdrc.org/publications/388/techresources.pdf.

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Preface

In recent years, there has been a renewed national focus on the problems of urban high schools, including students' poor graduation rates and high course failure rates. While such problems are rooted in the often inadequate preparation that students receive in elementary schools, their devastating effects become most visible in the ninth grade, when students encounter tougher requirements for grade-level promotion. In troubled high schools, a large percentage of students are retained in the ninth grade and many leave school before being promoted to the upper grades. These two phenomena together result in a leak in the pipeline leading toward graduation — so much so that often a given urban high school's ninth-grade class makes up close to half the population of the entire school. The problem is well documented, but there is still little rigorous evidence about interventions that successfully improve outcomes for ninth-grade students.

The Talent Development High School model is part of a larger trend in reform, in which whole-school reform models aim to improve performance and engagement outcomes for students through the use of major changes to both the organizational structure and educational processes of high schools. The models that function in this way — broadly referred to as comprehensive school reform (CSR) models — are developed both nationally and locally, and they receive support from a combination of federal, state, and local funding as well as from private foundations. The U.S. Department of Education has developed an initiative to expand the use of the models: In 1998 it launched the Comprehensive School Reform Demonstration program with an appropriation of $145 million. Funding for the program grew to $308 million for fiscal year 2003. (A third of funded schools, which receive at least $50,000 each for three years, are middle or high schools.)

Talent Development reflects many of the core underlying principles embedded in the CSR movement and has been a key target of federal resources aimed at expanding the use of CSR reforms in high schools. The findings in this report — which offers an initial assessment of the first and most intensive effort at scaling up the use of the Talent Development model — indicate that Talent Development helps ninth-grade students make progress toward high school graduation. This assessment is based on the use of a pathbreaking analytic method that relies on a combination of before-and-after and comparison-schools methods.

While the findings may be seen as a promising start toward increasing graduation rates and improving the skills of high school graduates, some questions remain. It is not yet clear, for example, whether schools have the capacity to sustain the Talent Development reform, build on gains for ninth-grade students, and produce positive impacts for tenth-, eleventh-, and twelfth-grade students. Future work from this evaluation will include analysis of outcomes for students

in upper grades and, in some schools, the evaluation will determine Talent Development's impact on graduation rates. It will also consider other student achievement outcomes, including performance on state assessments in reading and math. Finally, process research is under way that will help us learn how, beyond changes in curriculum and school structure, Talent Development made a difference.

Gordon Berlin
Executive Vice President

Acknowledgments

The authors of this report are especially grateful for the participation of the administrators, teachers, and students at the high schools that are the focus of this study. While the schools are left anonymous in the report, and we are unable to thank each person individually, we would like to acknowledge the willingness of school staff and students to share their time, classrooms, experiences, and perceptions.

The urban school district to which the schools in the study belong has been helpful in providing administrative data and other support for the research. An independent nonprofit organization whose mission is to help improve the quality of public education for all children in the district has provided invaluable assistance in understanding the context for Talent Development implementation, facilitating survey administration, and providing access to staff members who work closely with the schools.

At the Center for Research on the Education of Students Placed At Risk (CRESPAR), based at The Johns Hopkins University in Baltimore, Maryland, Robert Balfanz, Nettie Legters, Jim McPartland, and Bill Morrison clarified the components and implementation of the Talent Development High School model and provided valuable comments on the findings and early drafts of the report.

In her former role at the Center for the Social Organization of Schools (CSOS) at John Hopkins University, Ruth Curran Neild (now at the University of Pennsylvania's Graduate School of Education) provided assistance in data acquisition and also in conceptualizing key issues in the analysis. Vaughn Byrnes of CSOS was also instrumental in acquiring student records data, in addition to providing thoughtful feedback on preliminary analyses.

At MDRC, Melissa Velez helped execute the initial data analyses and prepared tables and figures for this report. Alexa Shore provided research assistance and worked tirelessly to collect survey data that will be included in subsequent reports. Laboni Rahman coordinated production of this report and prepared the final versions of tables, figures, and other supporting documents. Gordon Berlin, Fred Doolittle, Glee Holton, Judy Polyne, Janet Quint, and Louis Richman reviewed drafts and provided helpful guidance on the content and organization of the report. This report would not have been possible without the work of Howard Bloom and Jason Snipes, who developed its innovative analytic strategy.

Finally, the authors would like to thank Amy Rosenberg for her thoughtful editing and unfailing efforts to bring the report to publication. We are also grateful to Stephanie Cowell for helping to prepare the final text for publication.

The Authors

Executive Summary

In many large, nonselective, urban high schools, less than half the students who enter the ninth grade graduate, and those who do often leave with weak academic skills and inadequate preparation for further education or the workforce. One of the factors creating such conditions is the quality of schooling that occurs in lower grades: The elementary and middle schools that feed into nonselective, urban high schools are not equipping their students with the reading, writing, mathematics, and study skills they need to succeed. As a result, ninth-graders experience high rates of course failure, and as many as half are not promoted on time to the tenth grade. Students retained in the ninth grade are much more likely to drop out of high school eventually.

The Talent Development High School model is a comprehensive reform initiative designed to help transform the structure and curriculum of large high schools in urban districts, with the aim of improving students' levels of achievement and raising teachers' and students' expectations. Talent Development was created by practitioners and researchers at the Center for Research on the Education of Students Placed At Risk (CRESPAR), based at The Johns Hopkins University; the model operates in 33 schools nationwide. MDRC is conducting an independent, third-party evaluation of Talent Development, funded by the U.S. Department of Education's Institute for Education Sciences through CRESPAR. The evaluation and CRESPAR's efforts to expand the use of Talent Development are part of the U.S. Department of Education's Comprehensive School Reform Demonstration (CSRD) program.

This report examines 5 large, nonselective, comprehensive high schools that implemented Talent Development in a northeastern, urban school district that includes 22 such high schools.[1] The district is the locus of Talent Development's initial and most extensive scaling-up effort. As a whole, it is considering a broad high school reform initiative based on the model's underlying principles, and just since the beginning of this evaluation, two more of its high schools have begun implementing the model.

The report describes the context in which the Talent Development high schools in the district operate, explains the model's core components, and examines the initial implementation of those components in the district. Its main focus is an assessment of Talent Development's impact on ninth-grade students in the five implementing high schools during the first three years of program operation (1998-1999, 1999-2000, 2000-2001). The findings provide information about the effectiveness of an early but intensive phase of Talent Development's expansion and offer lessons about the potential of the ongoing work of Talent Development and related reform efforts.

[1]In order to preserve the anonymity of the subjects in this study, this report refers to the participating school district as "the district."

Key Implementation Findings

With many of its schools exhibiting low student achievement and high dropout rates, the district has a great need for high school reform. At the same time, because it is subject to a shifting policy environment, leadership changes at the district and school levels, and high rates of teacher turnover, the district represents a challenging context for implementing and sustaining positive change.

The high schools in the district face a number of specific challenges. Together, these add up to one of the most troubling problems confronting large, urban high schools: the degree to which students become disengaged and eventually drop out. While this process typically begins before students reach high school, its devastating effects are concentrated in the ninth-grade.

- **The nonselective high schools in the district are characterized by low student engagement, poor prior preparation among entering ninth-graders, low ninth-grade promotion rates, and continued problems in the upper grades.**

More than 75 percent of the students in the district's nonselective schools entered the ninth grade with reading and math skills below grade level, and over 50 percent could be considered chronic absentees (students with attendance rates of 80 percent or lower). Moreover, fewer than two-thirds of the students who entered the ninth grade during the three school years before Talent Development's implementation in the district were promoted to the tenth grade for the following school year. Less than 40 percent were on schedule to graduate four years after starting high school. For those who continued on to the upper grades, only about 10 percent performed at or above grade level on state standardized tests.

- **Talent Development's initial scaling-up effort in the district focused on establishing and refining the ninth-grade components of the model.**

For the schools in the study, early implementation focused primarily on the ninth grade. During the first year of implementation, each of the five schools created a Ninth Grade Success Academy. Within each Success Academy are self-contained teams that are composed of at least 4 teachers from several disciplines and 150-200 ninth-grade students. The teacher teams have common daily planning time, and students share several classes with the same peers.

Also, during the first implementation year, the schools established extended-length class periods for the ninth-grade to facilitate the provision of a double mathematics courseload and a double reading/English courseload. These double-load courses are part of a standards-based curriculum that was put into place for ninth-graders and that calls for a strategic reading class followed by an English class, a transitional math class followed by algebra 1, and a study

and life-skills class. In addition, implementation of the model included providing professional development for ninth-grade teachers, such as coaching, team-teaching, and regular seminars. Finally, the Talent Development model includes an after-hours program called Twilight School for students with serious attendance and discipline problems that constitute barriers to enrollment in the regular school program.

Even though the initial focus of Talent Development in the district was on the ninth grade, CRESPAR is creating new curricula (including, for example, double courseloads of geometry and English) and professional development opportunities for teachers in the upper grades. Moreover, each of the Talent Development schools has established career-themed small learning communities for grades 10 through 12.

Full implementation of the Talent Development High School model includes:

- Reorganizing schools into small learning communities, including a Ninth Grade Success Academy, Career Academies for the upper grades, and an after-hours Twilight School.
- Instituting a research-based curriculum designed to move all students toward advanced high school work in English and mathematics.
- Offering recovery opportunities and extra help for students who need it.
- Providing professional development opportunities for teachers and administrators to support implementation of the recommended reforms.
- Creating parent- and community-involvement activities that encourage students' career and college development.

A key feature of the implementation process for Talent Development is the support provided to each school by an on-site organizational facilitator and a team of coaches who work daily with school leaders to support implementation of the model. In addition, a team of Talent Development curriculum developers and trainers are in frequent contact with the school-based facilitators and with key members of the school's leadership and instructional teams. According to CRESPAR, implementation costs may range from $250 to $300 per student per year, which includes materials, technical assistance, and salaries for curriculum coaches and a full-time program facilitator. Funding for these expenses typically comes from federal CSRD grants, local school districts, and national or community-based foundations.

As of the 2001-2002 school year, the last year for which student data are available for this report, none of the five schools in the study had reached full implementation. Two of the

schools had implemented Talent Development for three years, one school had implemented it for two years, and two schools were in their first year of implementation.

Analytic Approach

There are few rigorous studies of the effectiveness of comprehensive high school reform interventions. Because such reforms affect an entire school, a great challenge in evaluating their impact lies in comparing the performance of students in intervention schools with that of similar students in similar schools. In the parlance of evaluation research, rigorous impact studies need to rely on a valid counterfactual to estimate what would have occurred in the absence of the intervention being studied. The evaluation described in this report breaks new ground by using a combination of particularly strong quasi-experimental evaluation methods: interrupted time series analysis, value-added analysis, and hierarchical linear modeling. The evaluation builds on the strengths of each method to address the limitations that any one might have alone.

The interrupted time series analysis compares student performance in Talent Development schools with the performance of similar students in the same schools prior to Talent Development implementation. The value-added analysis compares the historical patterns (and deviations from these patterns) for the Talent Development schools with those of similar non-Talent Development schools during the same period to account for other factors in the broader school district that may influence student performance. Together these analytic approaches, combined with hierarchical linear modeling and statistical controls for individual-level differences in student characteristics, provide a rigorous basis on which to make causal inferences about the effects of Talent Development on student performance. It should be noted, however, that even this combination of approaches may not control for all factors that may confound such inferences. For example, the analytic approach may not account for the school leadership's motivation to undertake a school change process and the influence that that may have had on both school functioning and student achievement, even without the Talent Development components and supports.

Key Impact Findings

The impact analysis in this report focuses on outcomes for first-time ninth-graders — those whose records indicated that they were in the ninth grade in the spring of the year under study and in the eighth grade the previous spring. This group made up the majority of the ninth-grade class at each school in the study. Repeating ninth-graders (who were in the ninth grade in the spring of the year under study and in the ninth grade the previous spring) made up another segment of each ninth-grade class, but a primary goal of Talent Development is on-time promotion from the ninth grade to the tenth; the model therefore specifically targets students

entering the ninth grade for the first time. Although the model also makes an effort to promote repeating ninth-graders midyear, available data did not permit a thorough investigation of impacts for students repeating the ninth grade.

- **For first-time ninth-grade students, Talent Development produced substantial gains in academic course credits earned and promotion rates and modest improvements in attendance.**

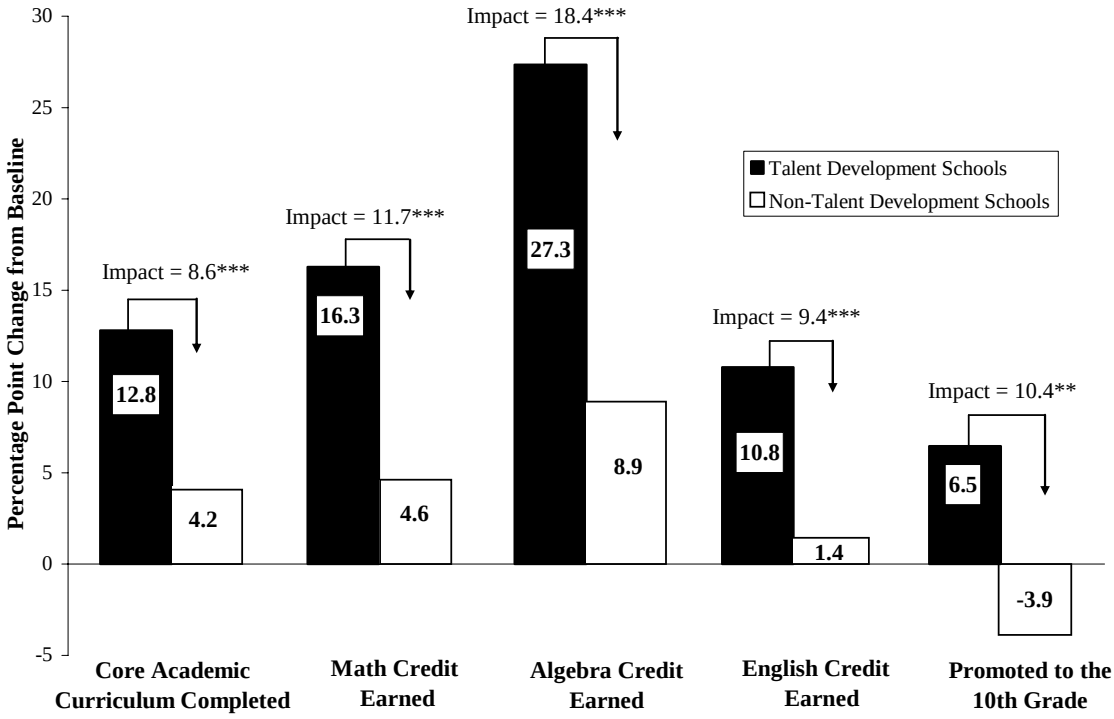
Figure ES-1 provides a summary of the key impact findings. The solid bars represent the changes in key outcomes for the Talent Development schools between the baseline period and the follow-up period. The white bars represent changes in key outcomes for the comparison schools during the same period. The difference between the two bars represents the impact of Talent Development.

A major goal for Talent Development is to get ninth-grade students to complete what could be considered a core academic curriculum: earning at least five credits during the school year, with three of those credits being in mathematics, English, and science. On average, in Talent Development schools, about 43 percent of first-time ninth-graders completed a core academic curriculum before the implementation of Talent Development, and an average of 56 percent completed this combination of courses during the years after the model began to be implemented. This 13 percentage point increase is represented by the first bar in Figure ES-1. By contrast, the percentage of first-time ninth-graders who completed a core academic curriculum in non-Talent Development comparison schools increased by only 4 percentage points (from 46 to 50 percent) during the same period. The 9 percentage point difference (between the 13 percentage point improvement and the 4 percentage point improvement) represents the impact of Talent Development on first-time ninth-graders completing a core academic curriculum.

Talent Development produced even larger impacts on the percentage of first-time ninth-grade students completing math courses. The program had about a 12 percentage point impact on the rate at which students completed any type of math course and about a 19 percentage point impact on the rate at which students completed an algebra course. At the same time, Talent Development had about a 9 percentage point impact on the percentage of students earning one or more English credits.

Talent Development also improved the overall rate of promotion from the ninth grade to the tenth (including both on-time promotion and midyear promotion). Promotion rates in Talent Development schools rose by 6 percentage points after the program began implementation. During the same time period, these rates fell by 4 percentage points in the comparison schools. Thus, Talent Development produced about a 10 percentage point impact on promotion from the ninth grade to the tenth. Talent Development impacts on attendance rates

Figure ES.1
Impacts on Key Outcomes for First-Time Ninth-Grade Students in Talent Development Schools and Non-Talent Development Schools



SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five clusters. Each cluster consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in the 9th grade in the year under study and in the 8th grade in the previous year's administrative data file.

Each bar represents the difference between the baseline average (the average over the three-year period prior to the initial implementation of Talent Development for a given cluster) and the average over the follow-up period (a one-, two-, or three-year period, depending on the cluster, after Talent Development was implemented). The impact at follow-up was calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools.

A two-tailed t-test was applied to the difference between the baseline average and the average over the follow-up period and to the impact at follow-up. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

outcomes (not shown in the figure) were more modest but still statistically significant: about a 3 percentage point impact in overall attendance rates and a 5 percentage point impact on regular attendance rates (defined as 90 percent or higher).

In summary, the analyses indicate that students in each of the five Talent Development schools exhibited strong improvements on several measures of engagement and performance over their pre-Talent Development counterparts in the same schools. By contrast, students in the comparison schools showed smaller or even negative changes during the same period. This amounts to consistent and positive Talent Development impacts in almost every follow-up year for each of the five schools. Further analyses show that the positive impacts for course credits and promotion outcomes are apparent in the very first year of Talent Development implementation. These impacts tend to be sustained for those schools for which more than one year of follow-up data is available.

- **Improvements in the ninth-grade outcomes were strongest in the first three schools to begin using the model, and these schools sustained improvements into the second and third years of implementation.**

In this study, the "pioneer" schools — the three that began using Talent Development first — implemented and sustained the model with a process and a level of intensity that set them apart from the other two schools. While positive impacts were present in the first year of implementation for all schools, the largest improvements occurred in the pioneer schools, where positive impacts were sustained into the second and third years of implementation.

Sizing Up the Results

As stated earlier, as many as half of the ninth-graders in the district do not earn sufficient course credits to be promoted on time to the tenth grade. Further analysis indicates that the district's rates of persistence to the twelfth grade are dramatically lower for students who have repeated the ninth grade. The impacts reported here are promising because they show that Talent Development has positive and significant impacts for increasing course completion and for promotion to the tenth grade. Thus, Talent Development helps keep ninth-grade students on-track for graduation, which is one of the most important goals of current high school reform efforts. Because successful completion of the ninth grade is a necessary but not sufficient step toward earning a high school diploma, future reports will look explicitly at Talent Development's impact on graduation rates.

Next Steps

As the evaluation moves forward, it will investigate how variation in implementation across school sites affects Talent Development's capacity to improve student engagement and performance. Because the intended components of implementation are essentially the same at each school, it will be critical to learn more about the extent to which the quality of implementation varies across schools and over time. As the study moves forward, the analysis will focus as much on the questions about implementation as it does on the questions about impacts.

It will be particularly important to determine whether the strong impacts are sustained in the pioneer schools and whether they also accrue to the upper grades in those schools. In addition, the generalizability of the findings will be enhanced if the same types of impacts occur eventually in the later-implementing schools. This is a key issue, as the success of later-implementing schools are an indication of Talent Development's capacity to scale-up in a large district and also to work with schools that may not have the same leadership and initiative as the "pioneer" schools who were first to embrace the reform.

Subsequent reports will also track outcomes for up to five follow-up years and will include analyses of tenth-, eleventh-, and twelfth-grade students. For some schools, where sufficient follow-up data can be collected, it will be possible to determine whether improvements in ninth-grade promotion rates translate to increased graduation rates. In addition, the evaluation will examine other measures of student achievement to support the findings related to course credits earned.

Introduction

The Talent Development High School model operates in schools that face serious problems with student attendance, discipline, achievement scores, and dropout rates to help transform them structurally, instructionally, and comprehensively (across all grades and departments). The model began its first and most ambitious scaling-up effort in the large urban school district that is the focus of this report.[1] The nonselective high schools in the district (which serves more than 200,000 students) are typical of the types of schools that Talent Development was specifically designed to help and in which Talent Development has been most widely implemented.[2] The organizational and curriculum-related changes that constitute Talent Development aim to establish a strong, positive school climate for learning, promote high standards for English and mathematics coursework for all students, and provide professional development systems to support implementation of the recommended reforms. Each of these objectives is part of a larger set of goals: to enhance students' school attendance, improve student learning, and keep students on-course toward high school graduation.

The Talent Development High School model was initiated in 1994 through a partnership between the Center for Research on the Education of Students Placed At Risk (CRESPAR), based at The Johns Hopkins University, and Patterson High School in Baltimore, Maryland. The model has expanded to 33 high schools in 12 states across the country, and CRESPAR is seeking ways to refine and expand it further. MDRC is conducting an independent, third-party evaluation of the model, funded by the U.S. Department of Education through its Institute for Education Sciences, as part of the Comprehensive School Reform Demonstration program.[3]

This report describes the context in which the Talent Development model operates and the model's components. It also presents impact findings from Talent Development's first three years of operation in five high schools in the district, providing a preliminary assessment of the model's impact on key outcomes for ninth-grade students, the group most intensively targeted during initial program implementation. The focus is on engagement and performance outcomes that are likely to be most relevant to the early phases of Talent Development's implementation.

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[1]In order to preserve the anonymity of the subjects in this study, this report refers to the participating school district as "the district" and uses pseudonyms for individual schools.

[2]A Talent Development Middle School model also exists, but this report focuses on the high school model. Later reports will detail the implementation and impacts of the middle school model.

[3]For more information on the Comprehensive School Reform Demonstration program, see http://www.ed.gov/offices/OERI/csrrdp.html.

Specifically, the report examines impacts on three behavioral indicators: daily attendance, course-taking, and promotion rates. (While this report focuses on impacts for ninth-grade students in early implementation years, future reports will estimate Talent Development's impacts for students in grades 10 through 12, include up to five years of impacts estimates for some schools, present additional student achievement outcomes, and describe in greater detail the implementation process and the relevant changes in school functioning.)

The report is organized into six sections:

- The first section provides evidence of the problems faced by the high schools in the district (where the Talent Development High School model not only began its most intensive work but also has been used most pervasively).
- The second section describes the model, focusing on the features and components that aim to help high schools attack the problems they face as directly and immediately as possible.
- The third section describes the status of Talent Development implementation in the five high schools that are the subject of the impact analysis.
- The fourth section outlines the evaluation's analytic approach, detailing the comparative interrupted time series methodological design that was used to analyze the data obtained in the study.
- The fifth section presents a discussion of preliminary results from analyses that were conducted on the five high schools for which data are available, describing the estimated effect of Talent Development on ninth-graders' attendance rates, promotion rates, and credits earned toward graduation.
- The final section discusses conclusions that may be drawn from the analyses, attempts to put these findings in the context of other comprehensive school reform models, and highlights goals for future Talent Development research.

The State of High Schools in the District

High schools that serve high-poverty populations face overwhelming problems. The typical nonselective high school in a high-poverty neighborhood graduates less than half the students who enter the ninth grade, suffers from chronically low daily attendance rates — many students miss more than a month of schooling during a given school year — and provides an

often unsafe environment.[4] In addition, the relationship between students and faculty in such a school often lacks respect or caring. Such a weak environment for learning contributes to very low student achievement scores on tests in all core academic subjects.[5]

Following is an overview of the condition of nonselective, comprehensive secondary schools in the district under study, just before Talent Development began its work there.

Large Minority Student Population

Table 1 presents descriptive information for a group of 22 nonselective, comprehensive high schools in the district. The table captures the state of these schools over the three school years before Talent Development began scaling up its model in several of the high schools (1996-1997 through 1998-1999).[6] During this period, the 22 high schools enrolled approximately 76 percent of the high school students in the district.[7] The table shows that approximately 67 percent of the students were black, 17 percent were white, 11 percent were Hispanic, and the remaining 6 percent were of other races/ethnicities. About 11 percent of the students were classified for special education services.

Low Student Engagement

Among the most troubling problems in large urban high schools is the degree to which high school students become disengaged from school and eventually drop out. While this process typically begins before students reach high school, its devastating effects are concentrated in the ninth grade. The first column of Table 2 presents several indicators of the difficulty that ninth-graders in the district's nonselective high schools had in progressing further. For example, among ninth-grade students, 41 percent were already overage for their grade, indicating that they had already repeated a previous grade. In fact, at the time the data were collected, 27 percent of the ninth-graders were repeating the ninth grade. High levels of disengagement can be seen in the low

[4]Nonselective schools typically enroll students from a nearby neighborhood and do not require them to meet academic or other performance standards for admission.

[5]Legters, Balfanz, Jordan, and McPartland, 2002, pp. 4-13; Olson and Jerald, 1998.

[6]Note that the sample of students that is the basis for the information in Table 1 and Table 2 excludes a substantial number of students who may have been listed in the district administrative records but who had not attempted any course credits. These tended to be students who dropped out of high school just prior to or during a given school year. Such students could not be included in the analysis because the district did not provide consistent information about them for the years included in this study.

[7]Approximately 19 percent of the district's ninth- through twelfth-grade students attended selective high schools that admitted students on the basis of prior academic performance. Another 5 percent were enrolled in alternative schools or schools serving students with special needs.

Talent Development Evaluation

Table 1

Characteristics of Nonselective High Schools in a Large, Urban School District, School Years 1996-1997 Through 1998-1999

Characteristic	
Average number of students	1,821
Average number of students per grade	
9th grade	667
10th grade	483
11th grade	345
12th grade	325
Race/ethnicity (%)	
Black	67.2
White	16.7
Hispanic	10.6
Other	5.6
Gender (%)	
Male	51.4
Female	48.6
Classified for special education (%)	11.4
Eligible for free/reduced lunch[a] (%)	68.9

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes students from 22 nonselective, comprehensive high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

[a]Calculated from the Common Core of Data for the 1999-2000 school year, provided by the U.S. Department of Education's National Center for Education Statistics. The figure shown represents the percentage of students who are eligible under the National School Lunch Act to participate in the federal free/reduced-price lunch program.

attendance rates and high degree of chronic absenteeism (defined as having attendance rates of 80 percent or lower). The table shows that nearly 58 percent of ninth-graders could be classified as chronic absentees (missing a total of more than seven weeks of school or an average of one day each week), while only 23 percent had attendance rates of 90 percent or higher.

Poor Prior Preparation

The typical ninth-grade student entered the district's nonselective high schools with relatively low levels of reading and math skills. Based on SAT-9 achievement test scores from the eighth grade, the average ninth-grade student entered high school scoring at the 37th Normal

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Table 2

Characteristics of Students in Nonselective High Schools in a Large, Urban School District, School Years 1996-1997 Through 1998-1999

Characteristic	9th Grade	10th-12th Grade
Overage for grade[a] (%)	40.8	35.4
Currently repeating grade[b] (%)	26.6	11.4
8th-grade SAT-9 test scores		
Reading Comprehension		
National Curve Equivalent (NCE) Score	36.6	n/a
Percentage scoring above grade level	23.4	n/a
Math total		
National Curve Equivalent (NCE) Score	35.3	n/a
Percentage scoring above grade level	16.9	n/a
11th-grade state assessment scores[c]		
Reading Comprehension		
National Curve Equivalent (NCE) Score	n/a	27.0
Percentage scoring above grade level	n/a	10.2
Math total		
National Curve Equivalent (NCE) Score	n/a	26.9
Percentage scoring above grade level	n/a	8.6
Attendance rate[d] (%)	71.3	77.1
Students with an attendance rate of: (%)		
90% or higher	23.3	28.6
80% or lower	57.5	47.3
Earned 4 or more course credits for the year[e] (%)	58.2	76.6
Promoted to 10th grade on time[f] (%)	61.0	n/a
Promoted to 12th grade on time[g] (%)	40.7	n/a

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes students from 22 nonselective, comprehensive high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

[a]Typically, students who are overage for grade were retained in the current grade or a prior one. “Overage for grade” means a student turned 15 before the start of the 9th grade, 16 before the start of the 10th grade, 17 before the start of the 11th grade, or 18 before the start of the 12th grade.

Table 2 (continued)

[b]Students were defined as repeating a grade if the district's administrative records indicated that they were enrolled in the same grade for both the current and the previous year.

[c]State standards assessment test scores were available only for the 11th grade.

[d]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given year.

[e]Until the 1998-1999 school year, students in the district were required to earn four course credits in order to be promoted.

[f]For the purposes of this analysis, 9th-grade students were considered to have been promoted to the 10th grade on time if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements.

[g]For the purposes of this analysis, 9th-grade students were considered to have been promoted on time to the 12th grade if they were listed as 12th-graders in the administrative data file three years after having finished the 9th grade.

Curve Equivalent (NCE) in reading comprehension and at the 35th NCE in math computation and problem solving (the national average is the 50th NCE for both tests).[8] Among ninth-grade students, 23 percent entered high school with test scores at or above grade level in reading and 17 percent entered with scores at or above grade level in math.

Low Ninth-Grade Promotion and Graduation Rates

Finally, Table 2 shows the rate at which ninth-grade students from the district's schools were actually promoted to the tenth grade and were eventually promoted to the twelfth grade on time for their scheduled graduations. In all, fewer than two-thirds (61 percent) of ninth-graders were promoted to the tenth grade for the following school year. This percentage masks a more troubling pattern among students who had already repeated the ninth grade. Though not shown in the table, further analysis indicates that students repeating the ninth grade were much less likely to be promoted than students who were in the ninth grade for the first time. In all, 49 percent of the repeating ninth-graders were promoted to the tenth grade for the following year, compared with 66 percent of the first-time ninth-graders.

[8]The Normal Curve Equivalent (NCE) is a way of measuring where a student falls along the normal curve. The normalized test score, which ranges from 1 to 99 with a mean of 50, allows for comparison across tests and subjects. Unlike percentile rank scores, the NCE measurement has an equal interval between scores, which means that NCE scores can be averaged to allow for comparison of groups of students or schools.

Only 41 percent of the ninth-graders from the 1996-1997 through 1998-1999 school years were enrolled in a district public high school as twelfth-graders three years later, when they were scheduled to graduate. Again, the rates for those repeating the ninth grade (not shown in the table) were dramatically lower (16 percent) than those for first-time ninth-graders (51 percent).[9]

Continued Problems in Upper Grades

The second column of Table 2 presents information about the attendance, test score averages, and promotion status of tenth- through twelfth-grade students. In short, the data in Table 2 suggest that even though these students were able to progress beyond the ninth grade, their success in high school was by no means guaranteed. Over 10 percent were repeating their current grade, and attendance rates averaged 77 percent (indicating that a typical student was absent for an average of 45 days during the year — nearly the equivalent of a full marking period). Among students who reached the eleventh grade and took the state's standardized assessment tests, only 10 percent performed at or above grade level for both reading comprehension and math.

In short, the information in Table 2 indicates that ninth-grade students in the nonselective, comprehensive high schools in the district are at high risk of leaving school with very low levels of reading and math skills.[10] The vast majority of entering students appear to be unlikely to earn a high school diploma. Talent Development is designed specifically to intervene in such situations and to focus as directly and intensively as possible on many of the root causes of these problems, which begin in the ninth grade and continue throughout the upper grades.

How Talent Development Aims to Improve High Schools

As explained briefly earlier, Talent Development was conceived as a comprehensive paradigm for school reform, which asserts that all children can learn and must do so in an academic setting that is demanding and that expresses high expectations. Wade Boykin, CRESPAR's co-director, writes:

> This is a reachable goal for schools if they are committed to providing the appropriate support and the appropriate structure, assistance, and conditions

[9]The analysis is not able to track students who leave the district's public schools. Students who are no longer enrolled in a district public high school may have dropped out of school or may have enrolled in a public high school in another district or in a private school.

[10]The averages presented in Table 1 and Table 2 mask the variation among high schools in the district, some of which serve somewhat more affluent communities and enable somewhat higher percentages of their students to make adequate progress through school. Talent Development aims specifically to serve students in the lowest-performing schools, many of which fall well below the averages presented in Table 1 and Table 2.

> for learning. It is attainable if we change the traditional practice of schooling from classifying, sorting, and weeding out of students, to maximizing every child's potential for academic development.[11]

From the beginning, Talent Development's central goals have been to help transform urban high schools into solid learning institutions that establish a strong, positive school climate for learning, promote high standards for English and mathematics coursework for all students, and provide professional development systems to support implementation of the recommended reforms. To reach these goals, Talent Development aims to solve five problems common to many urban high schools: low student engagement, poor prior preparation, low ninth-grade promotion rates, low graduation rates, and isolation from the community.[12]

The Talent Development High School Model: Conceptual Framework

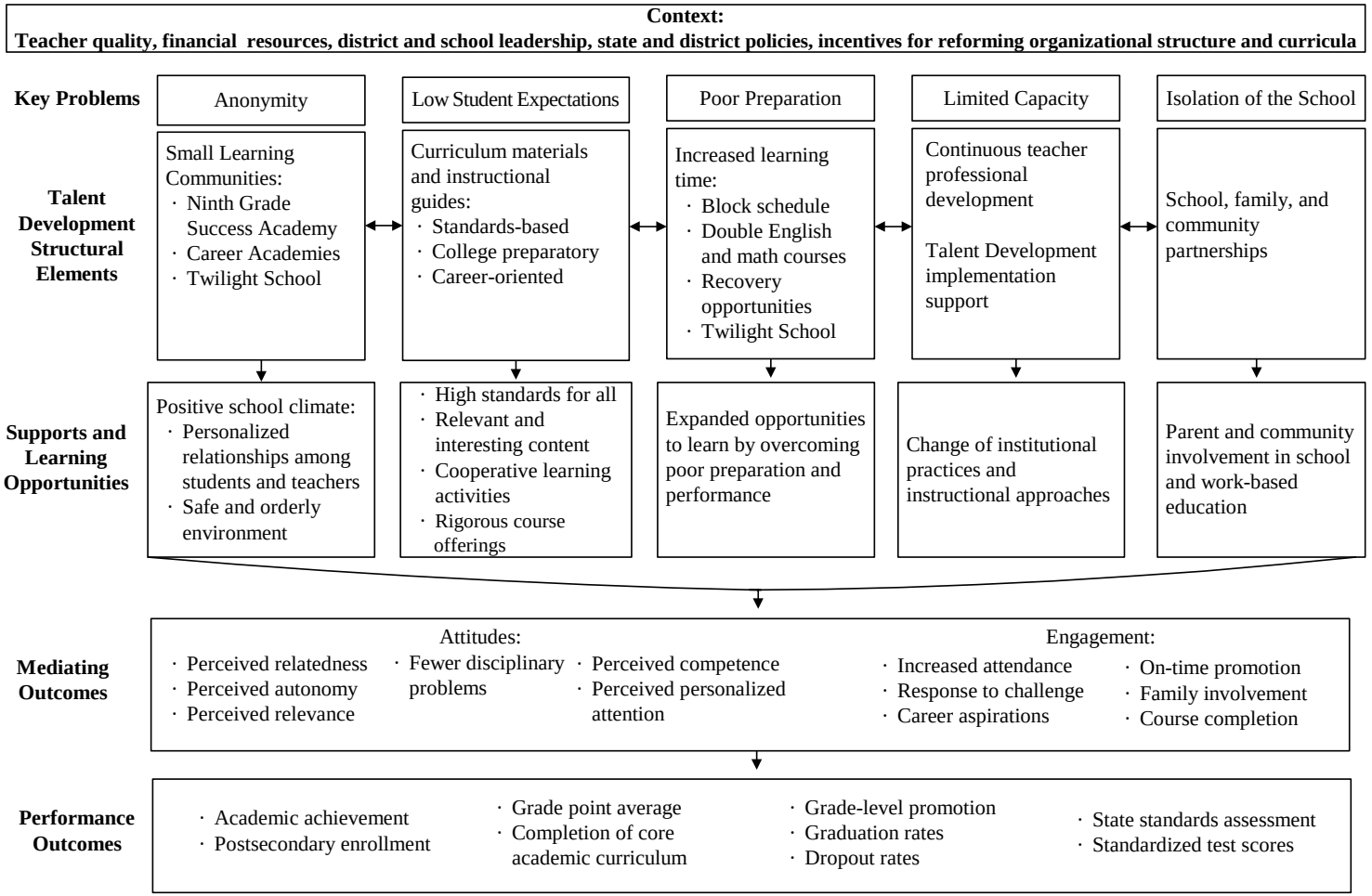
As part of its early work with the CRESPAR team that is refining and scaling up the Talent Development model, MDRC constructed a conceptual framework describing Talent Development's theory of change. This research-based theory of change identifies the problems Talent Development attempts to address, specifies the model's core components, and defines the key short-term and long-term goals it aspires to accomplish. Most importantly, the theory of change attempts to make explicit the pathways through which the core components of the model are intended to improve school functioning and, ultimately, student outcomes.

Figure 1 presents a simplified version of this framework. The top row identifies elements of local contexts that shape the ways the Talent Development approach has been adapted and sustained over time. These contextual elements include the policies and administrative practices of states, school districts, and host schools, including funding and school finance structures. They also include the characteristics of the local labor market, employers, postsecondary education systems, students, families, teachers, and local communities, and the existing organizational structures and curricula of high schools. The framework envisions these elements affecting four constructs: the implementation of the model's structural elements, the resulting changes in supports and learning opportunities, the mediating outcomes, and student academic performance outcomes. The second row of the figure highlights several of the most difficult problems that high schools face. The next four rows lay out the four constructs that are affected by context and that outline the Talent Development reform and its intended effects:

[11]Boykin, 2000, p. 7.

[12]Jordan, McPartland, Legters, and Balfanz, 2000, p. 160.

Figure 1
Simplified Conceptual Framework for the Talent Development High School Model



- **Structural elements:** Describes the changes that Talent Development seeks to implement, including changes in schools' organization, policies, curriculum content, resource allocations, and relationships with external entities. Talent Development encompasses five broad and interlocking elements: (1) reorganizing schools into small learning communities (including a Ninth Grade Success Academy, Career Academies for the upper grades, and a Twilight School for students with serious attendance and discipline problems that constitute barriers to enrollment in the regular school program); (2) research-based curricula designed to move all students toward advanced coursework in English and mathematics; (3) recovery opportunities and extra help for students who need it; (4) staff professional development systems designed to support implementation of the recommended reforms; (5) parent and community involvement activities that aim to encourage students' career and college development. These structural elements should be viewed as mechanisms that are mutually reinforcing and that offer direct and concrete approaches to enhancing supports and learning opportunities.

- **Supports and learning opportunities:** Include improvements in school climate and functioning; positive changes in teacher and student behaviors, experiences, and expectations; and productive use of internal and external resources. As with the structural elements, the supports and learning opportunities should be considered mutually reinforcing; together they are aimed at enhancing student performance through mediating outcomes.

- **Mediating outcomes:** Encompass changes in students' attitudes, levels of engagement, and sense of efficacy and competence. These mediating outcomes are direct antecedents to improvement in student performance, progress through high school, and preparation for transitions to further education and employment.

- **Performance outcomes:** Include positive changes in student achievement, progress toward graduation, and preparation for successful transitions to postsecondary education and employment.

How the Model Addresses Key Problems: Components of Full Implementation

Linkages among and between each stage in the conceptual framework illustrate the hypothesized pathways through which the Talent Development High School model is expected to affect student performance. In addition to representing the theory of change that drives the model,

the framework can also be used to outline the components of full implementation and to guide the measurement and analysis of the model's impacts and implementation. This section describes the components of full implementation; the following one outlines initial phases of implementation in the five schools in this study. (None of the schools has yet reached full implementation.)

Key Problem: Anonymity

A reason often given by students for dropping out of high school is that they feel distance and estrangement from teachers and administrators.[13] A positive school climate, where students and adults know each other well and where adults express care and concern for students' welfare, intellectual growth, and educational success, is a key motivational element in the learning process for adolescents.[14] The large size of comprehensive high schools often depersonalizes the school environment, preventing teachers from working in teams or developing an atmosphere conducive to learning.[15] Continuous changes in classroom composition and student peer groups also increase anonymity and diminish students' sense of community. Students do not have a consistent group of teachers who are accountable for their success, and teachers do not have a chance to coordinate their coursework. To battle these factors, Talent Development uses small learning communities in an effort to build personalized relationships among and between students and teachers. The small learning communities take the following forms:

- **Ninth Grade Success Academy.** At the core of Talent Development restructuring is the Ninth Grade Success Academy, a self-contained school-within-a-school organized around interdisciplinary teacher teams that share the same students and have common daily planning time. Practices and offerings are designed to help ease students' transition into high school, encourage good attendance, and promote positive learning behaviors.

- **Career Academies.** For students in grades 10 through 12, Talent Development high schools are organized into Career Academies, which are self-contained groups with their own management and instructional staffs located in a separate part of school buildings. They each enroll 250 to 350 students and are organized around career themes. Career academies provide all students with a core college preparatory curriculum and work-based learning experiences supported by industry partners.

[13] Altenbaugh, 1998.
[14] Wilson and Corbett, 1999.
[15] Sizer, 1984; Hill, Foster, and Gendler, 1990; Powell, Cohen, and Farrar, 1985.

- **Advisors.** Each student is assigned an advisor who serves as his or her advocate through the final three years of high school.[16]

Key Problem: Low Student Expectations

Adolescent students become bored, and attendance suffers when students are not drawn to their classwork by the prospect of interesting and fulfilling activities or when they see no connections between learning tasks and their own interests and future goals. In traditional schools, the curriculum is usually separated into higher-level academic classes for college-bound students and lower-level academic and vocational classes for those presumed not to be college-bound. This separation often confines the teaching and learning process to the transfer of abstract knowledge from teachers to students or, in the case of vocational classes, to a narrow focus on specific job skills. For both groups, there are usually very few opportunities to explore how basic skills are actually applied outside the classroom.[17]

The Talent Development model involves organizational and instructional reforms that aim to fight apathy by connecting schoolwork to students' backgrounds, interests, and goals, and by enlivening lessons and learning activities with interesting and challenging applications. Relevant reforms include:

- **Applying a meaningful focus to the curriculum.** As part of the Talent Development model, the Career Academies provide a curriculum that combines academic coursework necessary for graduation and for college admission (discussed further below) with a sequence of career-oriented courses and work-related awareness and development activities. Coursework that blends academic learning and career applications allows students to be involved in meaningful studies, tying occupational applications to core academic subjects. Each Career Academy has an Advisory Board to help design the curriculum, to provide internships or other experiential learning activities, and to assist teachers in blending career applications with core academic courses.

- **Providing a college preparatory sequence for all students.** Central to the idea of high expectations for all students is a shift away from tracking and a shift toward college preparation for all students. The Talent Development small learning communities achieve this in the following ways:

[16]Center for Research on the Education of Students Placed at Risk, 2001a.

[17]See, for example, Resnick, 1987a; Raizen, 1989; Stasz et al., 1993; and Grubb, 1995.

- The Ninth Grade Success Academy includes doubling students' English and mathematics courseloads. Although CRESPAR has created complete instructional programs only for the "catch-up" courses in reading and mathematics (discussed below), students are expected to take standards-based courses in English 1, algebra 1, science, social studies, or history, and an elective.

- In the upper grades, Career Academies have curriculum-planning committees that coordinate with state and district mandates to provide all students with a rigorous course sequence of standards-based instruction. CRESPAR has developed a two-course geometry sequence for the tenth grade and has produced instructional guides, *Talent Development Writing* and *Student Team Literature*, to be integrated into language arts courses. A typical Talent Development high school incorporates a four-year sequence in English and mathematics and offers science and social science courses at each grade level, along with career-pathway courses.[18]

- **Creating extended class periods.** Four 80- to 90-minute periods per day enable schools to use a variety of learning activities that call for students to work individually and in cooperative teams on challenging and interesting topics.

Key Problem: Poor Prior Preparation

One of the greatest challenges secondary schools face is the wide diversity in the level and quality of preparation students receive prior to high school. The Talent Development model requires a common core curriculum for all students. It attempts to universalize standards-based education by providing increased academic learning time and significant recovery opportunities for struggling students. Elements of the high school model that attempt to address poor prior preparation and performance include:

- **Freshman Seminar.** Offered during the first semester of the ninth grade, the Freshman Seminar is a study and life-skills course that provides in-depth lessons using a variety of techniques to help students practice the studying, note-taking, time management, and social relations skills required in their academic subjects and lives outside of school. Course materials include a teacher's manual of complete lesson plans, student workbooks, and readings.

[18]Legters and Morrison, 1999, pp. 2.5 and 2.51; Center for Social Organization of Schools, 2002b.

- **Block schedule.** Talent Development works with schools to create a "4x4" extended-period block schedule (that is, four periods per day for four courses each semester) in order to offer "double doses" of English and math in the ninth and tenth grades.

- **Catch-up courses.** A key feature of the doubling up of English and math courses are the ninth-grade catch-up courses that are offered for the first term to students with weak prior preparation. These include Strategic Reading and Transition to Advanced Mathematics. Strategic Reading is designed to meet the needs of students whose reading levels are two or more years below grade expectancy. The course focuses on listening skills, reading comprehension, and guided practice, along with a Student Team Literature program, which uses partner discussion guides developed by CRESPAR to support cooperative learning in reading and language arts.[19] Students who take Strategic Reading take an English 1 course in the second semester. Transition to Advanced Mathematics is designed to encourage students to recognize connections between mathematics and the world while preparing them for a rigorous sequence of high school mathematics courses. Materials include peer-assisted starter activities, whole-class discovery lessons, and differentiated individual and small-group instruction guides for five multiweek units. Students who take Transition to Advanced Mathematics take an algebra 1 course in the second semester.

- **Extra help.** Talent Development schools may offer additional courses for students who need extra support, including: (1) Literacy Lab, a course that offers extra language arts help, working in conjunction with Strategic Reading and allowing students to develop reading, writing, and listening skills in small groups. The use of educational software on computers and exposure to appropriate Internet-based texts are important elements of the lab. (2) Reading and Writing in Your Career, a balanced-literacy course with a writing component for tenth-grade students who need additional support in reading and writing. Lessons are designed to help students develop strategies and improve skills in an effort to enhance their success in all subject areas.[20] (3) Geometry Foundations, a tenth-grade math catch-up course that prepares students for geometry.

[19]Center for Research on the Education of Students Placed at Risk, 2001b.
[20]Center for Social Organization of Schools, 2002b.

- **Summer school and Saturday school.** An on-site summer school and Saturday school allow students to make up failed course credits or receive extra academic help that they need for promotion.

- **Twilight School.** An after-hours program is offered as an alternative to the regular school day for students who have serious attendance or discipline problems or who are returning to school from incarceration or suspension from another school. Instruction is offered in small classes, and extensive services are provided by guidance and support staff.

Key Problem: Limited Capacity to Implement Comprehensive Reform

Currently, most schools in highly stressed environments have little or no capacity to address the problems discussed so far: anonymity, low student expectations, and poor prior preparation. Even with specific strategies such as the examples given, implementing a comprehensive set of organizational reforms that respond to these challenges requires that teachers and administrators change their practices in fundamental ways. In light of this, two critical components of the Talent Development approach are sustained, multilayered, multiyear implementation support and continuous professional development. These consist of:

- **A multiyear implementation plan.** Talent Development staff work with schools to create, and to update and refine continually, a multiyear implementation plan that defines a timeline for phasing-in the key components of the Talent Development model. CRESPAR provides schools with a minimum of two years of intensive implementation support for each component.

- **On-site facilitators and professional development.** An on-site team of CRESPAR-trained facilitators supports the planning and implementation of reforms, organizes and delivers grade- and subject-specific professional development, and follows up workshops with in-class help. Teachers receive four tiers of continuous support: (1) Ongoing, curriculum-specific professional development, focusing on modeling upcoming lessons, improving content knowledge, learning instructional strategies, and performing classroom management. For each course, there are two to three days of training in the summer and one two- to three-hour training session each month during the school year. (2) Weekly in-class implementation support from an experienced curriculum coach. In a given school, coaches typically are skilled school district teachers or administrators who are placed on special assignment to the Talent Development model or teachers or administrations from the school who are given release time. (3) School-based support from lead teachers who receive additional training in use of the curriculum and in in-

structional practices. (4) On-going technical assistance from CRESPAR-affiliated organizational facilitators, who coordinate components of Talent Development at the sites, including teacher coaching, curriculum materials and other resources, workshops, and student-teacher meetings.

- **A support team.** Each school is assigned a support team of Talent Development trainers who maintain frequent contact with the school-based facilitators, principals, and key members of the school's leadership and instructional teams.

- **The Talent Development network.** Schools receive support from other schools in the Talent Development network. Since 1998, annual national conferences that convene Talent Development schools have allowed the schools to share their experiences and to learn from one another. There are also Talent Development institutes for principles, teacher coaches, and teachers. In addition, school-based organizational facilitators meet together several times throughout each year, coordinating with CRESPAR.

Key Problem: Schools' Isolation from Families, Communities, and Local Institutions

Many high schools in the district are isolated from other institutions in their communities and have very limited contact with students' families (restricted to notification of severe disciplinary and academic problems). In addition, with few connections between schools and communities, particularly local employers, many students are inadequately informed about or prepared for the adult world and the world of work.[21] In short, for schools like the ones in this study, schooling can become a process of isolating students from the world they should be preparing to enter. Little effort is made to use the community as a resource for providing students with meaningful learning opportunities and a context for highlighting the potential relevance of what they are studying.

To address this problem, through a partnership with the National Network of Partnership Schools (the Network, for short), Talent Development uses school-family-community partnerships.[22] A cornerstone of the Network is an "Action Team" approach, in which teachers, administrators, parents, community members, and students work together to design and implement partnership activities that meet goals for student success. The goal is to enable families and communities to become informed about and involved in children's education and schools.

[21]See, for example, Resnick, 1987b; Berryman and Bailey, 1992; Berryman, 1995.
[22]Center for Social Organization of Schools, 2002a.

Facilitators from the Network work with Talent Development schools, employing a variety of strategies for increasing such involvement, including:

- Offering programs to parents that provide parenting and child-rearing skills development
- Communicating with families about school programs and student progress
- Involving families as volunteers and audiences at the school
- Involving families with their children in learning activities at home
- Including families as participants in school decisions and governance
- Collaborating with social service agencies to coordinate resources from the broader community for families and students

The theory of change laid out in the preceeding subsections is the conceptual framework for the interacting components of the Talent Development High School model, illustrating how the model is expected to improve student outcomes. Talent Development is more prescriptive than other school reform approaches, but CRESPAR strives to balance high-fidelity implementation of core model components with the unique needs and circumstances of the participating schools and the capacities of teachers and administrators. Even if implemented intensively, a range of contextual factors at the school, district, or state level can enhance or limit the model's capacity to make a positive difference for students.

Context for Impacts: Implementation in Five High Schools

This section describes the specific context for a preliminary assessment of Talent Development's impacts on several of the outcomes illustrated in Figure 1. While the prior section described the model's theory of change and the ideal components of full implementation, this one describes actual implementation in five schools (for a summary of the initial phases of implementation, see Box 1). Because the evaluation does not yet include a systematic analysis of implementation in these schools, the paragraphs that follow do not attempt to address the quality or intensity of implementation, but they give an overview of the implementation of key model components in the schools (for a summary of the components, see Box 2).[23] The goal of this overview is to shed light on hypotheses about when, where, and how one might expect Talent Development to begin making a difference for troubled high schools and the students they serve.

[23]Future reports will investigate in more detail the quality and intensity of implementation of the Talent Development model in high schools in the district.

Box 1

Initial Phases of Implementation in Five High Schools

Planning Year

- Key staff members attend series of Talent Development orientations.
- Staff members develop concrete implementation timeline and strategy.
- School leaders recruit teachers to be part of the Ninth Grade Success Academy team.
- Faculty vote to adopt the model and build commitment for implementation.

Implementation Year 1

- Schools establish Ninth Grade Success Academy.
- Staff members participate in professional development linked to the ninth-grade curriculum.
- A full-time Talent Development facilitator works on-site at participating schools.
- Schools establish after-hours Twilight School (with the exception of one school).
- Small learning communities are in place for some students in grades 10 through 12 (one school established career-themed academies for all students).

Implementation Years 2 and 3

- All schools continue Ninth Grade Success Academy.
- All schools continue staff professional development.
- Talent Development facilitator continues to work at school sites full-time.
- Four schools continue Twilight School program (one school still has yet to implement Twilight School).
- Two schools have career-themed academies for all students in grades 10 through 12, and others continue to evolve plans to create career academies for all upper-grade students.

As noted earlier, there were 22 nonselective, comprehensive high schools in the district in the 1998-1999 school year, the year prior to Talent Development's expansion in the district. By the 2001-2002 school year, five of these schools had begun using the Talent Development model to bring about comprehensive reform in their structures, climates, curricula, and instructional strategies. Two of these high schools began implementing Talent Development in the 1999-2000 school year; one began in 2000-2001; and the remaining two began in 2001-2002.[24]

[24]One other high school began implementing some features of the Talent Development model in the 2000-2001 school year. This school is not included in the analysis because it discontinued implementation the following year. Three additional high schools began implementation or planning for implementing during the

(continued)

Box 2

Core Components of Talent Development for Ninth-Graders

Ninth Grade Success Academy

- Small learning community
- Often housed in separate wing or floor of school building
- Interdisciplinary teaching teams
- "4x4" extended-period block schedule (four 80- to 90-minute periods per day of four courses each semester)

Standards-Based Curriculum

- Double English courseload: Strategic Reading followed by English 1
- Double mathematics courseload: Transition to Advanced Mathematics followed by Algebra 1
- Freshman Seminar: study and life-skills course

Professional Development Linked to Curriculum

- Continuous, on-site teacher coaching by Talent Development facilitator
- Team-teaching
- Summer and monthly seminars

Twilight School

- Alternative after-hours program
- Targeted courses to get students back on track for graduation
- Small classes and support services

Table 3, presenting a timeline of implementation for the five schools, shows that, as of 2001-2002 (the most recent school year for which data are available), the schools under study had been working with Talent Development for at least one year and for as many as three years (not including the initial planning year).

2002-2003 school year. These schools could not be included in the analysis for this report because follow-up data are only available through the 2001-2002 school year.

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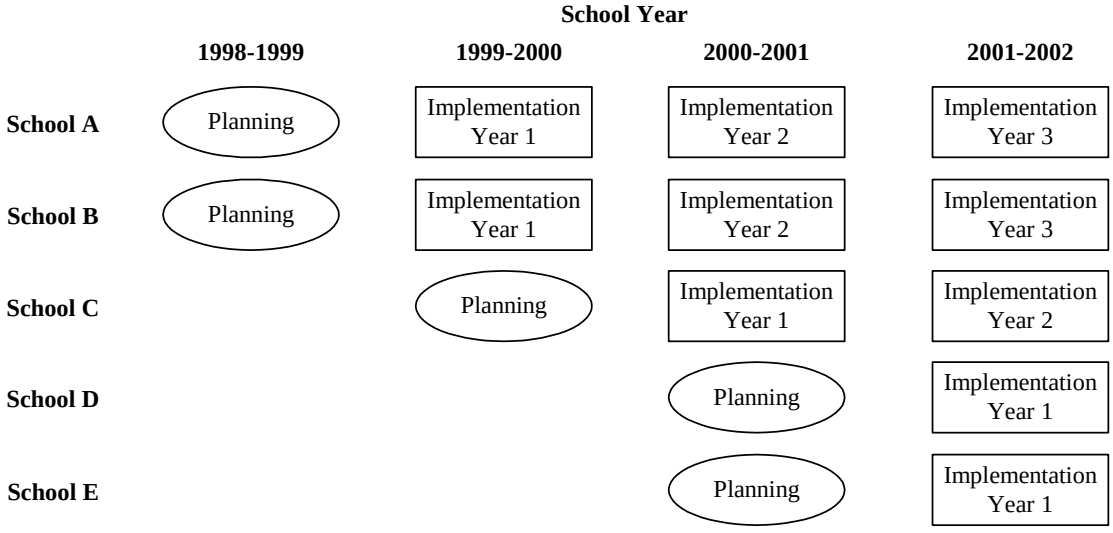
Table 3

Implementation Timeline in Five High Schools



The three "pioneer" schools (the ones that began planning for Talent Development in the late 1990s) may have implemented and sustained Talent Development with a process and a level of intensity that differed from those of the other two schools. For example, the pioneer schools began at a point when some of the key components of the model were being refined or created, and, as a result, they likely experienced intense interaction with the model developers. Also, of the five schools, the pioneer schools had to shoulder the burden of creating a track record of credibility for Talent Development in the district and were part of early efforts to adapt the model to local conditions and specific school circumstances. At the same time, these early-starting schools seem to have been the most entrepreneurial and the most willing and able to initiate a change process. The impact findings indicate that the later-starting schools seem to have been somewhat less well-equipped, at least initially, to take on the difficult task of comprehensive school reform.

Planning Year

Each of the schools introduced the core elements of the Talent Development model in roughly the same sequence. They began with a planning year, working with Talent Development to build awareness among the faculty and staff about the reform model and its components. Awareness-building sessions took place at the schools and offered opportunities for

teachers to interact with model developers. Throughout the year, key staff members from the schools participated in a series of orientations and informational sessions on all aspects of the Talent Development model and attended Talent Development conferences and institutes. During the planning year, schools engaged with CRESPAR to build faculty commitment to the model and to develop a concrete implementation timetable and strategy.

In general, the schools did complete the most intensive aspects of their development and consensus-building process in the planning year. In fact, however, planning has actually been an ongoing process as school staff and Talent Development facilitators work to refine the Ninth Grade Success Academy and attempt to create or develop the Career Academies for the upper grades.[25] Even in cases where schools made a solid start on initial implementation, the staff members' level of fidelity and commitment to the various components needed to be reinforced from year to year, as teachers or administrators transferred out of the building and as new staff arrived. Also, changes in district and state policies and administrative directives necessitated an ongoing process of refining or adapting established components after they were initially put in place. For example, with the increasingly high stakes of state assessments, state curriculum standards have been incorporated into the implementation.

The First Three Years of Implementation: Putting the Components of Talent Development into Place

Ninth Grade Success Academy

Early implementation in the five schools focused primarily on the Ninth Grade Success Academy. During the first year of implementation, each of the schools created a Success Academy, which is a small learning community for ninth-grade students and teachers. This involved reconfiguring master course schedules and moving all ninth-grade homerooms and classes to a separate section of the school building. There was an effort to provide teachers with shared planning time several times each week in order to facilitate team teaching. In the first year of implementation, each of the schools also established extended-period scheduling blocks for ninth-graders to facilitate the provision of double math and reading/English courses. As noted above, the transitional math course was put into place as a way to prepare students for algebra 1 in the first semester and then move them through a full algebra 1 course in the second semester. The reading/English course was designed to help students develop strategic reading skills in the first semester and then move students through a full college preparatory English 1 course in the second semester.

[25]See Jordan, McPartland, Legters, and Balfanz, 2000, p. 171.

One important aspect of the Ninth Grade Success Academy is the establishment of separate teams for students who are repeating the ninth grade. This occurs because the needs of the two groups of ninth-graders who participate in Talent Development — first-time ninth-graders and repeating ninth-graders — are distinct. While students entering the ninth grade for the first time are attempting to navigate the difficult transition from a relatively small and supportive middle school to a much larger, less personalized, and more alienating high school, students who are repeating the ninth grade have already fallen behind the requirements needed to graduate and may be suffering the high levels of disengagement and alienation that can result from the lack of support they received in the first year in high school. At the five schools in the district, the teacher teams that formed specifically to work with repeating ninth-graders focused on helping students complete the courses necessary for promotion to the tenth grade (which can occur midyear).

Twilight School

For the district's repeating ninth-graders who did not earn midyear promotion, and for other groups of students, Twilight School is an option for earning credits toward promotion. All but one of the five schools (School E) established a Twilight School, which is an important component of Talent Development. Operated after regular school hours and on Saturdays, Twilight School aims to help students catch up on the coursework and credits they need to meet promotion requirements and get back on track toward graduation. In the district, in addition to targeting repeating ninth-graders, the Twilight Schools sought to accommodate students in all grades who were returning to school after incarceration or extended absences for other reasons. They also helped students who were juggling work or parenting responsibilities that prevented them from attending school during regular hours. (In some cases, efforts were made to move students back into the regular school program and schedule after a period of time spent in Twilight School. In other cases, students remained in the Twilight School program in order to meet their work or parenting responsibilities.)

Upper Grades

By the end of the third year of implementation, each of the five schools under study had incorporated the key elements of the Ninth Grade Success Academy and, with the exception of School E, had established a Twilight School, but implementation of the upper-grade restructuring and curriculum reforms was more limited. Each of the schools already operated Career Academies or other theme-based small learning communities for at least some of the students in grades 10 through 12. One of the schools (School E) had moved to a complete reorganization of its upper grades into Career Academies in the first year of implementation, and a second school (School B) moved to the same Academy arrangement it its second year of implementation. The other three schools were still developing plans and strategies to ensure that Career Academy options were

available for all students in grades 10 through 12 and that students were in a position to make informed decisions about which Academy would best fit their interests and aspirations.

Finally, in the third year of implementation, one of the pioneer schools incorporated new tenth-grade extra-help courses, supported by a curriculum coach. These courses focused primarily on helping students meet the district's new promotion requirements and prepare for the State Standards Assessment.[26]

Ongoing Model Development

Talent Development continues to evolve and mature. CRESPAR and the support infrastructure that has emerged in the district continue to refine the existing components and to develop new features that are aimed at specific problems that the high schools face. For example, one high school has seen important benefits in the Ninth Grade Success Academy, particularly in creating a supportive set of small learning communities that provide a secure space for ninth-graders in its large campus and that allow smaller groups of students to "travel together" throughout the day. As a result, they are embarking on the creation of a version of Success Academy for tenth-graders, including small learning communities, a separate space in the building, and block scheduling. In addition, CRESPAR and the model development team continue to create new curricula and professional development opportunities for teachers and administrators, particular for the upper grades. These include double courseloads of geometry and English in the tenth grade. The process of model maturation and local adaptation represents a critical context for interpreting and understanding the impact findings discussed later in the report.

Analytic Approach and Data Sources

In order to determine the net effect of Talent Development, it is necessary to compare the experiences of a group of students who were exposed to the model with a truly comparable group of students who were not. The ideal research situation would provide an absolutely reliable estimate of the student performance levels that would have been observed in the absence of the intervention (that is, a counterfactual) and comparison of this estimate to actual student performance. Random assignment is the most reliable basis from which to construct estimates of the counterfactual, but, in this evaluation, it was not possible to randomly assign schools or students. Given this, the analytic approach that is used attempts to construct the best counterfactual possible in order to estimate the true impact of Talent Development.

[26] Though outside the scope of this report, it is important to note that, in the 2002-2003 school year, several of the schools had begun to implement new upper-grade Talent Development courses, and some began systematically developing Career Academies.

Box 3

Estimating Impacts with a Comparative Interrupted Time Series Design

- For each outcome under study, in each Talent Development school, the outcome level is compared with the pattern in the same school before it implemented the reform (referred to in the report as the baseline average).
- For each Talent Development school, the outcome levels in a group of comparison schools — a set of schools in the same district with characteristics similar to those of the Talent Development schools — are compared with the baseline averages in these schools before the Talent Development school implemented the reform.
- Differences between the deviations from the baseline averages in the Talent Development schools and the deviations from the baseline averages in the comparison schools are used to estimate the reform's impact.

In this report, impacts are measured using a comparative interrupted times series design (see Box 3).[27] This analytic approach combines the use of the interrupted time series analytic strategy with the use of the comparison schools analytic strategy to build on the strengths of each and to address the potential limitations of both. The comparative interrupted time series design compares deviations from the historical patterns for the Talent Development schools with deviations from the historical patterns for similar non-Talent Development high schools during the same period. Thus, impacts are defined as differences between Talent Development and non-Talent Development high schools in terms of their deviations from historical patterns in student outcomes. When combined with regression analysis to control for differences caused by individual student background characteristics and prior school experiences, the approach seeks to isolate Talent Development's unique impact on student engagement and performance.

Interrupted Time Series

The interrupted time series component of the analytic strategy assesses the extent to which measures of engagement and performance for students in Talent Development schools differ from the engagement and performance for similar students in the same schools prior to Talent Development implementation. This provides an indication of whether the participating

[27] A detailed description of the analytic approach is available online in this report's Technical Resources (Unit 1: Analytic Appendix). See www.mdrc.org/publications/388/techresources.pdf.

high schools experienced a deviation from their historical patterns in student outcomes coincident with the introduction of Talent Development. The projection of each school's recent history acts as the counterfactual. This is a particularly good counterfactual because, in the absence of the reform, many aspects of the school would be expected to stay the same (for example, students, faculty, school culture, neighborhood, and physical plant). Use of a historical pattern as the counterfactual has the potential to control for both measurable and unmeasurable characteristics of a school.

However, the deviation from the baseline alone may not necessarily reflect the impact of Talent Development. Similar deviations from historical patterns could have been caused by district-wide policies or interventions that occurred at about the same time as Talent Development implementation. For example, while Talent Development was being scaled up, the district changed course requirements for grade-level promotion. Such a change may cause positive deviations from baseline averages of course credits that were earned at schools in the district. An interrupted time series design would capture this improvement and ascribe it to Talent Development, but in reality Talent Development may have caused some, all, or none of this change in credits earned. In order to sort out what part of the deviation from baseline is caused by Talent Development, this study looks at similar high schools in the same district.

Comparison Schools

The use of comparison schools helps to account for other factors in the broader school district that may influence school functioning and student engagement and performance. The Talent Development schools are matched with sets of comparison non-Talent Development schools that are similar on several dimensions. Both sets of schools consist of nonselective comprehensive high schools in a single district. The schools are matched on racial/ethnic composition, promotion rates of ninth-grade students, and the similarity of average test scores and attendance rates. Table 4 provides an indication of the extent to which the matching process resulted in a group of non-Talent Development schools that was comparable to the five Talent Development schools in the study. In general, the table indicates that the non-Talent Development schools are similar to the Talent Development schools in terms of race/ethnicity and prior test scores over the years leading up to Talent Development implementation. Talent Development schools exhibited lower attendance and promotion rates than their non-Talent Development counterparts.

Measures of student achievement and engagement at the comparison schools should be a good estimate of what might have been observed in Talent Development schools in the absence of the intervention; that is, they should be a good counterfactual. But differences between the Talent Development and comparison schools do not necessarily reflect only the impact of Talent Development. Some differences could be artifacts of differences in the prior trends in

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Table 4

Characteristics of Ninth-Grade Students in Talent Development and Non-Talent Development Comparison Schools, Averaged Over the Pre-Talent Development Baseline Period

Characteristic	Talent Development Schools	Non-Talent Development Schools	Difference
Race/ethnicity (%)			
Black	82.0	85.4	-3.4
White	0.9	3.1	-2.2
Hispanic	16.8	9.6	7.2
Other	0.3	1.9	-1.6
Overage for grade[a] (%)	49.6	45.3	4.3
8th-grade SAT-9 test scores			
Reading Comprehension			
Normal Curve Equivalent (NCE) Score	33.5	35.7	-2.2
Math total			
Normal Curve Equivalent (NCE) Score	32.3	33.9	-1.6
Attendance rate[b] (%)	67.0	70.3	-3.4
Students with an attendance rate of: (%)			
90% or higher	15.5	19.7	-4.2
80% or lower	67.7	61.6	6.2
Earned 4 or more credits for the year[c] (%)	50.9	56.2	-5.3
Promoted to 10th grade[d] (%)	52.3	56.2	-3.8

(continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

Estimates are not regression-adjusted for students' background characteristics or prior achievement.

Numbers reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

[a]Typically, students who are overage for grade were retained in the current grade or a prior one. "Overage for grade" means a student turned 15 before the start of the 9th grade, 16 before the start of the 10th grade, 17 before the start of the 11th grade, or 18 before the start of the 12th grade.

[b]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.

Table 4 (continued)

[c]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted.

[d]For the purposes of this analysis, 9th-grade students were considered to have been promoted to the 10th grade if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements.

student engagement and performance. For example, test scores for students in Talent Development schools were actually lower than test scores for students in non-Talent Development schools, and they improved only marginally after Talent Development began. At the same time, however, test scores for students attending similar schools in the district may actually have been declining over the same period. In this instance, Talent Development may have had a positive impact by preventing test scores from dropping rather than by improving the overall average. Such a pattern could only be observed by comparing an interrupted time series for both Talent Development and non-Talent Development comparison schools.

Controlling for Changes in School Composition

This analysis takes into account the fact that Talent Development schools (or comparison schools) may experience a change in the composition of their student populations. For example, neighborhoods may undergo demographic changes or changes in geographic boundaries or rules governing school assignment. More important, Talent Development may cause a change in the student population by, for example, preventing students from dropping out of high school and perhaps keeping lower-performing students in school longer. In order to help account for systematic changes in the characteristics of student cohorts over time, the analysis incorporates individual student characteristics into the analytic model.

Limitations

The goal of the comparative interrupted time series approach is to make the causal inference that Talent Development produced the observed changes in student outcomes. In order to make this inference several assumptions are made. First, the projected baseline average for a given school is calculated; given the relative stability of most outcomes in the baseline period, this projection is a reliable predictor of future student outcomes. Second, it is assumed that district policies would affect students in Talent Development and non-Talent Development schools in similar ways. This assumption is supported because the use of comparison schools sufficiently captures district-wide events or interventions that may affect student outcomes and, as Table 4 shows, the comparison schools and Talent Development schools serve similar students with similar outcome levels. Third, it is assumed that variables included in multiple regression

adequately control for compositional changes in student characteristics. While there may be changes in student characteristics that cannot be measured in correlatation with student outcomes, the analysis accounts for shifts in student racial/ethnic composition and changes in students' level of prior achievement.

There may still be alternative explanations or other factors unrelated to Talent Development that contribute to the observed differences in student outcomes. Nevertheless, despite the limitations of the comparative interrupted time series approach, using it to pool impacts estimates over several schools provides a valid estimate of the impact of Talent Development in high schools in the district. Thus, when discussing the findings, the report states that Talent Development either increased or decreased the level of each student outcome.

Because in the current study there are a limited number of schools and few years of follow-up data, these findings are considered preliminary. But the pooled estimates across the five schools discussed in the study maximize the reliability of the impact estimates. By pooling estimates, the analysis can assess the likelihood that a nonzero impact was due to chance. In general, the larger the number of schools that exhibited a nonzero impact, the higher the likelihood that the analysis can detect real changes in student engagement and performance that were produced by Talent Development. While the focus is on results from pooled estimates, results for individual schools are also discussed in order to highlight variation across sites; it should be noted, however, that these impacts are less reliable than the pooled estimates because estimates for any one school may be anomalous.

Data Sources

The primary sources of data for this analysis are individual students' school records, which were obtained from the district. In general, administrative, attendance-related, and course-related information was obtained for all middle and high school students in the district at the end of each school year, from the 1995–1996 school year through the 2001-2002 school year.[28] Box 4 defines several key outcomes included in the analysis.

[28]This report's online Analytic Appendix gives a brief overview of the types of information included in these datasets. See www.mdrc.org/publications/388/techresources.pdf.

Box 4

Definitions of Key Program Outcomes

Attendance

- Attendance rate: The total number of days a student was marked as present during a school year, divided by the total number of days the student was listed as enrolled. (These data were available consistently only for students who attended school for at least one day in the fourth marking period of the school year. The analysis was not able to include students who dropped out or left the district prior to that point.)
- Chronic absenteeism: When a student had an attendance rate of 80 percent or lower for the year.
- Regular attendance: When a student had an attendance rate of 90 percent or higher for the year.

Course Credits Earned

- Course credits earned: Indicators of whether a high school student earned course credits in selected subject areas, including English, mathematics, science, and algebra.
- Earned four or more credits: A designation indicating that a student was given credit for having passed four or more courses in a given year. Until the 1998-1999 school year, ninth-grade students were required to earn at least four credits in order to be promoted to the tenth grade. Beginning in the 1998-1999 school year, minimum requirements for promotion included earning at least five credits during the year, with three of those credits awarded for completing one required course in mathematics, one in English, and one in science.
- Earned core academic credits: A designation indicating that a student completed a core academic curriculum, earning at least five credits during the ninth grade, with three of those credits being in mathematics, English, and science. Because this designation relied on the district's course-credit code, which does not distinguish between elective courses and required courses, the designation may include credits that students earned for elective courses or for required courses. Some elective courses did not meet the district's new 1998-1999 promotion requirements, but all of them counted toward total credits earned.

Promotion

- Promoted to the tenth grade: Classification for a student who was designated in the district's administrative records as a ninth-grader in a given school year and as a tenth-grader in the following school year. Note that this is not necessarily the same as indicating that a student met various criteria for promotion within one school year (such as earning the required number of course credits or completing a designated sequence). While the vast majority of students who were promoted according to this definition did in fact meet these requirements, some students may have completed some of the necessary requirements in a prior year. Therefore, the outcome includes both on-time promotion and midyear promotion for some students who needed more than one school year to earn promotion to the tenth grade.

Preliminary Impact Findings

The preliminary impact findings for this study indicate that, for first-time ninth-grade students, Talent Development produced important gains in academic course credits earned and promotion outcomes and more modest improvements in attendance rates. Impacts for nearly all first-time ninth-grade student outcomes included in this analysis are positive and statistically significant, meaning that the improvement is not likely due to chance.[29]

Although by the end of the 2001-2002 school year some schools had implemented Talent Development longer than others, the five schools are equally weighted in the analyses. For Schools A and B, which implemented Talent Development in the 1999-2000 school year, the impacts reflect the average impact across three years of implementation; for School C, which implemented Talent Development in the 2000-2001 school year, the impacts reflect the average impact across two years of implementation; and for Schools D and E, which implemented Talent Development in the 2001-2002 school year, the impacts reflect the finding in only one year of implementation. The impacts for the five schools are averaged and presented as the impact of Talent Development in the follow-up period, which refers to the period of implementation. Impact findings for first-time ninth-grade students are presented first, followed by impact findings for repeating ninth-grade students.[30] Implications of these findings are discussed in the next section.

Impacts for First-Time Ninth-Grade Students

First-time ninth-graders are students whose records indicate that they were in the ninth grade during the spring of the year under study and in the eighth grade during the previous spring. First-time ninth-graders made up the majority of the ninth-grade class at each school included in the study, and they are the primary focus of Talent Development's Ninth Grade

[29]Given that the primary focus of implementation has been on the ninth grade, it is reasonable to expect that the primary locus of potential impacts is likely to be among ninth-grade students. As a result, the findings discussed in this report focus on Talent Development's impact on key outcomes for ninth-graders. These outcomes include attendance rates, course-taking patterns, and promotion rates. The analysis further investigates the extent to which Talent Development produced different effects for first-time ninth-graders and for repeating ninth-graders. This is because, as explained, some of the participating high schools differed in the way that they used Talent Development to meet the needs of first-time ninth-graders and the way that they used it to meet the needs of repeating ninth-graders.

[30]The pattern of findings for all ninth-grade students in the analysis sample, which includes both first-time ninth-graders and repeating ninth-graders, was very similar to the pattern of findings for first-time ninth-graders, although somewhat weaker. A set of tables showing impacts for the full ninth-grade sample is available in the online Technical Resources (Unit 2a: Supplementary Tables for All Ninth-Grade Students) at www.mdrc.org/publications/388/techresources.pdf.

Success Academy. At the schools in the district, first-time ninth-graders received the most intense treatment of Talent Development, and Talent Development seems to have had the greatest impact on this group.

- **Talent Development schools substantially increased the percentage of first-time ninth-graders completing a core academic curriculum associated with the district's tougher promotion requirements.**

Table 5 provides a summary of the impact findings for several measures of engagement and performance for first-time ninth-graders. A key indicator of Talent Development's success is the percentage of students who completed a core academic curriculum, earning at least five credits during the year, with three of those credits being in mathematics, English, and science. As the table shows, an average of just over 43 percent of students in the Talent Development schools earned core academic credits in the baseline period, while 56 percent of students earned these credits in the follow-up period. The deviation from baseline average for Talent Development schools (labeled "difference" in Table 5) is about 13 percentage points. During the same time period, comparable non-Talent Development schools also increased the percentage of students earning core academic credits, in this case from about 46 percentage points to 51 percentage points, an increase of just over 4 percentage points. The difference in the deviations from baseline for the Talent Development and non-Talent Development schools is the impact. In this illustration, the estimated impact of Talent Development on the percentage of students who earned core academic credits is an increase of about 9 percentage points.[31]

The Talent Development impact on earning core academic credits is further broken down in Table 6, which shows impacts for each school over time. The first three columns show impacts for each year of implementation.[32] The average impact over all years of implementation for each school is given in the fourth column.[33] The row labeled "all clusters" at the bottom of

[31] It is important to note that, had the analysis simply looked at the average deviation from baseline for Talent Development schools, the impact of Talent Development would have been overestimated to be about 13 percentage points (a 12.8 percentage point deviation from baseline). Also, had the analysis simply compared the follow-up period averages for Talent Development and non-Talent Development schools, the impact of Talent Development would have been underestimated to be about 6 percentage points (the difference between 56.0 percent and 50.5 percent).

[32] Again, because the date of implementation varied, the pioneer schools (Schools A, B, and C) have impacts for two or three follow-up years, while Schools D and E have impacts for only one follow-up year.

[33] The average values in column 4 of Table 6 may not exactly equal the arithmetic average of columns 1, 2, and 3, because column 4 values were calculated by pooling student data across all years rather than by averaging annual means.

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Table 5

Impacts on Attendance, Course-Taking, and Promotion for First-Time Ninth-Grade Students

Outcome	Talent Development Schools			Non-Talent Development Schools			Impact at Follow-Up	Impact Effect Size
	Baseline	Follow-Up	Difference	Baseline	Follow-Up	Difference		
Attendance (%)								
Attendance rate[a]	72.7	75.5	*2.8* ***	75.4	75.7	*0.2*	2.6 ***	0.09
Students with an attendance rate of:								
90% or higher	21.2	26.6	*5.4* ***	25.5	25.7	*0.2*	5.2 ***	0.13
80% or lower	57.6	52.4	*-5.2* ***	52.2	50.5	*-1.7* *	-3.5	-0.07
Course credits earned (%)								
At least 1 English credit for the year	65.4	76.2	*10.8* ***	67.3	68.7	*1.4*	9.4 ***	0.19
At least 1 algebra credit for the year	32.8	60.2	*27.3* ***	44.0	52.8	*8.9* ***	18.5 ***	0.41
At least 1 math credit for the year	55.8	72.1	*16.3* ***	63.9	68.5	*4.6* ***	11.7 ***	0.23
4 or more credits for the year[b]	61.9	69.8	*7.9* ***	65.9	66.2	*0.3*	7.6 ***	0.15
Core academic credits[c]	43.2	56.0	*12.8* ***	46.3	50.5	*4.2* ***	8.6 ***	0.18
Promotion (%)								
Promoted to 10th grade[d]	60.7	67.1	*6.5*	61.6	57.7	*-3.9* *	10.4 **	0.21

(continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in the 9th grade in the year under study and in the 8th grade in the previous year's administrative data file.

Table 5 (continued)

Results in the Talent Development columns reflect averages across the five Talent Development schools. Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

Numbers in the "Baseline" columns reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

Numbers in the "Follow-Up" columns reflect averages over the entire follow-up period. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters had a three-year follow-up period, one cluster had a two-year follow-up period, and two clusters had only a one-year follow-up period.

Numbers in the "Difference" columns reflect the difference between the baseline average and the average over the follow-up period.

The impact at follow-up was calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 9th-grade students in the district's nonselective, comprehensive high schools from school years 1996-1997 through 1998-1999.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether the student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether the student was repeating the 9th grade.)

A two-tailed t-test was applied to the difference between the baseline average and the average over the follow-up period and the impact at follow-up, which is the difference in deviations from baseline averages between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.

[b]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted. Beginning in the 1998-1999 school year, minimum requirements for promotion included earning at least five credits during the 9th grade, with three of those credits awarded for completing one required course in mathematics, one in English, and one in science.

[c]"Core academic credits" is a designation indicating that a student completed a core academic curriculum, earning at least five credits during the 9th grade, with three of those credits being in mathematics, English, and science. Because this designation relied on the district's course-credit code, which does not distinguish between elective courses and required courses, the designation may include credits that students earned for elective courses or for required courses. Some elective courses did not meet the district's new 1998-1999 promotion requirements, but all of them counted toward total credits earned.

[d]For the purposes of this analysis, 9th-grade students were considered to have been promoted if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements. Due to data availability, this outcome includes data for only three of the five clusters of Talent Development and non-Talent Development schools.

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Table 6

Impacts on the Percentage of First-Time Ninth-Grade Students Who Earned Core Academic Credits, by Cluster

Cluster	Impact at Follow-Up			
	Year 1	Year 2	Year 3	Average[a]
School A	12.7 **	17.2 ***	16.0 ***	15.1 ***
School B	15.3 **	1.5	12.0	9.6 *
School C	15.1 *	9.7		12.4 **
School D	2.4			2.4
School E	3.5			3.5
All clusters[b]	9.8 ***	9.5 **	14.0 ***	8.6 ***
Effect size	0.21	0.20	0.29	0.18

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. The impacts for the Year 1, Year 2, Year 3, and Average columns were calculated as the difference between the deviation from the baseline for the Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

"Core academic credits" is a designation indicating that a student completed a core academic curriculum, earning at least five credits during the 9th grade, with three of those credits being in mathematics, English, and science. Because this designation relied on the district's course-credit code, which does not distinguish between elective courses and required courses, the designation may include credits that students earned for elective courses or for required courses. Some elective courses did not meet the district's new 1998-1999 promotion requirements, but all of them counted toward total credits earned.

Estimates are regression-adjusted using ordinary least squares, controlling for students' background characteristics and prior achievement.

A two-tailed t-test was applied to the difference between the baseline average and the average over the follow-up period and to the impact at follow-up, which is the difference in deviations from baseline averages between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]This column reflects the average of all students in the sample in the follow-up period. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters had a three-year follow-up period, one cluster had a two-year follow-up period, and two clusters had only a one-year follow-up period. This column does not reflect the average of one-, two-, or three-year impacts, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

the table represents averages across the five schools for each implementation year. Table 6 illustrates several patterns that occur throughout the findings for course credit and promotion outcomes.[34] First, while impacts for an individual school may be anomalous, there are consistently positive and statistically significant impacts for Schools A, B, and C, the first to implement the reform model. Second, positive impacts for course-credit and promotion outcomes are apparent in the very first year of implementation. Third, these impacts tend to be sustained for those schools for which more than one year of follow-up data are available.

- **Talent Development produced substantial gains in academic course credits earned by first-time ninth-grade students. The impact was especially large for the percentage of students earning a credit in algebra.**

The Talent Development curriculum includes the first-semester catch-up courses designed to help students complete English 1 and algebra 1 in the second semester of the ninth grade. As Table 5 shows, under "course credits earned," Talent Development resulted in an 11 percentage point increase in the percentage of first-time ninth-grade students who earned at least one credit in English, while non-Talent Development schools showed a percentage point increase of only about 1. This indicates that Talent Development had a 9 percentage point impact on the percentage of first-time ninth-graders earning at least one credit in English. The table also shows that the percentage of first-time ninth-graders earning at least one credit in algebra nearly doubled in Talent Development schools, by an increase of 27 percentage points. The non-Talent Development schools also show an increase in this outcome, but of only 9 percentage points. Therefore, the Talent Development impact on the percentage of first-time ninth-graders earning at least one credit in algebra is an increase of 19 percentage points. Talent Development also resulted in a positive impact of 12 percentage points on the percentage of first-time ninth-graders who earned at least one credit in math, and an impact of 8 percentage points on the percentage of first-time ninth-graders earning a total of four or more credits for the year.

The increase in academic course completion throughout high schools in the district is not surprising. The district changed promotion requirements for ninth-graders the year before Talent Development was first implemented. Instead of simply earning four credits for promotion to the tenth grade, students were required to earn at least five course credits, including one credit in English, one in math, and one in science. Because of this factor, if the analysis calculated simply the deviation from baseline for Talent Development schools, the impact of Talent Development may have been overestimated. The comparison schools help to account for district-wide policies or events that may affect student outcomes. In this case, the deviation from

[34] A full set of school-by-year outcome tables is available in the online Technical Resources (Unit 2: Supplementary Tables). See www.mdrc.org/publications/388/techresources.pdf.

baseline for non-Talent Development schools helps to capture the effect of a district-wide policy change. Subtracting this effect from the Talent Development deviation from baseline isolates the impact of Talent Development.

- **Talent Development schools improved the overall promotion rate to the tenth grade for first-time ninth-grade students.**

Table 5 shows two outcomes that are related to promotion: "core academic credits" and "promotion to 10th grade." The first reflects the percentage of first-time ninth-grade students who completed a core academic curriculum by the end of the school year under study. Many of these students met the district's new promotion requirements.[35] Talent Development schools increased the percentage of students who earned core academic credits by nearly 9 percentage points.

The outcome indicating promotion to the tenth grade reflects the percentage of first-time ninth-grade students who reached the tenth grade by the end of the following school year.[36] The data indicate that Talent Development increased overall promotion to the tenth grade by 10 percentage points. The reader should note that the outcome levels for both Talent Development schools and non-Talent Development schools are greater for this promotion outcome than for the core academic credits outcome. That is, in Talent Development schools in the follow-up period, 56 percent of students completed a core academic curriculum, while 67 percent were actually promoted to the tenth grade. This reflects the fact that the second promotion outcome includes midyear promotion. (For example, some students did not complete all the courses required for promotion until midway through the following year.) Unfortunately, the data do not allow for students who were promoted on time and students who were promoted midyear to be directly identified. However, from the available data, it is possible to estimate that about 16 percent of the first-time ninth-graders promoted in the Talent Development schools were promoted midyear, while about 18 percent of the first-time ninth-graders promoted in non-Talent Development schools were promoted midyear.

[35]"Core academic credits" is a designation indicating that a student completed a core academic curriculum, earning at least five credits during the ninth grade, with three of those credits being earned in mathematics, English, and science. But because the "core academic credits" designation relied on the district's course-credit code, which does not distinguish between elective courses and required courses, the designation may include credits that students earned for elective courses or for required courses. Some elective courses did not meet the district's new 1998-1999 promotion requirements, but all of them counted toward total credits earned. (Beginning in the 1998-1999 school year, minimum requirements for promotion included earning at least five credits during the ninth grade, with three of those credits awarded for completing one required course in mathematics, one in English, and one in science.)

[36]Since data were obtained from the district at the end of each school year, it is not possible to determine directly which students achieved tenth-grade status on time and which were promoted midyear.

- **Talent Development had a small but positive impact on attendance rates for first-time ninth-graders.**

While still statistically significant, the impacts on attendance outcomes were smaller than the impacts on course-credit and promotion outcomes. The average attendance outcome levels in the baseline period were similar for Talent Development and non-Talent Development schools. Average outcome levels remained relatively flat in the follow-up period for non-Talent Development schools, while attendance rates improved by 3 percentage points in Talent Development schools. Talent Development also increased the percentage of regular attenders, students with an attendance rate of 90 percent or better, by 5 percentage points. Attendance impacts varied across the five schools. As with the course-credit and promotion outcomes, the three pioneer schools exhibited greater impacts than the overall average (the reasons for this are discussed further below).

- **Improvements in the ninth-grade outcomes were strongest in the three schools that began using the model first, and the improvements were sustained into the second and third years of implementation.**

In general, cluster-by-cluster analyses indicate that each of the five Talent Development high schools exhibited positive deviations from its baseline average for course-credit outcomes during most of the years that it was implementing the model.[37] One school had negative deviations from the baseline for the English course-credit outcome, but its group of comparison schools averaged even larger negative deviations. This resulted in positive impacts for almost all of the individual follow-up years for course-credit outcomes. At the same time, the largest improvements occurred in Schools A, B, and C, the three pioneer schools.

While it is not clear exactly why the pioneer schools did better, one hypothesis is that these schools were the most entrepreneurial of the five in the study and the most willing to initiate a change process. Despite incorporating the model at a point when some of the key components were being refined or created, in general the pioneer schools tended to have larger impacts on attendance and course completion than the full sample of five Talent Development schools in the district. The pioneers had positive attendance impacts (statistically significant in two schools), while the two schools that have most recently adopted Talent Development show small negative impacts (though not statistically significant ones) on attendance rate in the first year of implementation.

[37]For further details, see the online Technical Resources (Unit 2: Supplementary Tables) at www.mdrc.org/publications/388/techresources.pdf.

Impacts for Schools A, B, and C were sustained during the second and third years of implementation, although the effects on attendance and course completion were somewhat smaller in the second year. The process and intensity of implementing the Talent Development model varied across the schools and over time. Teacher mobility and leadership turnover may have hindered the progression of implementation. Adding new components may have distracted from the ones already in place, because of limitations on school and Talent Development staff and resources. At the same time, however, it is likely that the structure and quality of the Ninth Grade Success Academies tended to improve over time as the scheduling challenges were addressed and as teachers and administrators became more comfortable and familiar with the intended benefits of the small learning communities, the Freshman Seminar, and the extended class periods.

It should be noted that, for most outcomes, the Talent Development baseline averages were lower than the baseline averages for the non-Talent Development comparison schools, yet the averages for the follow-up period were either the same or somewhat higher for the non-Talent Development schools. Thus, if one were to compare the Talent Development schools with the non-Talent Development schools only on the basis of the follow-up period averages, the program would appear to be making little or no difference. The differences in deviations from the baseline average, however, show that the model was able to move some of the most troubled schools in the district up to or beyond the levels of better-performing schools.

Impacts for Repeating Ninth-Grade Students

While the Talent Development model aims to reduce the number of students who repeat the ninth grade by giving intensive support to first-time ninth-grade students, the reform also specifically targets students entering the ninth grade for a second time. As explained earlier, students who fall into this category have their own team within the Ninth Grade Success Academy and work to earn the course credits necessary for midyear promotion; if they do not earn midyear promotion, they may obtain additional support in the after-hours Twilight School program. It is difficult to determine the effectiveness of this intervention for all students who begin a second year of the ninth grade, because the data only allow for analysis of students who repeated a full year or more.

For the purposes of this study, repeating ninth-graders are students whose records indicate that they were in the ninth grade during the spring of the year under study and were also in the ninth grade during the previous spring. They did not earn sufficient credits to be promoted to the tenth grade on time nor to be promoted midyear. Most of these students were repeating the ninth grade for the first time, although some were repeating for the second or even third time. Students promoted midyear are classified as tenth-graders in the data and will be included in impact analyses for the tenth grade in a future report. If Talent Development's effort to move repeaters to midyear promotion is successful, full-year ninth-grade repeaters left in the subsam-

ple are a particularly challenging group of students who have the greatest difficulty meeting course requirements.

Table 7 provides a summary of Talent Development's impacts for students who repeated the ninth grade for a full year or more. Comparing Table 7 with Table 5 shows that outcome levels for repeating ninth-graders were substantially lower than those for first-time ninth-graders. Among Talent Development schools, attendance rates in the baseline period for repeating ninth-graders averaged 56 percent, compared with approximately 73 percent for first-time ninth-graders. Similarly, for Talent Development schools, promotion rates in the baseline period for repeating ninth-graders averaged 42 percent, compared with 61 percent for the first-time ninth-graders in Talent Development schools. Table 7 also shows that, for most outcomes, baseline averages for repeating ninth-graders in the Talent Development schools were even lower than those for repeating ninth-graders in the non-Talent Development schools.

Overall, as Table 7 indicates, Talent Development had little or no impact on most of the engagement and performance measures included in the analysis for students who repeated a full year or more of ninth grade. An exception is the impact (not statistically significant) on average attendance rates, which was actually slightly larger for the repeating ninth-graders (3.0 percentage points) than for the first-time ninth-graders (2.6 percentage points). At the same time, however, three outcomes in the table show that, for repeating ninth-graders in Talent Development schools, the percentage of students earning four or more credits, the percentage of students earning core academic credits, and the percentage of students who were promoted to the tenth grade declined slightly, and the declines resulted in negative impacts estimates. However, none of impact estimates for repeating ninth-graders were large or statistically significant.

Sizing Up the Results

Talent Development's intense efforts with ninth-grade students have resulted in positive impacts on several student outcomes, including improved attendance rates, increased percentages of students earning academic credits, and increased promotion rates to the tenth grade. First-time ninth-grade students are the greatest beneficiaries of the Talent Development model.

Impact estimates on academic course-taking and grade-level promotion for first-time ninth-graders range between 8 and 19 percentage points, corresponding to effect sizes of between 0.15 and 0.41 (effect sizes for attendance outcomes are smaller, ranging between 0.07 and 0.13). Effect sizes show each impact as a proportion of the district-wide student-level standard deviation for each outcome. For example, an increase of 12 percentage points in the percentage of students earning one or more credits in math corresponds to an effect size of 0.23, or close to one-quarter, of the district-wide student-level standard deviation for this outcome in the pre-Talent Development period.

Talent Development Evaluation

Table 7

Impacts on Attendance, Course-Taking, and Promotion for Repeating Ninth-Grade Students

Outcome	Talent Development Schools			Non-Talent Development Schools			Impact at Follow-Up	Impact Effect Size
	Baseline	Follow-Up	Difference	Baseline	Follow-Up	Difference		
Attendance (%)								
Attendance rate[a]	56.0	60.3	*4.3* **	57.2	58.5	*1.3*	3.0	0.10
Students with an attendance rate of:								
90% or higher	4.8	6.2	*1.5*	4.7	5.6	*0.8*	0.6	0.02
80% or lower	87.2	83.5	*-3.6*	86.1	83.4	*-2.7* *	-0.9	-0.02
Course credits earned (%)								
At least 1 English credit for the year	35.6	39.1	*3.6*	39.4	42.5	*3.2*	0.4	0.01
At least 1 algebra credit for the year	14.6	21.6	*7.0* **	16.7	20.5	*3.8* **	3.2	0.07
At least 1 math credit for the year	29.6	35.2	*5.6* *	37.2	38.3	*1.1*	4.5	0.09
4 or more credits for the year[b]	32.6	32.0	*-0.6*	33.8	35.6	*1.8*	-2.4	-0.05
Core academic credits[c]	15.3	13.6	*-1.7*	17.1	17.2	*0.1*	-1.9	-0.04
Promotion (%)								
Promoted to 10th grade[d]	42.1	39.3	*-2.8*	45.4	43.4	*-2.0*	-0.8	-0.02

(continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in the 9th grade in the year under study and were also in the 9th grade in the previous year's administrative data file.

Table 7 (continued)

Results in the Talent Development columns reflect averages across the five Talent Development schools. Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

Numbers in the "Baseline" columns reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

Numbers in the "Follow-Up" columns reflect averages over the entire follow-up period. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters had a three-year follow-up period, one cluster had a two-year follow-up period, and two clusters had only a one-year follow-up period.

Numbers in the "Difference" columns reflect the difference between the baseline average and the average over the follow-up period.

The impact at follow-up was calculated as the difference in deviations from the baseline average between Talent Development schools and non-Talent Development schools.

The impact effect size was calculated by dividing the impact at follow-up by the standard deviation of the outcome for all 9th-grade students in the district's nonselective, comprehensive high schools from school years 1996-1997 through 1998-1999.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether the student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether the student was repeating the 9th grade.)

A two-tailed t-test was applied to the difference between the baseline average and the average over the follow-up period and the impact at follow-up, which is the difference in deviations from baseline averages between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.

[b]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted. Beginning in the 1998-1999 school year, minimum requirements for promotion included earning at least five credits during the 9th grade, with three of those credits awarded for completing one required course in mathematics, one in English, and one in science.

[c]"Core academic credits" is a designation indicating that a student completed a core academic curriculum, earning at least five credits during the 9th grade, with three of those credits being in mathematics, English, and science. Because this designation relied on the district's course-credit code, which does not distinguish between elective courses and required courses, the designation may include credits that students earned for elective courses or for required courses. Some elective courses did not meet the district's new 1998-1999 promotion requirements, but all of them counted toward total credits earned.

[d]For the purposes of this analysis, 9th-grade students were considered to have been promoted if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements. Due to data availability, this outcome includes data for only three of the five clusters of Talent Development and non-Talent Development schools.

Although no absolute standard exists to define whether a specific effect size is large or small, there are some guidelines. For example, many researchers use the rule of thumb that an effect size of around 0.20 is small, around 0.50 is moderate, and more than 0.80 is large.[38] This categorization was supported empirically by a meta-analysis of more than one hundred treatment effectiveness studies, most drawn from education research.[39] Most of the benchmarks against which to compare effect-size estimates related to elementary school outcomes. For example, the Tennessee class-size experiment, which assessed the impact of reducing elementary classrooms from a range of 22 to 26 students to a range of 13 to 17 students, had effects on average reading and math test scores of between 0.15 and 0.25 standard deviation.[40] Additionally, a meta-analysis of the 29 most widely discussed and disseminated comprehensive school reform models found the average student achievement effect size to be 0.15. This drops to 0.12 for studies using some sort of comparison group design, and down to 0.09 when a third party conducts the evaluation.[41]

Another reference point for the report's findings are improvements tracked in Chicago Public Schools (CPS). In the late-1990s, Chicago attempted to redesign its high schools with goals of increasing academic rigor and enhancing personalization. The design for high schools that was adopted by CPS recommended several specific approaches to increased personalization that are consistent with Talent Development. The design also focused on a core academic curriculum for all students and higher graduation standards. A nonexperimental study of CPS found that more ninth-grade students were on track to graduate after the high school redesign than before. For example, the percentage of eligible ninth-grade students earning enough credits to assume sophomore status increased by 5.4 percentage points. The percentage of students completing an algebra/geometry sequence rose by 11.1 percentage points.[42] Although these results are not part of an evaluation of a specific intervention, they indicate that the magnitude of the Talent Development findings reported here is similar to gains made during a sustained district-wide high school reform initiative in another large urban school district.

Given the above standards, the effect sizes of the impacts for first-time ninth-grade students reported in this study fall in the small-to-moderate categories. However, it is possible for small-to-moderate effect sizes to have substantial educational significance. The magnitude of the impacts reported here are better than average, compared with other third-party evaluations of

[38]Cohen, 1988; Bloom, 2001.

[39]Lipsey, 1990.

[40]Finn and Achilles, 1999.

[41]Borman, Hewes, Overman, and Brown, 2003.

[42]Miller and Allensworth, 2002. Quoted values are adjusted for compositional change due to the end of social promotion policies.

comprehensive school reform models, and they fall in line with other widely hailed reform efforts. While the early impact findings in this report should be considered preliminary — as this study includes only five high schools in a single district with one to three years of follow-up data — they are encouraging. It is not common to find early impacts of this magnitude in evaluations of comprehensive school reform models.[43] Overall, the preliminary findings show that Talent Development has positive and significant impacts for keeping ninth-grade students on track for graduation, which is one of the most important goals of current high school reform efforts.

Future Research

The Talent Development findings show that improvements in the ninth-grade outcomes were strongest in the first three schools to begin using the model and were sustained into the second and third years of implementation for those schools. While the report describes some variation in impacts across the five schools in the study, it does not explore school-specific differences in implementation. Ideally, the analysis should be able to account for the interaction between variation in local contexts and Talent Development implementation and variation in Talent Development impacts on student engagement and performance. In this case, however, the number of dimensions along which this variation was likely to occur far exceeds the number of schools and follow-up years included in the analysis. As this work moves forward, the program and evaluation teams will develop more concrete hypotheses about how variation across the sites is most likely to affect Talent Development's capacity to improve student engagement and performance.

Subsequent reports also will track outcomes for up to five follow-up years and will include analyses of tenth-, eleventh-, and twelfth-grade students. It will be particularly interesting to see whether the impacts continue to be sustained in pioneer schools and whether those impacts eventually accrue in later-implementing schools. Implementation research will further investigate the differences between schools that implement early and those that implement later. For some schools, it will be possible to determine whether improvements in ninth-grade promotion rates translate into increased graduation rates. In addition, it will be interesting to explore other measures of student achievement to support the findings related to course credits earned. It could be argued that teachers in Talent Development schools have greater incentive to award students passing grades that result in increased credits earned, because teachers are part of the reform effort and presumably want to see it succeed. At this point, it is not possible to address such a hypothesis, but future reports will include analysis of student achievement outcomes. Further analysis may also help to unpack the somewhat paradoxical attendance and promotion

[43] Borman, Hewes, Overman, and Brown, 2003; Bloom, 2001.

findings, in which there is evidence of substantial improvement in course credits earned and promotion to the tenth grade but less evidence of significant changes in attendance rates. One hypothesis is that the benefits of Talent Development accrue primarily to students who regularly attend school in both the baseline and the follow-up periods. Further study should explore the connection between attendance and course completion.

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2001. Howard Bloom, Sandra Ham, Laura Melton, Julienne O'Brien

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Career Academies
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Career Academies
Impacts on Students' Initial Transitions to Post-Secondary Education and Employment
2001. James Kemple

Career Academies
Impacts on Students' Engagement and Performance in High School
2000. James Kemple, Jason Snipes

Career Academies
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Case Studies of How Urban School Systems Improve Student Achievement
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Findings from the First Implementation Year
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Our projects are a mix of demonstrations — field tests of promising program models — and evaluations of government and community initiatives, and we employ a wide range of methods to determine a program's effects, including large-scale studies, surveys, case studies, and ethnographies of individuals and families. We share the findings and lessons from our work — including best practices for program operators — with a broad audience within the policy and practitioner community, as well as the general public and the media.

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The Talent Development High School Model

Context, Components, and Initial Impacts on Ninth-Grade Students' Engagement and Performance

June 2004

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Unit 1

Analytic Appendix

Introduction

This appendix outlines the analytic approach used by MDRC to estimate the Talent Development High School model's impact on student engagement and performance. Impact findings are from Talent Development's first three years of implementation in a large, urban school district. The full report, which discusses the findings in detail and describes the components of Talent Development and the context in which it operates, is available online at this Web site or from MDRC as a printed document.

Talent Development is a comprehensive reform model for large secondary schools that face serious problems with student attendance, discipline, achievement scores, and dropout rates. The model calls for specific changes in school organization and curricula with the goals of establishing a strong, positive school climate for learning; promoting high standards for English and mathematics coursework for all students; and providing professional development systems to support implementation of recommended reforms. Each of these changes is aimed specifically at enhancing student attendance in school, improving measurable student learning, and keeping students on track toward high school graduation.

The impact analysis for this report focuses on the use of the model in high schools and more specifically on engagement and performance outcomes for ninth-grade students. The three outcomes that are examined are the ones likely to be most relevant in the early phases of Talent Development's implementation: daily attendance, credits earned, and promotion rates. The analytic approach used to measure the model's impact on these outcomes can best be described as a comparative interrupted time series design.[1]

Before detailing the steps of the design, it is important to distinguish between this study's measures of program outcomes and its measures of program impacts. The term "outcomes" here refers to the grade level, course credits earned, attendance rate, or behavior of individual students or groups of students at various points during the period under study. The term "impacts" here refers to Talent Development's effects on an outcome.

Constructing a Counterfactual

In this study, the average outcome levels (or even year-to-year changes in outcomes) for students in the Talent Development schools provide potentially misleading indications of Talent Development's impacts. Previous research has shown that students within a school or set of

[1]For further discussion about using an interrupted time series analysis to measure impacts of whole school reform, see Bloom (2003) and Snipes (2003).

schools may improve from year to year or differ from other students for reasons not necessarily related to a special intervention like Talent Development. The ideal research situation would allow for an absolutely reliable estimate of the student performance levels that would have been observed in the absence of the intervention and that could be compared with actual student performance — that is, it would allow for a counterfactual. Random assignment is the most reliable basis from which to construct estimates of a counterfactual. However, since random assignment was not possible for this evaluation, the comparative interrupted time series analysis attempted to construct the best counterfactual possible short of random assignment and to estimate the true impact of Talent Development.

To this end, it was necessary to weigh the experiences of a group of students who were exposed to Talent Development against those of a comparable group of students who were not. The more comparable the two groups prior to the introduction of Talent Development, the more likely it is that later differences can be attributed to the program. Moreover, using this kind of comparison makes it possible to account for factors other than Talent Development that may have caused a change or difference in student engagement and performance.

The Logic of the Comparative Interrupted Time Series Design

The comparative interrupted time series design consists of an interrupted time series analysis and a comparison school analysis, each of which builds on the strengths of the other and addresses the other's potential limitations. Together, the two analyses construct a counterfactual for this evaluation. Specifically, the interrupted time series assesses the extent to which measures of engagement and performance for students in Talent Development schools differ from measures of engagement and performance for similar students in the same schools prior to Talent Development implementation. The school comparison looks at Talent Development schools versus non-Talent Development schools (which are similar high schools in the same district that are not implementing the reform model).

The first analysis provides an indication of whether participating high schools experience a deviation from their historical patterns in student outcomes coincident with the introduction of Talent Development. The projection of each high school's recent history acts as the counterfactual, and it is a particularly good counterfactual because, in the absence of the reform, many aspects of the schools would be expected to stay the same (for example, no major changes would be expected in students, faculty, school cultures, neighborhoods, or physical plants). Using a historical pattern as a counterfactual has the potential to control for both measurable and unmeasurable characteristics of a given school.

However, the deviation from the baseline alone may not necessarily reflect the impact of Talent Development. Similar deviations from historical patterns could have been caused by

district-wide policies or interventions that occurred at about the same time as Talent Development implementation. For example, while Talent Development scaled up, the schools in the district under study changed course promotion requirements.[2] Such a change could cause positive deviations from baseline averages of course credits earned at high schools in the district. An interrupted time series design would ascribe this improvement to Talent Development, but the reform model may have caused some, all, or none of the change in credits earned.

The second analysis in the comparative interrupted time series design (the comparison between Talent Development and Non-Talent Development schools) helps to account for other factors in the broader school district that may influence school functioning and student engagement and performance. For this part of the analysis, Talent Development schools are matched with sets of comparison schools that are similar on several dimensions, including racial composition and promotion rates of ninth-grade students, average test scores, and attendance rates. The Talent Development and comparison schools are all nonselective, comprehensive high schools in the same large, urban district. Measures of student achievement and engagement at the comparison schools are a good — but not perfect — indication of what might have been observed in Talent Development schools in the absence of the intervention.

It should be noted, however, that differences between the Talent Development schools in the past and present, and between the Talent Development schools and the comparison schools, do not necessarily reflect the actual impact of Talent Development, because some differences could be an artifact of differences in the prior trends in student engagement and performance. For example, test scores for students in Talent Development schools may actually have been lower than for students in non-Talent Development schools, and they might have improved only marginally after Talent Development began. At the same time, test scores for students attending similar non-Talent Development schools in the district may actually have been declining over the same period. In such an instance, Talent Development would have a positive impact by preventing test scores from dropping rather than by improving the overall average. This could be observed only by comparing an interrupted time series for both Talent Development and non-Talent Development comparison schools.

The comparative interrupted time series analysis makes this comparison by estimating the deviations from historical patterns for the Talent Development schools and subtracting from these the deviations from historical patterns for similar non-Talent Development schools during the same period. The differences between these deviations constitute impacts in student outcomes. When combined with regression analysis to control for differences in individual student

[2]In order to preserve the anonymity of the subjects in this study, this appendix refers to the participating school district as "the district" and uses pseudonyms for individual schools.

background characteristics and prior school experiences, the approach isolates the unique impact Talent Development has on student engagement and performance.

It should be noted, however, that the comparative interrupted time series approach carries with it the limitations that are present in all quasi-experimental designs. In this case, projection of a baseline average for a given school may not be a reliable predictor of future student outcomes. Also, finding comparison schools for the Talent Development schools is limited to observable characteristics of the student body and may miss important factors that affect student outcome trajectories. In addition, multiple-regression techniques control for compositional changes in measurable student characteristics, but there may be changes in unmeasurable student characteristics that correlate with student outcomes. Despite these limitations, using the comparative interrupted time series approach to pool impacts estimates over several schools provides the best estimate of the true impact of Talent Development in high schools in the district.

The primary sources of data for this analysis were individual students' school records, which were obtained from the district. Table 1 provides a list of the types of data that were obtained and the school years and grade levels for which they were available. In general, administrative, attendance, and course-detail information is available for all high school students in the district from the 1995-1996 school year through the 2001-2002 school year. Table 2 gives a brief overview of the types of information included in these data sets. Table 3 defines several key outcomes included in the analysis.

The rest of this appendix will provide a step-by-step description of the analyses. The following section details the steps that make up the interrupted time series approach, including estimating deviations from baseline, controlling for compositional shifts, and accounting for cohort effects. The section after that describes the comparison school approach, including selecting comparison schools and estimating their deviations from baseline. The final section describes estimating impacts and pooling estimates across schools. To provide a concrete example in support of the descriptions, this appendix refers throughout to the ninth-grade outcome of earning one or more math credits.

Interrupted Time Series Approach

Estimating Deviations from Baseline

For this evaluation, outcomes for students enrolled in a given school prior to Talent Development's implementation were compared with outcomes for students enrolled in the same school during the years after implementation began. For most measures of student engagement and performance, the analysis focuses on the three years prior to implementation and the three

Talent Development Evaluation

Analytic Appendix
Table 1

Data Sources and Availability, by School Year and Grade Level

Data Source	School Year										
	1991-1992	1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Administrative records					9-12	6-12	6-12	6-12	6-12	6-12	6-12
Attendance records					9-12	6-8	6-12	6-12	6-12[a]	6-12[a]	6-12
Course-detail records					6-12	6-12	6-12	6-12	6-12	6-12	6-12
Test scores											
CTBS	1-8	1-8	1-8	4-8[b]							
SAT-9					2-4, 6-8, 11	2-4, 6-8, 11	2-4, 7-8	2-4, 7-8	2-4, 7-8, 10-11	3, 4, 7, 8	3, 4, 7, 10
SSA					5, 8, 11	5, 8, 11	5, 8, 11	5, 8, 11	5, 8, 11	5, 8, 11	5, 8, 11

SOURCE: Individual students' school records from a large, urban school district.

NOTES: Blank spaces indicate that no records are available for those years.

Administrative records include information on students' race; gender; birth date; and final school-enrollment status for the year, including withdrawal and dropout status and number of suspensions.

Attendance records include information on the number of days a student is present and absent for each marking period. Unless otherwise noted, this sample includes students who attended at least one day in any of the marking periods.

Course-detail records include information on credits attempted, credits earned, grades, and absences for each course in which a student was enrolled during the year. Unless otherwise noted, this sample includes students who were enrolled in at least one course during the year, according to the course-detail records.

Test scores may not be available for every student.

Comprehensive Test of Basic Skills (CTBS) records include test scores for reading, math, science, and social studies.

Stanford Achievement Test, Ninth Edition (SAT-9) records include test scores for reading, math, problem solving, procedures, and science.

State Standards Assessment (SSA) records include test scores for reading and math.

[a]Attendance records for years 1999-2000 and 2000-2001 include only students who were present for at least one day in the last marking period.

[b]Test scores for 1994-1995 are missing for a number of middle and high schools.

Talent Development Evaluation

Analytic Appendix
Table 2

Data Types and Descriptions

Data Type	Description
Administrative	Administrative data typically include student background information, such as birth date, race, and gender, as well as information on school enrollment status, special education classification, and English Speakers of Other Languages (ESOL) training. The administrative data are also the primary source of information about the grade level in which students were enrolled during each school year. These records were used to determine whether students were promoted from year to year or retained in grade. Typically, administrative records are available for all students in a given school level regardless of whether they entered the district after the school year began or whether they dropped out or left the district before the end of the year.
Attendance	Attendance data include information about the number of days a student was present or absent during a given school year. In some years, these data were provided on a quarterly basis and in other years they were provided as cumulative records. This information was used to construct an attendance rate and an absentee rate for each student in the files. Typically, the attendance files include only students who were present for at least one day during the final making period of the year. This means that students who dropped out of school or who left the district before the start of the final marking period do not have an attendance record for this analysis.
Course-detail records	Course-detail records include, for each course in which a student was enrolled during a given school year, the course code number, an abbreviated name, the number of credits the student attempted, the number of credits the student earned, and the grade the student received. For each student in the file, this information was used to construct both an annual and a cumulative count of credits earned and attempted. The information was also used to calculate credits earned in particular subject areas.
Test scores (nationally normed)	The California Test of Basic Skills (CTBS) and the Stanford Achievement Test, Ninth Edition (SAT-9) are norm-referenced test scores, which provide information on individual student achievement relative to scores obtained from a random sample of students from across the country. SAT-9 scores in math and reading are available as Normal Curve Equivalents, National Percentiles, and Scale Scores. In general, these test scores were used in the analysis to control for student achievement prior to entering high school.
Test scores (state)	The State Standards Assessment (SSA) is a criterion-referenced test, which provides information on student skills and content knowledge specified by the state. SSA test scores in math and reading are available as Normal Curve Equivalents (NCEs), State Percentiles, and Scale Scores for each of these grades and the school years listed in Analytic Appendix Table 1.

Talent Development Evaluation

Analytic Appendix
Table 3

Key Outcome Definitions

Outcome	Definition
Attendance rate	The total number of days a student was marked present during the school year divided by the total number of days the student was listed as enrolled. These data were available consistently only for students who attended school for at least one day in the final marking period of the year. Thus, the analysis did not include students who dropped out or left the district prior to that point.
Chronic absenteeism	Indicates that a student had an attendance rate of 80 percent or lower for the year.
Regular attendance	Indicates that a student had an attendance rate of 90 percent or higher for the year.
Course-taking patterns	Indicators of whether a high school student earned course credits in selected subjects, including mathematics, English, and science. Other indicators, which signify credits earned in academic subjects, career-technical subjects, and other electives, are also available.
Earned 4 or more credits	Designation given to a high school student who was awarded credit for having passed 4 or more courses for the year. Until the 1998-1999 school year, students were required to earn 4 or more credits in order to be promoted to the next grade.
Met minimum requirements for promotion	Beginning in the 1998-1999 school year, minimum requirements for promotion included earning at least 5 credits during the year, with at least one of these credits in English, one in mathematics, and one in science.
Promoted to the 9th grade on time	Designation given to a student who was listed as a 9th-grader in a given school year in the district's administrative records and as a 10th-grader in the following school year. Note that this is not necessarily the same as indicating that a student met various criteria for promotion, such as earning the required number of course credits or completing a designated sequence. While the vast majority of students who were promoted according to the definition above did in fact meet these requirements, some students were promoted without meeting them. Some of these students may have completed some of the necessary requirements in a prior year.

years after implementation. The three years prior to implementation are referred to as the baseline period. The year of implementation and each subsequent year are referred to as follow-up years. Differences in student outcomes between the baseline and follow-up periods are referred to as deviations from the baseline.

The key feature of the interrupted time series design is to project what student engagement and performance would most likely be without Talent Development. This projection extends over one or more years after Talent Development began and is based on measures of student engagement and performance during a multiyear pre-Talent Development baseline period. For example, to project into the follow-up period students' pattern of earning one or more math credits for a given year, the analysis used the annual percentage of ninth-graders earning one or more math credits over the three baseline years. The equation below specifies the simplest form of a regression model that can be used to estimate an interrupted time series from a baseline derived from the three-year average at a single school.[3]

$$Y_i = A + \sum_{k=1}^{K} D_k FY_{ki} + e_i$$

where:

Y_i = dummy for earning one or more math credits for student *i*

FY_{ki} = 1 if student *i* was a member of the cohort for follow-up year *k*, and 0 otherwise

e_i = a random error term for student *i*

A = a constant term equal to the percentage of ninth-grade students earning one or more math credits during the baseline years

D_k = deviation in the percentage of ninth-grade students earning one or more math credits from the baseline average *A* in year *k* of the follow-up period (that is, the year *k* deviation from the baseline mean)

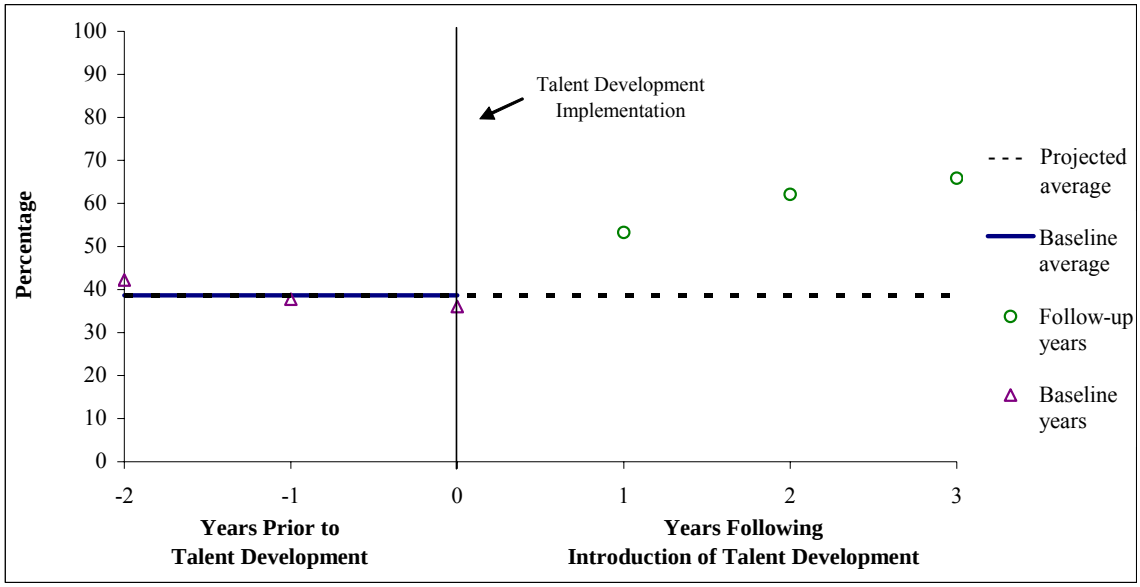
This equation pools data from the baseline and follow-up years and estimates both the baseline mean and the average deviation from this mean for each year of the follow-up period

[3]It is also possible to project a baseline trend derived from a consistent pattern of year-to-year increases or decreases in credits earned in the pre-Talent Development period. This was discounted for the current analysis because only three years of pre-Talent Development data were available, leaving only minimal confidence in an estimate of a consistent year-to-year slope in baseline credits-earned patterns. See Bloom (2003) for both baseline-trend and baseline-average interrupted time series techniques.

Talent Development Evaluation

Analytic Appendix
Figure 1

Percentage of Ninth-Grade Students Earning One or More Math Credits for the Year in Talent Development School A, Three-Year, Unadjusted, Follow-Up Results



SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: The sample includes all students whose course-detail records indicate that they attempted one or more credits.

for a single school. Figure 1 shows the unadjusted interrupted time series estimates for one Talent Development school in the district, School A. The triangles plot observed means for each baseline year. The solid line represents the baseline average, while the dashed line is the projection of this average into the first three Talent Development implementation years. The circles plot observed means for each follow-up year. The difference between the dashed line and each circle represents the deviation from baseline average for each year of implementation. (Note that the years listed in the x-axis of this figure and Figures 2, 3, 4, and 5 are presented relative to the first year of Talent Development implementation.)

Controlling for Changes in Student Characteristics

In some cases, a Talent Development school (or a comparison school) may experience a change in the composition of its student population. For example, a neighborhood may undergo demographic changes, or geographic boundaries or rules governing school assignment patterns

may change. More importantly, Talent Development may cause a change in the student population, by preventing students from dropping out of high school, for example (which may keep lower-performing students in school longer). In order to help account for systematic changes in the characteristics of student cohorts over time, the analysis incorporates individual student characteristics into the model. The following equation represents the enhanced regression model for a single school:

$$Y_i = A + \sum_{k=1}^{K} D_k FY_{ki} + \sum_{j=1}^{J} C_j X_{ji} + e_i$$

where the parameters specified above are the same and:

X_{ji} = a vector of J background characteristics for student i

C_j = the difference in the percentage of ninth-graders earning one or more math credits over time associated with a unit change in background characteristics X

The capacity of the analysis to control for systematic changes in the characteristics of student cohorts is increased if the X covariates and the outcomes are correlated. For example, suppose that, in one school, Talent Development increases the percentage of ninth-graders who had been retained in a prior grade or who start high school with very low achievement levels. Such a scenario might occur if Talent Development prevents these students from dropping out of school altogether. Because such students are likely to be retained in grade and less likely to complete course requirements, it could appear that Talent Development is reducing average course credits earned if the analysis does not account for the change in the composition of the ninth grade. Thus, it will be important to identify characteristics that are correlated with key outcomes, such as retention in grade. This can help disentangle Talent Development's impact on earning course credits from impacts that are caused by changes in the composition of the ninth-grade cohorts. In this case, the following covariates were incorporated into the interrupted times series models:

Overage = whether the student was overage for the current grade, indicating that she or he had been retained in a previous grade

Race = dummy variables indicating whether the student was black, white, or of another race

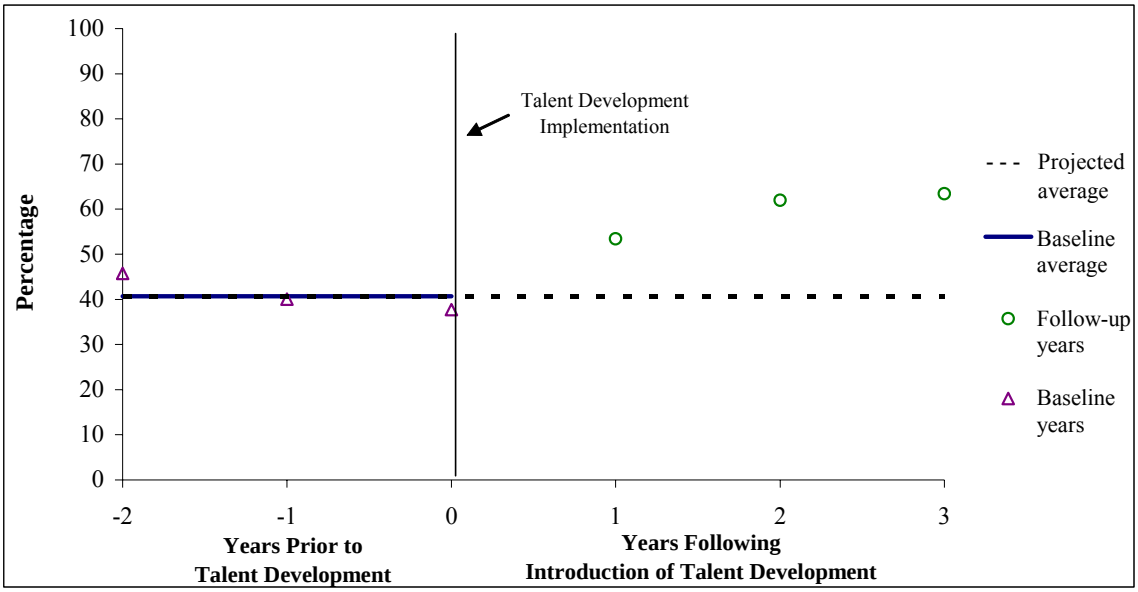
Test scores = Separate variables indicating students' eighth-grade reading comprehension and math test scores (in normal curve equivalents)

Figure 2 shows the adjusted interrupted time series estimates for Talent Development School A. As in Figure 1, the triangles plot observed means for each baseline year. The solid line represents the baseline average, while the dashed line is the projection of this average into the first three Talent Development implementation years. The circles plot observed means for each follow-up year. The difference between the dashed line and each circle represents the deviation from baseline average for each year of implementation.

Talent Development Evaluation

Analytic Appendix
Figure 2

Percentage of Ninth-Grade Students Earning One or More Math Credits for the Year in Talent Development School A, Three-Year, Adjusted, Follow-Up Results



SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: The sample includes all students whose course-detail records indicate that they attempted one or more credits.

Accounting for Cohort Effects

In addition to controlling for changes in student characteristics, the analysis also attempts to account for cohort effects which are year-to-year variations in the average engagement and performance of students as a group. Because cohort effects reflect variation that can-

not be adequately explained or controlled for by individual random sampling error, the analysis must account for this variation when estimating the standard error of the projected baseline average as well as the standard error of the deviations from the baseline in subsequent follow-up years. If cohort effects are ignored, the standard error of the deviations from the baseline will be understated and their statistical significance will be overstated.

For example, Figure 3 shows that the annual percentage of ninth-grade students earning one or more credits in math varied around the baseline average. The year-to-year variation is the source of estimated uncertainty or random error associated with future projections from the baseline average. Thus, it is also an additional source of random error associated with the deviations from the baseline. The more tightly the outcome percentages cluster around the baseline average, the more confidence can be placed in future projections from this average and, thus, the more confidence can be placed in the estimates of the deviations from the baseline.

Cohort effects can be accounted for by adding a random error term v_t for each cohort to the random error term in the equation above. Adding this error component to the interrupted time series model above yields the following equation:

$$Y_i = A + \Sigma D_k FY_{ki} + \Sigma C_j X_{ji} + v_t + e_i$$

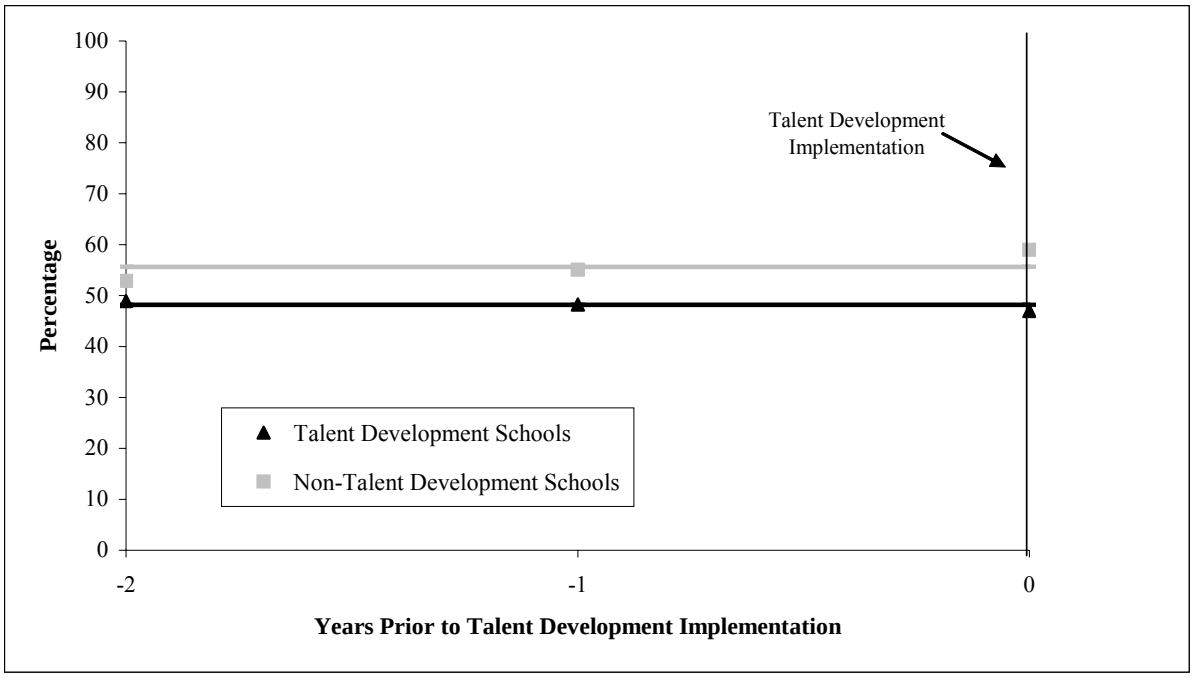
This equation cannot be estimated using ordinary least squares. This error structure represents a form of a hierarchical linear model.[4] Therefore, in order to use comparative interrupted time series techniques to estimate the effect of Talent Development on student performance, the interrupted time series model is translated into a multilevel system of equations. In particular, the structure of the analysis can be thought of as having three levels: students nested within annual cohorts nested within schools.

The analysis can be executed using hierarchical linear modeling software. In this case, the analysis modeled an equivalent composite equation through the use of the Proc Mixed procedure in SAS software.[5] This procedure also allowed for calculation of impact estimates and corresponding standard errors for five "clusters" of schools, with each cluster consisting of one Talent Development school and its set of non-Talent Development comparison schools. The average of these cluster-by-cluster impacts represents an estimate of the net impact of Talent Development on student outcomes.

[4]Raudenbush and Bryk, 2001.

[5]For a full description of hierarchical linear model equations for comparative interrupted time series analyses, see Snipes (2003). For more information on using the Proc Mixed procedure in the SAS program, see Singer (1998).

Percentage of Ninth-Grade Students Earning One or More Math Credits for the Year in Talent Development and Non-Talent Development Schools for Pre-Talent Development Baseline Years



SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Results were pooled over five Talent Development high schools and over five groups of non-Talent Development high schools consisting of between two and five schools each.

Comparison School Analysis

Identifying Comparison Schools

The analysis uses comparison schools to assess the extent to which the baseline and follow-up patterns of student engagement and performance in Talent Development schools differed from the same patterns in similar schools that did not attempt to implement the Talent Development model. The comparison was accomplished by matching each Talent Development

high school with one or more schools in the district that served students with similar characteristics and exhibited a similar pattern of student outcomes during the period before Talent Development began. In this way, the non-Talent Development comparison schools can provide a good indication of the effects on student engagement and performance that may be caused by other policies and events that occur in the district over and above those brought about by Talent Development. To get as robust an estimate of these potential effects as possible, the analysis sought to identify truly comparable non-Talent Development schools and to include as many comparable non-Talent Development schools in the analysis as possible.

Comparison schools were selected from among the 17 nonselective, comprehensive high schools in the district that were not implementing Talent Development prior to the 2002-2003 school year. The criteria for identifying comparison schools were based on average student characteristics and student outcomes over the three years before Talent Development was first introduced. Specifically, schools were classified by racial composition and ninth-grade promotion rates averaged over the 1996-1997 school year through the 1998-1999 school year. As noted earlier, the ninth-grade represents the most dramatic point at which students fall off the path toward graduation, and it is Talent Development's most intensive focus. A critical indicator of the severity of the problem within a ninth-grade class in a given school is the rate at which ninth-graders are promoted to the tenth grade in that school. Given this, it is important to ensure that, prior to implementation, Talent Development and non-Talent Development schools are as similar as possible in terms of the rates at which ninth-grade students are promoted.

The process of identifying schools that were as comparable as possible to the eventual Talent Development high schools occurred in two steps. The first step was designed to ensure a high degree of similarity in the racial composition of the ninth-graders. Here, the 22 nonselective, comprehensive high schools in the district were stratified into four mutually exclusive groups based on their racial and ethnic compositions. These groups included schools in which:

- 90 percent or more of the ninth-grade population were black
- about 50 percent of the ninth-grade population were of other races (predominantly Hispanic)
- 50 percent or more of the ninth-grade population were white
- the racial composition of the ninth grade was more mixed

All of the Talent Development high schools fell into the first two groups. For each Talent Development school, potential comparison schools were limited to those that fell into the same group.

The second step in identifying schools that were comparable to the Talent Development schools was examining ninth-grade promotion rates. Schools were considered comparable if their ninth-grade promotion rates fell within a .25 standard deviation from the three-year average for a given Talent Development school.[6] This process resulted in clusters of between two and five non-Talent Development comparison schools for each Talent Development school.[7]

The more closely the two groups of schools were similar prior to the start of Talent Development, the more likely it is that differences that emerged later can be attributed to the implementation of Talent Development. Table 4 provides an indication of the extent to which the matching process resulted in two closely comparable groups. The table compares the five Talent Development schools with their matched non-Talent Development clusters, reflecting average characteristics of ninth-graders in each group over the three years prior to the implementation of Talent Development. The table indicates that there are systematic but modest differences between the Talent Development and non-Talent Development comparison schools over the years leading up to Talent Development implementation.

In general, Talent Development schools and non-Talent Development schools are similar in terms of race and prior test scores. Talent Development schools exhibited lower attendance and promotion rates and higher chronic-absentee rates than their non-Talent Development counterparts. This finding is not surprising given that, based on most indicators, the five Talent Development schools were among the lowest performing in the district. Thus, almost any school used as a comparison started out with somewhat higher outcome levels for their students. The analytic strategy used in this study controls for these initial differences by framing the impacts of Talent Development in terms of differences between deviations from the baseline averages of Talent Development and non-Talent Development schools' student characteristics.

The information presented in Table 4 may mask some year-to-year differences between the groups of schools or a trend, upward or downward, that may occur for the non-Talent Development schools or for the Talent Development schools. The more the baseline averages remain stable and similar from year to year, the more likely it is that changes in these averages are truly caused by Talent Development rather than by random spikes or troughs. Furthermore, the less variation there is in baseline trends from year to year, the more likely it is that these trends would continue into the future if Talent Development were not implemented.

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[6]The standard deviation of ninth-grade promotion rates was calculated for all 22 high schools in the district over the three years prior to Talent Development (from the 1995-1996 school year through the 1998-1999 school year). Over this period, the average ninth-grade promotion rate was 61 percent and the standard deviation was 49. Thus, a .25 standard deviation for ninth-grade promotion rates was equivalent to approximately 12 percentage points.

[7]A given non-Talent Development school may have been included in more than one comparison cluster.

Talent Development Evaluation

Analytic Appendix
Table 4

Characteristics of Ninth-Grade Students in Talent Development and Non-Talent Development Comparison Schools, Averaged Over the Pre-Talent Development Baseline Period

Characteristic	Talent Development Schools	Non-Talent Development Schools	Difference
Race (%)			
Black	82.0	85.4	-3.4
White	0.9	3.1	-2.2
Hispanic	16.8	9.6	7.2
Other	0.3	1.9	-1.6
Overage for grade[a] (%)	49.6	45.3	4.3
8th-grade SAT-9 test scores			
Reading Comprehension			
Normal Curve Equivalent (NCE) Score	33.5	35.7	-2.2
Math total			
Normal Curve Equivalent (NCE) Score	32.3	33.9	-1.6
Attendance rate[b] (%)	67.0	70.3	-3.4
Attendance rate of 90% or higher (%)	15.5	19.7	-4.2
Attendance rate of 80% or lower (%)	67.7	61.6	6.2
Earned 4 or more credits for the year[c] (%)	50.9	56.2	-5.3
Promoted to 10th grade[d] (%)	52.3	56.2	-3.8

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some schools were counted in more than one cluster.

Estimates are not regression-adjusted for students' background characteristics or prior achievement.

Numbers reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

[a]Typically, students who are overage for grade were retained in the current grade or a prior one. "Overage for grade" means a student turned 15 before the start of the 9th grade, 16 before the start of the 10th grade, 17 before the start of the 11th grade, or 18 before the start of the 12th grade.

(continued)

[b]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.

[c]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted.

[d]For the purposes of this analysis, 9th-grade students were considered to have been promoted to the 10th grade if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements.

For a specific example of how the variation plays out in terms of outcomes, it is useful to refer to Figure 3. The figure shows the year-to-year variation in the math credit outcome for the Talent Development schools and their non-Talent Development comparison schools in the baseline period. It indicates that the Talent Development schools exhibited lower percentages of ninth-grade students earning one or more math credits than their non-Talent Development counterparts. It also indicates that there was little year-to-year variation in the outcome in the Talent Development schools and slightly more variation in the outcome in the comparison schools.[8]

Estimating Deviations from Baseline for Comparison Schools

To compare deviations from the baseline for Talent Development and non-Talent Development schools, it was necessary to designate baseline and follow-up periods for each group of non-Talent Development comparison schools based on the start of Talent Development implementation in the group's matched Talent Development school.

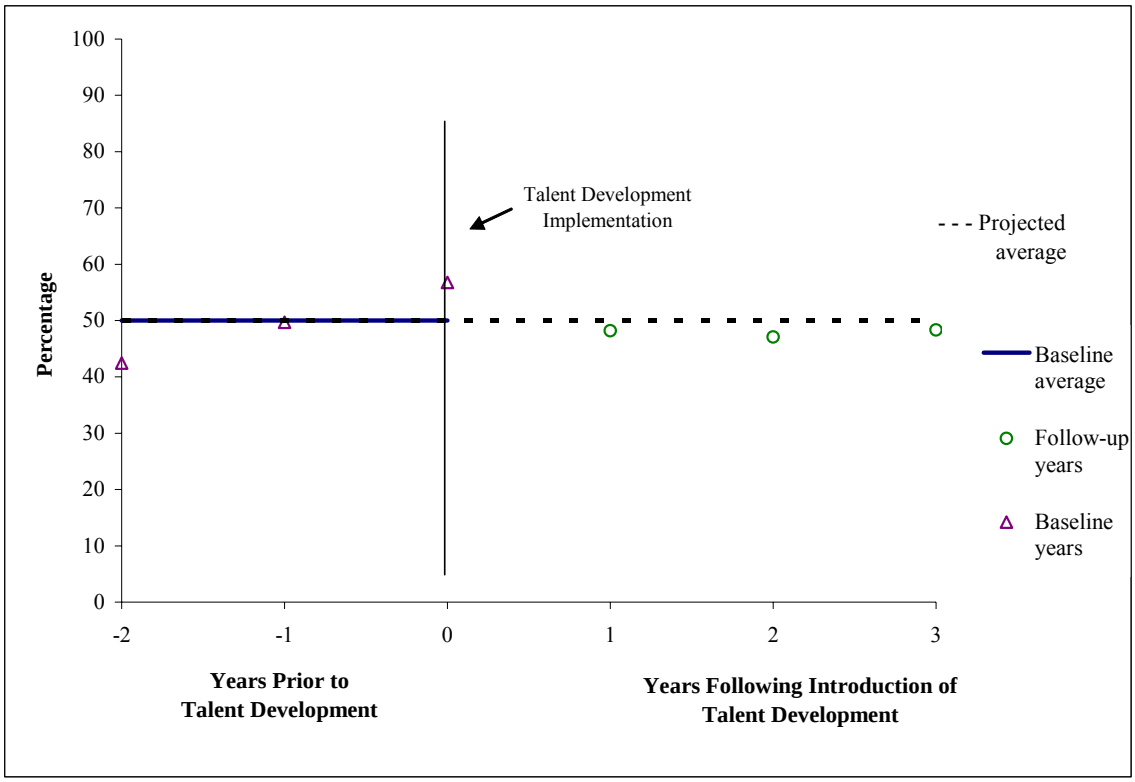
As with the Talent Development schools, the interrupted time series approach was applied to non-Talent Development schools cluster by cluster. Figure 4 illustrates the adjusted interrupted time series estimates for one group of non-Talent Development comparison schools. As in Figures 1 and 2, the triangles plot observed means for each baseline year. In this case, these are the baseline means across the comparison schools in the School A cluster. The solid line represents the baseline average, while the dashed line is the projection of this average into the first three Talent Development implementation years. The circles plot observed means for each follow-up year across the comparison schools in the School A cluster. The difference

[8]As noted earlier, it is possible to project a baseline trend derived from a consistent pattern of year-to-year increases or decreases in the outcome in the baseline period. This was discounted for the current analysis because only three years of pre-Talent Development data were available, which gave minimal confidence in slope estimates. Therefore, baseline means were used.

Talent Development Evaluation

Analytic Appendix
Figure 4

Percentage of Ninth-Grade Students Earning One or More Math Credits for the Year in Non-Talent Development Schools, Cluster A, Three-Year, Adjusted, Follow-Up Results



SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes all students whose course-detail records indicated that they attempted one or more credits.

between the dashed line and each circle represents the deviation from baseline average for each follow-up year. Despite an apparent upward trend in the baseline period, there is relatively little change in the percentage of ninth-grade students earning one or more math credits in this group of comparison schools. Therefore, in this example, impacts will be driven by deviations from baseline in the matching Talent Development school.

Estimating Impacts

The equations described previously, in the "Interrupted Time Series Approach" section, were used to generate an estimated deviation from the baseline average for each Talent Development school and for each Talent Development school's matching group of non-Talent Development schools.[9] Table 5 presents the results from an analysis of the percentage of ninth-grade students earning one or more math credits. These results are presented cluster by cluster in order to illustrate the variability of results from year to year and school to school as well as to help illustrate how impacts are pooled across schools. Impacts for individual schools may not be reliable.

The pooled estimates maximize the reliability of the impact estimates, because estimates for any one school or cluster may be anomalous. In this way, the analysis can assess the likelihood that a non-zero impact was due to chance. In general, the larger the number of schools that exhibited a non-zero impact, the higher the likelihood that the analysis can detect real changes in student engagement and performance that were produced by Talent Development.

The first four columns of numbers in Table 5 show Year 1, Year 2, and Year 3 averages for the Talent Development schools, along with the overall average for the three-year follow-up period. The next four columns of numbers show the same results for the non-Talent Development Schools. The last four columns contain the estimated impact of Talent Development on the percentage of ninth-grade students earning one or more credits in math.

For example, the first row in the table shows the percentage of ninth-grade students earning one or more math credits in each of three implementation years for Talent Development School A and the percentage of ninth-grade students earning one or more math credits over the entire three-year follow-up period for this school. The row also shows the same information averaged across the non-Talent Development schools in this cluster. (This information for School A and the comparison schools in its cluster is also illustrated in Figures 2 and 4, respectively.)

The second row in Table 5 lists the deviation from the baseline average, represented by the difference in the percentage of ninth-grade students earning one or more credits in math in each follow-up year and the percentage of ninth-grade students earning one or more credits in math over the three years prior to Talent Development (baseline average). For example, for Talent Development School A, the average deviation from baseline in Year 1 is about 13. This indicates that the percentage of ninth-grade students earning one or more math credits in School A increased by an average of about 13 percentage points during the first year of Talent Development

[9]Note that, because some non-Talent Development schools served as comparison schools for more than one Talent Development School, multiple estimates were obtained for these schools. Furthermore, different baseline averages were estimated for some of the same non-Talent Development comparison schools in different years, depending on when the matching Talent Development schools began implementation.

Talent Development Evaluation

Analytic Appendix
Table 5

Interrupted Time Series Estimates and Impacts on Percentage of All Ninth-Grade Students Earning One or More Math Credits for the Year, Three-Year Follow-Up Results, by Cluster

	Talent Development Schools				Non-Talent Development				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 math credit (%)	53.4	61.9	63.5	59.5	48.2	47.1	48.3	47.9				
Deviation from baseline	12.6	21.2	22.7	18.8	-1.8	-2.9	-1.7	-2.2	14.5	24.1 **	24.4 **	21.0 ***
School B												
Earned at least 1 math credit (%)	60.6	54.9	65.1	60.2	56.0	60.7	62.7	59.8				
Deviation from baseline	16.4	10.7	20.9	16.0	1.9	6.6	8.6	5.7	14.5 *	4.1	12.3	10.3 *
School C												
Earned at least 1 math credit (%)	64.3	61.0		62.6	59.0	61.2		60.1				
Deviation from baseline	17.3	14.0		15.7	4.8	7.1		5.9	12.5	6.9		9.7
School D												
Earned at least 1 math credit (%)	53.1			53.1	66.7			66.7				
Deviation from baseline	9.8			9.8	5.7			5.7	4.1			4.1
School E												
Earned at least 1 math credit (%)	67.0			67.0	62.9			62.9				
Deviation from baseline	1.2			1.2	4.0			4.0	-2.7			-2.7
All clusters[b]												
Earned at least 1 math credit (%)	59.7	59.3	64.3	60.5	58.5	56.3	55.5	59.5				
Deviation from baseline	11.5	15.3	21.8	12.3	2.9	3.6	3.5	3.8	8.6 ***	11.7 **	18.4 ***	8.5 ***
Effect size									0.17	0.23	0.37	0.17

(continued)

Analytic Appendix
Table 5 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

implementation. The same row shows that the percentage of ninth-grade students earning one or more math credits decreased by an average of about 2 percentage points in the non-Talent Development schools in the same cluster over the same time period. Therefore, the estimated impact of Talent Development in School A is 15 percentage points, or the difference between the deviation in baseline for the Talent Development school and the deviation in baseline for its comparison schools. Again, estimated impacts for individual schools may not be reliable and are given here only to illustrate how estimates were pooled to arrive at the impact across all schools.

The bottom panel of numbers in Table 5 shows results that have been pooled across all five clusters included in the analysis. The average percentage of ninth-grade students earning one or more math credits for each follow-up period was obtained by computing a simple mean across the five Talent Development school averages and the five non-Talent Development cluster averages. Combined standard errors were computed for each of these means accordingly.[10] For example, on average, the deviation from baseline in the follow-up period for Talent Development schools was about 12 percentage points. The average deviation from baseline for non-Talent Development schools was 4. Therefore, the impact of Talent Development on the percentage of ninth-grade students earning one or more credit in math is an increase of about 9 percentage points. This impact is statistically significant at the .05 level and corresponds to an effect size of 0.17. Pooled estimates maximize the reliability of the impact estimates; however, with only five clusters of schools, the analysis has limited power to reliably detect impacts that are not due to chance.

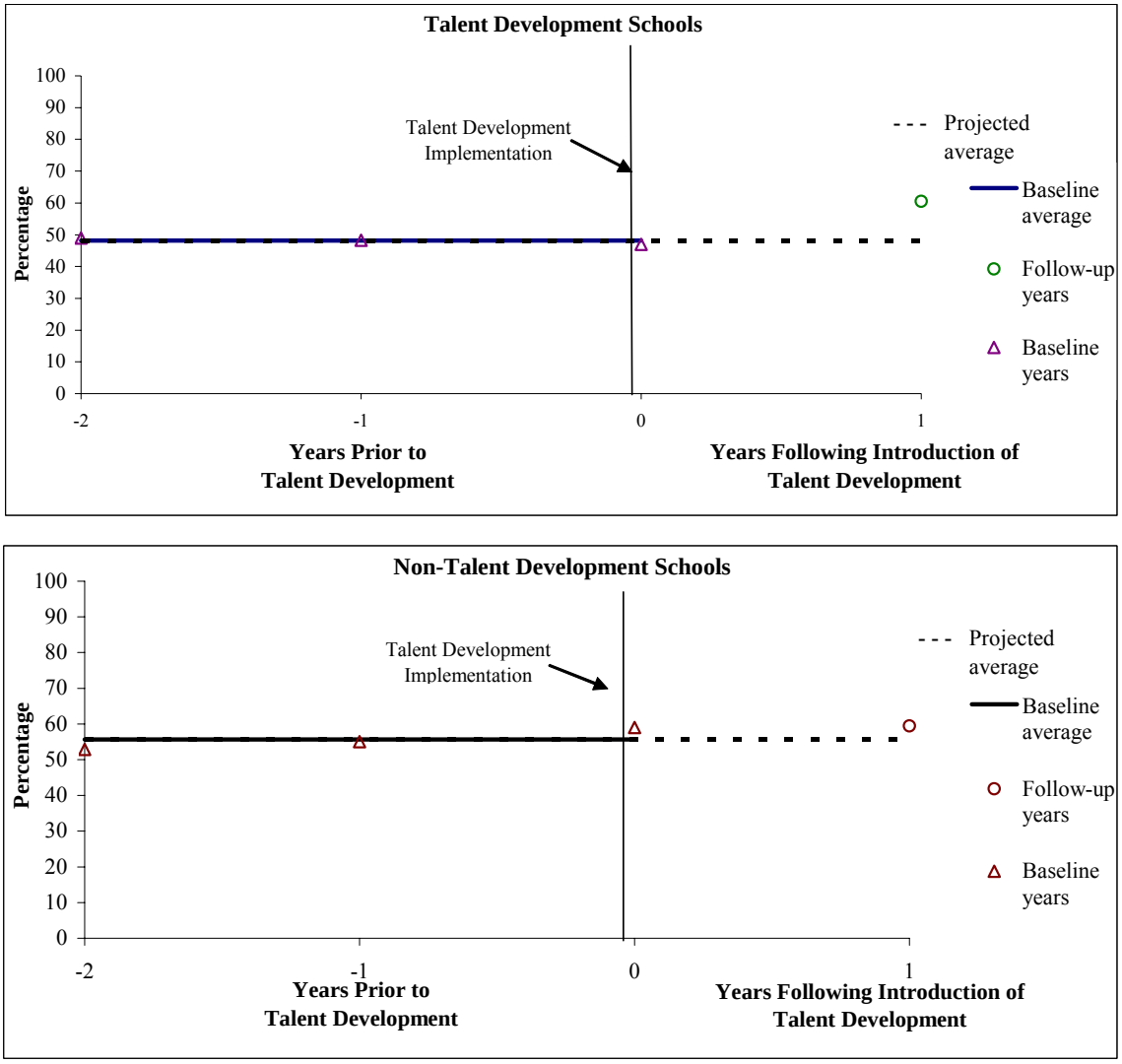
Figure 5 provides a graphic representation of the findings presented at the bottom of Table 5. The top panel of the figure shows the baseline average and the deviation from the projected baseline average for the Talent Development schools. The bottom panel presents the same information for the non-Talent Development schools. The solid line in each part of the figure represents the baseline average for the percentage of ninth-grade students earning one or more math credits and the dashed line represents the projection of that average into the follow-up period. The triangles show the percentage of ninth-grade students earning one or more math credits each year prior to the start of Talent Development implementation, averaged across all five clusters of schools.

The circles in each part of the figure represent the percentage of ninth-grade students earning one or more math credits in the first years of Talent Development implementation. The differences between the dashed lines and the circles represent deviations from the baseline for

[10]The formula for standard errors for an average of adjusted means was used. The analysis was not able to account for the fact that some comparison schools were used in more than one cluster.

Analytic Appendix
Figure 5

Percentage of Ninth-Grade Students Earning One or More Math Credits for the Year in Talent Development and Non-Talent Development Comparison Schools, Follow-Up Results



SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes all students whose course-detail records indicated that they attempted one or more credits.

Results were pooled over five Talent Development high schools and over five groups of non-Talent Development high schools consisting of between two and five schools each.

Talent Development and non-Talent Development schools, respectively. Again, it is the difference in these two deviations that represents the impact of Talent Development.

For the study, this process of estimating and pooling impacts was repeated across the five clusters of schools for several student outcomes, including attendance rates, on-time promotion to the tenth grade, course credits earned in algebra and English, and promotion requirements met. The analysis also includes subgroup analyses that examine Talent Development impacts for subpopulations of students that may be more or less likely to benefit from the intervention.

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Unit 2a

Supplementary Tables

Impacts for All Ninth-Grade Students

Talent Development Evaluation

Table All.1

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More English Credits for the Year Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 English credit (%)	53.7	54.7	59.4	55.9	44.9	49.4	55.8	50.0				
Deviation from baseline	-1.3	-0.3	4.4	0.9	-3.9	0.5	7.0	1.2	2.7	-0.9	-2.6	-0.3
School B												
Earned at least 1 English credit (%)	64.5	66.3	69.4	66.7	61.1	64.1	62.5	62.6				
Deviation from baseline	13.6	15.4	18.5	15.8	1.4	4.4	2.8	2.9	12.1 *	11.0	15.7 **	12.9 ***
School C												
Earned at least 1 English credit (%)	68.0	64.4		66.2	63.1	62.5		62.8				
Deviation from baseline	10.7	7.1		9.0	4.2	3.7		4.0	6.5	3.4		4.9
School D												
Earned at least 1 English credit (%)	62.5			62.5	66.1			66.1				
Deviation from baseline	8.9			8.9	2.5			2.5	6.4			6.4
School E												
Earned at least 1 English credit (%)	71.6			71.6	62.4			62.4				
Deviation from baseline	4.5			4.5	-0.7			-0.7	5.1			5.1
All clusters[b]												
Earned at least 1 English credit (%)	64.1	61.8	64.4	64.6	59.5	58.7	59.1	60.8				
Deviation from baseline	7.3	7.4	11.5	7.8	0.7	2.9	4.9	2.0	6.6 **	4.5	6.6	5.8 **
Effect size									0.13	0.09	0.13	0.12

(continued)

Table All.1 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.2

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More Algebra Credits for the Year Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 algebra credit (%)	43.3	47.5	53.3	47.9	9.3	4.4	7.8	7.1				
Deviation from baseline	31.3	35.6	41.4	36.0	-3.5	-8.3	-4.9	-5.6	34.8 ***	43.9 ***	46.3 ***	41.6 ***
School B												
Earned at least 1 algebra credit (%)	47.4	50.6	57.2	51.8	39.7	51.4	52.7	47.9				
Deviation from baseline	19.5	22.7	29.4	23.9	2.0	13.6	15.0	10.1	17.6 *	9.2	14.4	13.7 *
School C												
Earned at least 1 algebra credit (%)	42.1	53.0		47.6	50.8	52.3		51.6				
Deviation from baseline	14.5	25.4		19.9	14.1	15.5		14.8	0.4	9.8		5.1
School D												
Earned at least 1 algebra credit (%)	40.2			40.2	55.8			55.8				
Deviation from baseline	-0.8			-0.8	9.4			9.4	-10.2			-10.2
School E												
Earned at least 1 algebra credit (%)	52.2			52.2	53.1			53.1				
Deviation from baseline	21.9			21.9	8.3			8.3	13.6			13.6
All clusters[b]												
Earned at least 1 algebra credit (%)	45.0	50.4	55.3	47.9	41.8	36.0	30.3	43.1				
Deviation from baseline	17.3	27.9	35.4	20.2	6.1	6.9	5.0	7.4	11.2 ***	21.0 ***	30.3 ***	12.8 ***
Effect size									0.25	0.46	0.67	0.28

(continued)

Table All.2 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.3

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More Math Credits for the Year Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 math credit (%)	53.4	61.9	63.5	59.5	48.2	47.1	48.3	47.9				
Deviation from baseline	12.6	21.2	22.7	18.8	-1.8	-2.9	-1.7	-2.2	14.5	24.1 **	24.4 **	21.0 ***
School B												
Earned at least 1 math credit (%)	60.6	54.9	65.1	60.2	56.0	60.7	62.7	59.8				
Deviation from baseline	16.4	10.7	20.9	16.0	1.9	6.6	8.6	5.7	14.5 *	4.1	12.3	10.3 *
School C												
Earned at least 1 math credit (%)	64.3	61.0		62.6	59.0	61.2		60.1				
Deviation from baseline	17.3	14.0		15.7	4.8	7.1		5.9	12.5	6.9		9.7
School D												
Earned at least 1 math credit (%)	53.1			53.1	66.7			66.7				
Deviation from baseline	9.8			9.8	5.7			5.7	4.1			4.1
School E												
Earned at least 1 math credit (%)	67.0			67.0	62.9			62.9				
Deviation from baseline	1.2			1.2	4.0			4.0	-2.7			-2.7
All clusters[b]												
Earned at least 1 math credit (%)	59.7	59.3	64.3	60.5	58.5	56.3	55.5	59.5				
Deviation from baseline	11.5	15.3	21.8	12.3	2.9	3.6	3.5	3.8	8.6 ***	11.7 **	18.4 ***	8.5 ***
Effect size									0.17	0.23	0.37	0.17

(continued)

Table All.3 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.4

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning Four or More Total Credits for the Year Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned 4 or more credits (%)	55.1	56.7	54.8	55.5	50.3	46.9	50.4	49.2				
Deviation from baseline	3.0	4.6	2.8	3.5	2.0	-1.5	2.0	0.8	1.1	6.1	0.8	2.7
School B												
Earned 4 or more credits (%)	56.9	54.0	58.9	56.6	57.4	58.7	58.2	58.1				
Deviation from baseline	9.8	6.9	11.8	9.5	0.8	2.1	1.6	1.6	9.0	4.8	10.1	7.9 *
School C												
Earned 4 or more credits (%)	63.1	56.0		59.6	57.8	57.9		57.8				
Deviation from baseline	6.6	-0.6		3.0	1.9	2.0		1.9	4.7	-2.6		1.1
School D												
Earned 4 or more credits (%)	50.8			50.8	62.1			62.1				
Deviation from baseline	4.5			4.5	0.9			0.9	3.6			3.6
School E												
Earned 4 or more credits (%)	68.1			68.1	58.3			58.3				
Deviation from baseline	2.5			2.5	-0.5			-0.5	3.0			3.0
All clusters[b]												
Earned 4 or more credits (%)	58.8	55.6	56.9	58.1	57.2	54.5	54.3	57.1				
Deviation from baseline	5.3	3.6	7.3	4.6	1.0	0.9	1.8	0.9	4.3 *	2.8	5.5	3.7 **
Effect size									0.09	0.06	0.11	0.07

(continued)

Table All.4 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.5

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning Required Academic Credits Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned required acadmic credits (%)	37.3	40.7	41.7	39.8	28.0	30.9	34.8	31.2				
Deviation from baseline	8.4	11.8	12.8	11.0	-0.9	2.0	5.9	2.3	9.3 *	9.8 *	6.9	8.6 **
School B												
Earned required acadmic credits (%)	46.8	40.6	48.8	45.4	40.6	42.3	42.3	41.8				
Deviation from baseline	13.1	7.0	15.1	11.7	4.4	6.0	6.0	5.5	8.8	0.9	9.1	6.2
School C												
Earned required acadmic credits (%)	47.1	41.8		44.4	40.5	41.8		41.1				
Deviation from baseline	15.6	10.4		13.0	4.0	5.3		4.7	11.6 *	5.0		8.3 *
School D												
Earned required acadmic credits (%)	34.6			34.6	46.0			46.0				
Deviation from baseline	1.8			1.8	3.0			3.0	-1.2			-1.2
School E												
Earned required acadmic credits (%)	50.7			50.7	42.4			42.4				
Deviation from baseline	1.4			1.4	1.0			1.0	0.5			0.5
All clusters[b]												
Earned required acadmic credits (%)	43.3	41.0	45.2	43.0	39.5	38.3	38.5	40.5				
Deviation from baseline	8.1	9.7	14.0	7.8	2.3	4.5	6.0	3.3	5.8 **	5.3	8.0 **	4.5 **
Effect size									0.12	0.11	0.17	0.09

(continued)

Table All.5 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.6

Interrupted Time Series Estimates and Impacts on Promotion Rates
Three-Year Follow-Up Results, by Cluster
All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Promoted to 10th grade (%)	49.0	47.9		48.5	47.5	48.8		48.2				
Deviation from baseline	-2.1	-3.3		-2.7	-6.4	-5.2		-5.8	4.3	1.9		3.1
School B												
Promoted to 10th grade (%)	61.8	66.2		64.0	54.1	56.3		55.2				
Deviation from baseline	4.7	9.0		6.9	-5.6	-3.4		-4.5	10.3	12.5		11.4 *
School C												
Promoted to 10th grade (%)	63.3			63.3	57.0			57.0				
Deviation from baseline	5.7			5.7	0.7			0.7	5.0			5.0
School D												
Promoted to 10th grade (%)												
Deviation from baseline												
School E												
Promoted to 10th grade (%)												
Deviation from baseline												
All clusters[b]												
Promoted to 10th grade (%)	58.0	57.0		58.6	52.9	52.5		53.5				
Deviation from baseline	2.7	2.9		3.3	-3.8	-4.3		-3.2	6.5	7.2		6.5
Effect size									0.13	0.14		0.13

(continued)

Table All.6 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.7

Interrupted Time Series Estimates and Impacts on Attendance Rates
Three-Year Follow-Up Results, by Cluster
All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate	68.6	70.8	71.1	70.2	64.2	68.2	65.8	66.1				
Deviation from baseline	3.7	5.8	6.1	5.2	1.3	5.3	3.0	3.2	2.3	0.5	3.2	2.0
School B												
Attendance rate	74.3	73.5	68.7	72.2	72.1	72.7	70.8	71.9				
Deviation from baseline	9.8	9.1	4.2	7.7	2.4	2.9	1.0	2.1	7.5 *	6.2	3.1	5.6 *
School C												
Attendance rate	77.3	79.1		78.2	72.4	70.6		71.5				
Deviation from baseline	11.1	12.9		12.0	1.6	-0.2		0.7	9.5 ***	13.0 ***		11.3 ***
School D												
Attendance rate	64.4			64.4	73.3			73.3				
Deviation from baseline	-6.7			-6.7	-1.3			-1.3	-5.3 **			-5.3 **
School E												
Attendance rate	68.6			68.6	70.5			70.5				
Deviation from baseline	-3.4			-3.4	-1.2			-1.2	-2.2			-2.2
All clusters[b]												
Attendance rate	70.7	74.5	69.9	70.7	70.5	70.5	68.3	70.6				
Deviation from baseline	2.9	9.2	5.2	3.0	0.6	2.7	2.0	0.7	2.4	6.6 ***	3.2	2.3 *
Effect size									0.08	0.22	0.11	0.08

(continued)

Table All.7 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.8

Interrupted Time Series Estimates and Impacts on Percentage of Students with Attendance Rates Greater Than or Equal to 90 Percent Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate of 90% or higher (%)	16.2	17.1	20.9	17.8	13.1	14.6	15.0	14.3				
Deviation from baseline	3.9	4.8	8.6	5.5	-0.4	1.0	1.5	0.7	4.4	3.7	7.1 **	4.8 **
School B												
Attendance rate of 90% or higher (%)	22.4	26.0	22.5	23.7	20.8	21.7	19.5	20.6				
Deviation from baseline	5.2	8.9	5.3	6.5	1.9	2.8	0.6	1.7	3.4	6.1	4.8	4.8
School C												
Attendance rate of 90% or higher (%)	29.3	30.6		29.9	21.7	19.9		20.8				
Deviation from baseline	18.3	19.6		19.0	2.3	0.6		1.5	16.0 ***	19.1 ***		17.5 ***
School D												
Attendance rate of 90% or higher (%)	13.7			13.7	23.3			23.3				
Deviation from baseline	-4.7			-4.7	-1.0			-1.0	-3.7			-3.7
School E												
Attendance rate of 90% or higher (%)	18.0			18.0	19.4			19.4				
Deviation from baseline	-5.6			-5.6	-1.1			-1.1	-4.6			-4.6
All clusters[b]												
Attendance rate of 90% or higher (%)	19.9	24.5	21.7	20.6	19.6	18.7	17.3	19.7				
Deviation from baseline	3.4	11.1	7.0	4.1	0.3	1.4	1.0	0.4	3.1 *	9.6 ***	6.0 *	3.8 **
Effect size									0.08	0.25	0.15	0.10

(continued)

Table All.8 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.9

Interrupted Time Series Estimates and Impacts on Percentage of Students with Attendance Rates Less Than or Equal to 80 Percent Three-Year Follow-Up Results, by Cluster All Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate of 80% or lower (%)	64.4	63.8	62.0	63.5	72.3	69.8	67.9	70.0				
Deviation from baseline	-6.2	-6.8	-8.6	-7.1	0.5	-1.9	-3.9	-1.8	-6.7	-4.8	-4.7	-5.3 *
School B												
Attendance rate of 80% or lower (%)	53.0	59.5	61.1	57.9	60.0	58.4	60.0	59.5				
Deviation from baseline	-13.7	-7.2	-5.6	-8.9	-2.5	-4.0	-2.4	-3.0	-11.3	-3.2	-3.2	-5.9
School C												
Attendance rate of 80% or lower (%)	52.8	49.0		50.9	58.0	59.1		58.5				
Deviation from baseline	-20.6	-24.4		-22.5	-4.3	-3.3		-3.8	-16.3 ***	-21.1 ***		-18.7 ***
School D												
Attendance rate of 80% or lower (%)	73.5			73.5	53.8			53.8				
Deviation from baseline	10.9			10.9	-0.8			-0.8	11.7 **			11.7 **
School E												
Attendance rate of 80% or lower (%)	62.6			62.6	60.2			60.2				
Deviation from baseline	4.9			4.9	-0.2			-0.2	5.2			5.2
All clusters[b]												
Attendance rate of 80% or lower (%)	61.2	57.4	61.6	61.7	60.9	62.4	63.9	60.4				
Deviation from baseline	-5.0	-12.8	-7.1	-4.5	-1.5	-3.1	-3.2	-1.9	-3.5	-9.7 ***	-3.9	-2.6
Effect size									-0.07	-0.21	-0.08	-0.06

(continued)

Table All.9 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table All.Summary

Impacts on Attendance, Course-Taking, and Promotion
Follow-Up Results
All Ninth-Grade Students

Outcome	Talent Development Schools		Non-Talent Development Schools		Impact at Follow-Up	Impact Effect Size
	Baseline	Follow-Up	Baseline	Follow-Up		
Earned at least 1 English credit for the year (%)	56.8	64.6	58.8	60.8		
Deviation from baseline		7.8 ***		2.0 *	5.8 **	0.12
Earned at least 1 algebra credit for the year (%)	27.8	47.9	35.7	43.1		
Deviation from baseline		20.2 ***		7.4 ***	12.8 ***	0.28
Earned at least 1 math credit for the year (%)	48.2	60.5	55.6	59.5		
Deviation from baseline		12.3 ***		3.8 ***	8.5 ***	0.17
Earned 4 or more credits for the year[a] (%)	53.5	58.1	56.2	57.1		
Deviation from baseline		4.6 ***		0.9	3.7 **	0.07
Earned required academic credits[b] (%)	35.2	43.0	37.2	40.5		
Deviation from baseline		7.8 ***		3.3 ***	4.5 **	0.09
Promoted to 10th grade[c] (%)	55.3	58.6	56.7	53.5		
Deviation from baseline		3.3		-3.2 *	6.5	0.13
Attendance rate[d]	67.8	70.7	69.9	70.6		
Deviation from baseline		3.0 ***		0.7	2.3 *	0.08
Attendance rate of 90% or higher (%)	16.5	20.6	19.3	19.7		
Deviation from baseline		4.1 ***		0.4	3.8 **	0.10
Attendance rate of 80% or lower (%)	66.2	61.7	62.3	60.4		
Deviation from baseline		-4.5 **		-1.9 **	-2.6	-0.06

(continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year.

Results in the Talent Development columns reflect averages across the five Talent Development schools. Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

Numbers in the "Baseline" columns reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

Numbers in the "Follow-Up" columns reflect averages over the entire follow-up period. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters had a three-year follow-up period, one cluster had a two-year follow-up period, and two clusters had only a one-year follow-up period.

Table All.Summary (continued)

The deviation from baseline, indicated in the row directly below each outcome, reflects the difference between the baseline average and the average over the follow-up period.

The impact was calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 9th-grade students in the district's nonselective, comprehensive high schools from school years 1996-1997 to 1998-1999.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to deviations from baseline and to differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted.

[b]Beginning in the 1998-1999 school year, 9th-grade students were required to earn at least five course credits, including one credit each in English, math, and science.

[c]For the purposes of this analysis, 9th-grade students were considered promoted if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements. Due to data availability, this outcome includes data for only three of the five clusters of Talent Development and non-Talent Development schools.

[d]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.

Unit 2b

Supplementary Tables

Impacts for First-Time Ninth-Grade Students

Talent Development Evaluation

Table FT.1

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More English Credits for the Year Three-Year Follow-Up Results, by Cluster First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 English credit (%)	63.8	64.6	71.7	66.6	54.1	56.1	59.7	56.6				
Deviation from baseline	-1.9	-1.1	6.0	0.9	-4.3	-2.3	1.3	-1.8	2.4	1.2	4.6	2.7
School B												
Earned at least 1 English credit (%)	78.4	76.1	82.3	79.0	68.9	70.9	70.8	70.2				
Deviation from baseline	16.5	14.3	20.4	17.1	0.5	2.5	2.5	1.9	16.0 **	11.7 *	18.0 **	15.2 ***
School C												
Earned at least 1 English credit (%)	80.1	77.3		78.7	70.2	71.7		70.9				
Deviation from baseline	15.3	12.6		14.0	2.7	4.2		3.5	12.6 *	8.3		10.5 **
School D												
Earned at least 1 English credit (%)	75.9			75.9	74.7			74.7				
Deviation from baseline	16.9			16.9	3.4			3.4	13.5			13.5 *
School E												
Earned at least 1 English credit (%)	80.8			80.8	71.2			71.2				
Deviation from baseline	5.0			5.0	0.1			0.1	4.9			4.9
All clusters[b]												
Earned at least 1 English credit (%)	75.8	72.7	77.0	76.2	67.8	66.2	65.3	68.7				
Deviation from baseline	10.4	8.6	13.2	10.8	0.5	1.5	1.9	1.4	9.9 ***	7.1 *	11.3 **	9.4 ***
Effect size									0.20	0.14	0.23	0.19

(continued)

Table FT.1 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.2

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More Algebra Credits for the Year Three-Year Follow-Up Results, by Cluster First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 algebra credit (%)	53.9	61.1	63.2	59.3	7.7	5.3	4.1	5.7				
Deviation from baseline	38.7	45.9	47.9	44.1	-8.2	-10.5	-11.7	-10.2	46.8 ***	56.4 ***	59.6 ***	54.3 ***
School B												
Earned at least 1 algebra credit (%)	59.3	57.4	67.9	61.5	50.3	62.3	65.7	59.4				
Deviation from baseline	27.2	25.3	35.8	29.4	3.7	15.7	19.1	12.8	23.5 *	9.6	16.7	16.6 *
School C												
Earned at least 1 algebra credit (%)	51.7	65.5		58.6	60.9	65.5		63.2				
Deviation from baseline	18.9	32.7		25.8	14.7	19.3		17.0	4.2	13.5		8.8
School D												
Earned at least 1 algebra credit (%)	52.8			52.8	69.7			69.7				
Deviation from baseline	6.2			6.2	13.8			13.8	-7.5			-7.5
School E												
Earned at least 1 algebra credit (%)	68.6			68.6	66.3			66.3				
Deviation from baseline	31.2			31.2	10.9			10.9	20.2			20.2
All clusters[b]												
Earned at least 1 algebra credit (%)	57.2	61.3	65.5	60.2	51.0	44.3	34.9	52.8				
Deviation from baseline	24.4	34.6	41.8	27.3	7.0	8.2	3.7	8.9	17.4 ***	26.5 ***	38.2 ***	18.5 ***
Effect size									0.38	0.58	0.84	0.41

(continued)

Table FT.2 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.3

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More Math Credits for the Year Three-Year Follow-Up Results, by Cluster First-Time Ninth-Grade Students

Cluster	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 math credit (%)	65.2	75.9	74.0	71.6	54.2	54.9	51.2	53.5				
Deviation from baseline	16.5	27.1	25.3	22.9	-6.9	-6.2	-10.0	-7.7	23.4 *	33.3 **	35.2 ***	30.6 ***
School B												
Earned at least 1 math credit (%)	71.2	61.8	77.9	70.4	63.7	67.9	73.3	68.3				
Deviation from baseline	18.2	8.8	24.8	17.3	2.3	6.5	11.9	6.9	15.8 *	2.3	13.0	10.5 *
School C												
Earned at least 1 math credit (%)	77.1	74.1		75.6	66.2	71.7		69.0				
Deviation from baseline	22.5	19.5		21.0	4.6	10.1		7.4	17.9 **	9.4		13.6 *
School D												
Earned at least 1 math credit (%)	64.0			64.0	77.4			77.4				
Deviation from baseline	16.4			16.4	8.9			8.9	7.5			7.5
School E												
Earned at least 1 math credit (%)	78.7			78.7	74.1			74.1				
Deviation from baseline	3.8			3.8	7.4			7.4	-3.6			-3.6
All clusters[b]												
Earned at least 1 math credit (%)	71.2	70.6	75.9	72.1	67.1	64.9	62.2	68.5				
Deviation from baseline	15.5	18.5	25.1	16.3	3.3	3.5	1.0	4.6	12.2 ***	15.0 ***	24.1 ***	11.7 ***
Effect size									0.24	0.30	0.48	0.23

(continued)

Table FT.3 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.4

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning Four or More Total Credits for the Year Three-Year Follow-Up Results, by Cluster First-Time Ninth-Grade Students

Cluster	Talent Development Schools Follow-Up Year 1	Year 2	Year 3	Average[a]	Non-Talent Development Schools Follow-Up Year 1	Year 2	Year 3	Average[a]	Impact at Follow-Up Year 1	Year 2	Year 3	Average[a]
School A												
Earned 4 or more credits (%)	64.2	68.2	66.7	66.3	58.6	55.5	53.9	56.0				
Deviation from baseline	2.4	6.4	4.9	4.5	-1.6	-4.7	-6.3	-4.2	4.0	11.1	11.2	8.7 *
School B												
Earned 4 or more credits (%)	73.6	63.2	74.5	70.5	66.7	67.2	67.8	67.2				
Deviation from baseline	16.1	5.7	16.9	12.9	0.9	1.3	1.9	1.4	15.2 **	4.3	15.0 **	11.5 **
School C												
Earned 4 or more credits (%)	74.9	69.3		72.1	66.7	68.1		67.4				
Deviation from baseline	11.6	6.0		8.8	1.2	2.7		1.9	10.4 *	3.3		6.9
School D												
Earned 4 or more credits (%)	62.3			62.3	72.4			72.4				
Deviation from baseline	10.1			10.1	2.1			2.1	8.0			8.0 *
School E												
Earned 4 or more credits (%)	77.8			77.8	68.3			68.3				
Deviation from baseline	3.2			3.2	0.3			0.3	2.9			2.9
All clusters[b]												
Earned 4 or more credits (%)	70.6	66.9	70.6	69.8	66.5	63.6	60.8	66.2				
Deviation from baseline	8.7	6.0	10.9	7.9	0.6	-0.2	-2.2	0.3	8.1 ***	6.2 *	13.1 ***	7.6 ***
Effect size									0.16	0.13	0.26	0.15

(continued)

Table FT.4 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.5

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning Required Academic Credits Three-Year Follow-Up Results, by Cluster First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned required academic credits (%)	48.0	54.8	54.1	52.1	36.0	38.3	38.8	37.7				
Deviation from baseline	10.8	17.6	17.0	15.0	-1.9	0.5	0.9	-0.2	12.7 **	17.2 ***	16.0 ***	15.1 ***
School B												
Earned required academic credits (%)	62.2	51.3	62.4	58.6	49.4	52.4	52.9	51.6				
Deviation from baseline	20.5	9.6	20.6	16.9	5.2	8.1	8.6	7.3	15.3 **	1.5	12.0	9.6 *
School C												
Earned required academic credits (%)	59.9	56.1		58.0	51.4	53.0		52.2				
Deviation from baseline	21.4	17.6		19.5	6.2	7.9		7.1	15.1 *	9.7		12.4 **
School D												
Earned required academic credits (%)	45.6			45.6	57.5			57.5				
Deviation from baseline	6.8			6.8	4.4			4.4	2.4			2.4
School E												
Earned required academic credits (%)	65.5			65.5	53.6			53.6				
Deviation from baseline	6.1			6.1	2.6			2.6	3.5			3.5
All clusters[b]												
Earned required academic credits (%)	56.3	54.1	58.2	56.0	49.6	47.9	45.8	50.5				
Deviation from baseline	13.1	14.9	18.8	12.8	3.3	5.5	4.8	4.2	9.8 ***	9.5 **	14.0 ***	8.6 ***
Effect size									0.21	0.20	0.29	0.18

(continued)

Table FT.5 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.6

Interrupted Time Series Estimates and Impacts on Promotion Rates
Three-Year Follow-Up Results, by Cluster
First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Promoted to 10th grade (%)	58.0	55.9		57.0	51.4	52.8		52.1				
Deviation from baseline	1.8	-0.3		0.8	-10.3	-8.9		-9.6	12.1	8.6		10.4
School B												
Promoted to 10th grade (%)	75.6	72.4		74.0	56.0	61.1		58.6				
Deviation from baseline	10.2	7.1		8.6	-7.7	-2.7		-5.2	18.0	9.7		13.8 *
School C												
Promoted to 10th grade (%)	70.4			70.4	62.3			62.3				
Deviation from baseline	10.0			10.0	3.1			3.1	6.9			6.9
School D												
Promoted to 10th grade (%)												
Deviation from baseline												
School E												
Promoted to 10th grade (%)												
Deviation from baseline												
All clusters[b]												
Promoted to 10th grade (%)	68.0	64.1		67.1	56.6	56.9		57.7				
Deviation from baseline	7.3	3.4		6.5	-5.0	-5.8		-3.9	12.3	9.2		10.4 **
Effect size									0.25	0.18		0.21

(continued)

Table FT.6 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.7

Interrupted Time Series Estimates and Impacts on Attendance Rates
Three-Year Follow-Up Results, by Cluster
First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate	72.5	75.2	74.4	74.0	70.5	73.1	70.0	71.2				
Deviation from baseline	1.9	4.6	3.9	3.4	0.4	3.0	-0.1	1.2	1.5	1.6	3.9	2.3
School B												
Attendance rate	79.3	78.9	76.4	78.2	76.0	77.5	75.8	76.4				
Deviation from baseline	7.9	7.5	4.9	6.8	0.5	2.0	0.3	0.9	7.4 **	5.5	4.7	5.8 **
School C												
Attendance rate	80.3	79.7		80.0	77.7	75.9		76.8				
Deviation from baseline	10.4	9.7		10.1	1.8	0.0		0.9	8.6 ***	9.7 ***		9.1 ***
School D												
Attendance rate	71.3			71.3	78.3			78.3				
Deviation from baseline	-2.5			-2.5	-0.9			-0.9	-1.6			-1.6
School E												
Attendance rate	74.2			74.2	75.6			75.6				
Deviation from baseline	-3.5			-3.5	-0.8			-0.8	-2.7			-2.7
All clusters[b]												
Attendance rate	75.5	77.9	75.4	75.5	75.6	75.5	72.9	75.7				
Deviation from baseline	2.8	7.3	4.4	2.8	0.2	1.7	0.1	0.2	2.6 **	5.6 ***	4.3 *	2.6 ***
Effect size									0.09	0.19	0.14	0.09

(continued)

Table FT.7 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.8

Interrupted Time Series Estimates and Impacts on Percentage of Students with Attendance Rates Greater Than or Equal to 90 Percent Three-Year Follow-up Results, by Cluster First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate of 90% or higher (%)	21.3	23.3	26.5	23.5	18.4	19.6	19.0	19.1				
Deviation from baseline	4.7	6.7	10.0	6.9	-0.4	0.9	0.3	0.3	5.1	5.9	9.7 **	6.6 **
School B												
Attendance rate of 90% or higher (%)	28.5	34.2	29.7	30.8	25.8	28.0	25.4	26.4				
Deviation from baseline	6.0	11.6	7.2	8.3	0.8	3.0	0.4	1.4	5.2	8.6	6.8	6.9
School C												
Attendance rate of 90% or higher (%)	36.3	31.6		34.0	28.8	26.2		27.5				
Deviation from baseline	22.9	18.3		20.6	2.9	0.3		1.6	20.0 ***	17.9 ***		18.9 ***
School D												
Attendance rate of 90% or higher (%)	20.3			20.3	30.3			30.3				
Deviation from baseline	-2.5			-2.5	-1.2			-1.2	-1.3			-1.3
School E												
Attendance rate of 90% or higher (%)	24.6			24.6	25.4			25.4				
Deviation from baseline	-6.1			-6.1	-1.1			-1.1	-5.0			-5.0
All clusters[b]												
Attendance rate of 90% or higher (%)	26.2	29.7	28.1	26.6	25.7	24.6	22.2	25.7				
Deviation from baseline	5.0	12.2	8.6	5.4	0.2	1.4	0.3	0.2	4.8 **	10.8 ***	8.2 **	5.2 ***
Effect size									0.16	0.36	0.27	0.13

(continued)

Table FT.8 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.9

Interrupted Time Series Estimates and Impacts on Percentage of Students with Attendance Rates Less Than or Equal to 80 Percent Three-Year Follow-Up Results, by Cluster First-Time Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate of 80% or lower (%)	57.0	53.9	52.8	54.7	63.4	61.6	60.3	61.8				
Deviation from baseline	-4.5	-7.5	-8.7	-6.7	1.1	-0.6	-2.0	-0.5	-5.6	-6.9	-6.7	-6.2 *
School B												
Attendance rate of 80% or lower (%)	42.3	48.2	48.9	46.5	51.9	48.3	50.2	50.1				
Deviation from baseline	-14.5	-8.7	-8.0	-10.4	-0.4	-4.0	-2.1	-2.2	-14.2 *	-4.8	-5.9	-8.2
School C												
Attendance rate of 80% or lower (%)	43.1	46.5		44.8	47.3	48.3		47.8				
Deviation from baseline	-24.5	-21.1		-22.8	-4.7	-3.6		-4.2	-19.8 ***	-17.4 ***		-18.6 ***
School D												
Attendance rate of 80% or lower (%)	63.5			63.5	42.6			42.6				
Deviation from baseline	8.1			8.1	-1.2			-1.2	9.3 *			9.3 *
School E												
Attendance rate of 80% or lower (%)	52.7			52.7	50.4			50.4				
Deviation from baseline	6.0			6.0	-0.4			-0.4	6.4			6.4
All clusters[b]												
Attendance rate of 80% or lower (%)	51.7	49.5	50.8	52.4	51.1	52.7	55.2	50.5				
Deviation from baseline	-5.9	-12.4	-8.3	-5.2	-1.1	-2.7	-2.0	-1.7	-4.8 *	-9.7 ***	-6.3	-3.5
Effect size									-0.16	-0.32	-0.21	-0.07

(continued)

Table FT.9 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and in 8th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table FT.Summary

Impacts on Attendance, Course-Taking, and Promotion
Follow-Up Results
First-Time Ninth-Grade Students

Outcome	Talent Development Schools		Non-Talent Development Schools		Impact at Follow-Up	Impact Effect Size
	Baseline	Follow-Up	Baseline	Follow-Up		
Earned at least 1 English credit for the year (%)	65.4	76.2	67.3	68.7		
Deviation from baseline		10.8 ***		1.4	9.4 ***	0.19
Earned at least 1 algebra credit for the year (%)	32.8	60.2	44.0	52.8		
Deviation from baseline		27.3 ***		8.9 ***	18.5 ***	0.41
Earned at least 1 math credit for the year (%)	55.8	72.1	63.9	68.5		
Deviation from baseline		16.3 ***		4.6 ***	11.7 ***	0.23
Earned 4 or more credits for the year[a] (%)	61.9	69.8	65.9	66.2		
Deviation from baseline		7.9 ***		0.3	7.6 ***	0.15
Earned required academic credits[b] (%)	43.2	56.0	46.3	50.5		
Deviation from baseline		12.8 ***		4.2 ***	8.6 ***	0.18
Promoted to 10th grade[c] (%)	60.7	67.1	61.6	57.7		
Deviation from baseline		6.5		-3.9 *	10.4 **	0.21
Attendance rate[d]	72.7	75.5	75.4	75.7		
Deviation from baseline		2.8 ***		0.2	2.6 ***	0.09
Attendance rate of 90% or higher (%)	21.2	26.6	25.5	25.7		
Deviation from baseline		5.4 ***		0.2	5.2 ***	0.13
Attendance rate of 80% or lower (%)	57.6	52.4	52.2	50.5		
Deviation from baseline		-5.2 ***		-1.7 *	-3.5	-0.07

(continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. First-time 9th-grade students were defined as students whose records indicate that they were in the 9th grade in the year under study and in the 8th grade in the previous year's administrative data file.

Results in the Talent Development columns reflect averages across the five Talent Development schools. Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

Numbers in the "Baseline" columns reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

Table FT.Summary (continued)

Numbers in the “Follow-Up” columns reflect averages over the entire follow-up period. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters had a three-year follow-up period, one cluster had a two-year follow-up period, and two clusters had only a one-year follow-up period.

The deviation from baseline, indicated in the row directly below each outcome, reflects the difference between the baseline average and the average over the follow-up period.

The impact was calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 9th-grade students in the district's nonselective, comprehensive high schools from school years 1996-1997 to 1998-1999.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to deviations from baseline and to differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted.

[b]Beginning in the 1998-1999 school year, 9th-grade students were required to earn at least five course credits, including one credit each in English, math, and science.

[c]For the purposes of this analysis, 9th-grade students were considered promoted if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements. Due to data availability, this outcome includes data for only three of the five clusters of Talent Development and non-Talent Development schools.

[d]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.

Unit 2c

Supplementary Tables

Impacts for Repeating Ninth-Grade Students

Talent Development Evaluation

Table RP.1

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More English Credits for the Year Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 English credit (%)	30.6	32.1	33.8	32.1	24.6	34.4	45.6	35.0				
Deviation from baseline	-0.6	0.9	2.5	0.9	-3.2	6.7	17.8	7.2	2.6	-5.8	-15.3 **	-6.3
School B												
Earned at least 1 English credit (%)	31.6	42.7	37.9	37.4	41.5	48.3	41.9	43.9				
Deviation from baseline	10.6	21.7	16.9	16.4	2.6	9.4	3.0	5.0	8.0	12.3	13.9	11.4
School C												
Earned at least 1 English credit (%)	40.9	33.6		37.4	49.3	42.4		45.8				
Deviation from baseline	1.2	-6.1		-2.4	10.2	3.2		6.6	-9.0	-9.3		-9.0
School D												
Earned at least 1 English credit (%)	38.0			38.0	45.9			45.9				
Deviation from baseline	-1.2			-1.2	0.1			0.1	-1.4			-1.4
School E												
Earned at least 1 English credit (%)	50.9			50.9	42.0			42.0				
Deviation from baseline	4.2			4.2	-3.0			-3.0	7.2			7.2
All clusters[b]												
Earned at least 1 English credit (%)	38.4	36.2	35.8	39.1	40.7	41.7	43.8	42.5				
Deviation from baseline	2.8	5.5	9.7	3.6	1.3	6.4	10.4	3.2	1.5	-0.9	-0.7	0.4
Effect size									0.03	-0.02	-0.01	0.01

(continued)

Table RP.1 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.2

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More Algebra Credits for the Year Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 algebra credit (%)	20.3	18.1	32.6	23.6	12.4	1.9	15.1	9.7				
Deviation from baseline	16.4	14.2	28.7	19.7	8.0	-2.5	10.7	5.3	8.4	16.7 **	18.0 **	14.4 **
School B												
Earned at least 1 algebra credit (%)	18.9	35.7	24.4	26.4	14.1	26.8	21.6	20.8				
Deviation from baseline	4.2	21.0	9.7	11.7	-2.2	10.6	5.4	4.6	6.4	10.4	4.4	7.1
School C												
Earned at least 1 algebra credit (%)	20.2	23.6		21.9	30.5	22.5		26.5				
Deviation from baseline	5.6	9.0		7.2	14.2	6.3		10.3	-8.7	2.7		-3.0
School D												
Earned at least 1 algebra credit (%)	16.9			16.9	23.6			23.6				
Deviation from baseline	-9.3			-9.3	-2.0			-2.0	-7.3			-7.3
School E												
Earned at least 1 algebra credit (%)	19.3			19.3	21.9			21.9				
Deviation from baseline	5.7			5.7	1.0			1.0	4.7			4.7
All clusters[b]												
Earned at least 1 algebra credit (%)	19.1	25.8	28.5	21.6	20.5	17.1	18.4	20.5				
Deviation from baseline	4.5	14.7	19.2	7.0	3.8	4.8	8.0	3.8	0.7	9.9 **	11.2 *	3.2
Effect size									0.02	0.22	0.25	0.07

Table RP.2 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.3

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning One or More Math Credits for the Year Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned at least 1 math credit (%)	27.7	32.1	41.3	33.5	33.9	28.8	40.1	34.2				
Deviation from baseline	4.7	9.1	18.3	10.5	8.4	3.3	14.6	8.7	-3.7	5.7	3.7	1.8
School B												
Earned at least 1 math credit (%)	36.0	40.2	28.9	35.3	37.0	44.0	37.0	39.3				
Deviation from baseline	15.9	20.0	8.7	15.1	-0.2	6.7	-0.3	2.1	16.1	13.3	9.0	13.0
School C												
Earned at least 1 math credit (%)	35.6	30.0		32.9	44.4	36.6		40.4				
Deviation from baseline	6.7	1.2		4.0	6.4	-1.5		2.4	0.4	2.6		1.6
School D												
Earned at least 1 math credit (%)	33.5			33.5	40.5			40.5				
Deviation from baseline	2.2			2.2	-3.6			-3.6	5.8			5.8
School E												
Earned at least 1 math credit (%)	40.9			40.9	36.8			36.8				
Deviation from baseline	-3.9			-3.9	-4.4			-4.4	0.5			0.5
All clusters[b]												
Earned at least 1 math credit (%)	34.7	34.1	35.1	35.2	38.5	36.5	38.5	38.3				
Deviation from baseline	5.1	10.1	13.5	5.6	1.3	2.9	7.2	1.1	3.8	7.2	6.3	4.5
Effect size									0.08	0.14	0.13	0.09

(continued)

Table RP.3 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.4

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning Four or More Credits for the Year Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned 4 or more credits (%)	34.4	31.9	30.6	32.3	32.2	27.1	41.1	33.4				
Deviation from baseline	3.9	1.4	0.1	1.8	10.3	5.2	19.2	11.5	-6.5	-3.8	-19.1	-9.7
School B												
Earned 4 or more credits (%)	17.0	33.4	15.6	22.3	35.0	38.3	34.7	36.0				
Deviation from baseline	-0.9	15.5	-2.3	4.4	0.5	3.9	0.3	1.5	-1.4	11.7	-2.5	2.9
School C												
Earned 4 or more credits (%)	37.0	26.2		31.9	38.6	34.3		36.4				
Deviation from baseline	-2.3	-13.1		-7.3	3.7	-0.6		1.4	-6.0	-12.5 *		-8.8
School D												
Earned 4 or more credits (%)	28.2			28.2	37.6			37.6				
Deviation from baseline	-2.5			-2.5	-2.6			-2.6	0.1			0.1
School E												
Earned 4 or more credits (%)	45.5			45.5	34.6			34.6				
Deviation from baseline	0.6			0.6	-3.0			-3.0	3.6			3.6
All clusters[b]												
Earned 4 or more credits (%)	32.4	30.5	23.1	32.0	35.6	33.2	37.9	35.6				
Deviation from baseline	-0.2	1.3	-1.1	-0.6	1.8	2.8	9.7	1.8	-2.0	-1.5	-10.8	-2.4
Effect size									-0.04	-0.03	-0.22	-0.05

(continued)

Table RP.4 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.5

Interrupted Time Series Estimates and Impacts on Percentage of Students Earning Required Academic Credits Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Earned required acadmic credits (%)	12.7	9.6	15.5	12.6	9.8	13.4	24.2	15.8				
Deviation from baseline	2.6	-0.5	5.4	2.5	-0.2	3.5	14.2	5.8	2.8	-3.9	-8.9	-3.4
School B												
Earned required acadmic credits (%)	8.3	12.7	11.1	10.7	18.6	17.7	17.1	17.8				
Deviation from baseline	-1.6	2.8	1.2	0.7	0.6	-0.4	-1.0	-0.2	-2.2	3.1	2.2	1.0
School C												
Earned required acadmic credits (%)	18.1	8.6		13.6	16.1	16.9		16.5				
Deviation from baseline	4.5	-5.0		0.0	-2.1	-1.3		-1.7	6.6	-3.7		1.7
School D												
Earned required acadmic credits (%)	13.0			13.0	19.0			19.0				
Deviation from baseline	-4.1			-4.1	-0.7			-0.7	-3.5			-3.5
School E												
Earned required acadmic credits (%)	18.2			18.2	16.9			16.9				
Deviation from baseline	-7.8			-7.8	-2.7			-2.7	-5.1			-5.1
All clusters[b]												
Earned required acadmic credits (%)	14.1	10.3	13.3	13.6	16.1	16.0	20.6	17.2				
Deviation from baseline	-1.3	-0.9	3.3	-1.7	-1.0	0.6	6.6	0.1	-0.3	-1.5	-3.3	-1.9
Effect size									-0.01	-0.03	-0.07	-0.04

(continued)

Table RP.5 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.6

Interrupted Time Series Estimates and Impacts on Promotion Rates
Three-Year Follow-Up Results, by Cluster
Repeating Ninth-Grade Students

Cluster	Talent Development Schools Follow-Up Year 1	Year 2	Year 3	Average[a]	Non-Talent Development Schools Follow-Up Year 1	Year 2	Year 3	Average[a]	Impact at Follow-Up Year 1	Year 2	Year 3	Average[a]
School A												
Promoted to 10th grade (%)	29.4	30.3		29.8	39.3	39.5		39.5				
Deviation from baseline	-10.4	-9.5		-10.0	3.6	3.7		3.8	-14.0	-13.3		-13.7 **
School B												
Promoted to 10th grade (%)	27.0	52.8		39.9	47.7	44.4		46.1				
Deviation from baseline	-8.6	17.1		4.2	-3.1	-6.5		-4.8	-5.5	23.6		9.0
School C												
Promoted to 10th grade (%)	48.1			48.1	44.6			44.6				
Deviation from baseline	-2.7			-2.7	-5.0			-5.0	2.3			2.3
School D												
Promoted to 10th grade (%)												
Deviation from baseline												
School E												
Promoted to 10th grade (%)												
Deviation from baseline												
All clusters[b]												
Promoted to 10th grade (%)	34.9	41.6		39.3	43.9	41.9		43.4				
Deviation from baseline	-7.3	3.8		-2.8	-1.5	-1.4		-2.0	-5.7	5.2		-0.8
Effect size									-0.12	0.10		-0.02

(continued)

Table RP.6 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.7

Interrupted Time Series Estimates and Impacts on Attendance Rates
Three-Year Follow-Up Results, by Cluster
Repeating Ninth-Grade Students

Cluster	Talent Development Schools: Follow-Up Year 1	Year 2	Year 3	Average[a]	Non-Talent Development Schools: Follow-Up Year 1	Year 2	Year 3	Average[a]	Impact at Follow-Up: Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate	60.6	60.9	64.8	62.0	50.7	57.4	56.5	54.9				
Deviation from baseline	7.9	8.2	12.1	9.3	3.6	10.3	9.4	7.8	4.3	-2.0	2.7	1.5
School B												
Attendance rate	66.5	62.2	43.6	58.0	62.2	60.6	57.8	60.2				
Deviation from baseline	19.6	15.4	-3.2	11.2	6.0	4.4	1.6	4.0	13.6 *	11.0	-4.8	7.2
School C												
Attendance rate	70.3	79.3		74.7	60.3	58.0		59.2				
Deviation from baseline	12.6	21.6		17.0	1.3	-0.9		0.2	11.2 *	22.5 ***		16.8 ***
School D												
Attendance rate	51.6			51.6	60.7			60.7				
Deviation from baseline	-12.6			-12.6	-2.7			-2.7	-9.8 *			-9.8 *
School E												
Attendance rate	55.2			55.2	57.8			57.8				
Deviation from baseline	-3.3			-3.3	-2.5			-2.5	-0.8			-0.8
All clusters[b]												
Attendance rate	60.8	67.5	54.2	60.3	58.3	58.7	57.2	58.5				
Deviation from baseline	4.8	15.1	4.4	4.3	1.1	4.6	5.5	1.3	3.7	10.5 ***	-1.1	3.0
Effect size									0.12	0.35	-0.04	0.10

(continued)

Table RP.7 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.8

Interrupted Time Series Estimates and Impacts on Percentage of Students with Attendance Rates Greater Than or Equal to 90 Percent Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate of 90% or higher (%)	5.3	2.9	7.3	5.0	2.3	3.3	6.3	4.0				
Deviation from baseline	2.8	0.4	4.7	2.4	0.1	1.1	4.0	1.7	2.7	-0.7	0.7	0.7
School B												
Attendance rate of 90% or higher (%)	7.0	1.1	-0.2	2.8	8.2	6.0	5.0	6.4				
Deviation from baseline	5.0	-0.9	-2.2	0.9	4.1	1.9	0.8	2.3	0.9	-2.8	-3.1	-1.4
School C												
Attendance rate of 90% or higher (%)	15.3	29.9		22.3	5.4	5.9		5.7				
Deviation from baseline	10.7	25.3		17.7	0.9	1.4		1.1	9.8 *	23.9 ***		16.6 ***
School D												
Attendance rate of 90% or higher (%)	0.7			0.7	6.7			6.7				
Deviation from baseline	-7.6			-7.6	0.0			0.0	-7.6			-7.6
School E												
Attendance rate of 90% or higher (%)	0.4			0.4	5.1			5.1				
Deviation from baseline	-6.0			-6.0	-0.9			-0.9	-5.1			-5.1
All clusters[b]												
Attendance rate of 90% or higher (%)	5.7	11.3	3.5	6.2	5.6	5.1	5.6	5.6				
Deviation from baseline	1.0	8.3	1.2	1.5	0.8	1.4	2.4	0.8	0.1	6.8 ***	-1.2	0.6
Effect size									0.00	0.18	-0.03	0.02

(continued)

Table RP.8 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.9

Interrupted Time Series Estimates and Impacts on Percentage of Students with Attendance Rates Less Than or Equal to 80 Percent Three-Year Follow-Up Results, by Cluster Repeating Ninth-Grade Students

	Talent Development Schools				Non-Talent Development Schools				Impact at Follow-Up			
	Follow-Up				Follow-Up							
Cluster	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]	Year 1	Year 2	Year 3	Average[a]
School A												
Attendance rate of 80% or lower (%)	80.1	86.3	83.6	83.3	90.2	88.3	84.2	87.6				
Deviation from baseline	-11.0	-4.8	-7.5	-7.8	-3.2	-5.1	-9.3	-5.9	-7.8	0.3	1.8	-1.9
School B												
Attendance rate of 80% or lower (%)	77.8	90.9	99.5	88.6	79.9	82.7	84.1	82.2				
Deviation from baseline	-16.0	-2.9	5.8	-5.2	-7.2	-4.4	-3.1	-4.9	-8.8	1.5	8.8	-0.3
School C												
Attendance rate of 80% or lower (%)	73.5	51.8		63.1	82.3	83.3		82.8				
Deviation from baseline	-13.6	-35.4		-24.1	-3.6	-2.6		-3.1	-10.0	-32.8 ***		-21.0 ***
School D												
Attendance rate of 80% or lower (%)	94.2			94.2	79.9			79.9				
Deviation from baseline	14.7			14.7	-0.8			-0.8	15.5			15.5
School E												
Attendance rate of 80% or lower (%)	88.4			88.4	84.3			84.3				
Deviation from baseline	4.1			4.1	0.9			0.9	3.2			3.2
All clusters[b]												
Attendance rate of 80% or lower (%)	82.8	76.3	91.6	83.5	83.3	84.8	84.1	83.4				
Deviation from baseline	-4.3	-14.3	-0.9	-3.6	-2.8	-4.0	-6.2	-2.7	-1.6	-10.3 **	5.3	-0.9
Effect size									-0.03	-0.22	0.11	-0.02

(continued)

Table RP.9 (continued)

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in 9th grade in the year under study and were also in 9th grade in the previous year's administrative data file.

Clusters consisted of a Talent Development school matched with a group of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

The deviation from the baseline for Year 1, Year 2, and Year 3 was calculated as the difference between the baseline average and the Year 1, Year 2, and Year 3 averages, respectively.

The impacts for Year 1, Year 2, Year 3, and the average were calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for the non-Talent Development schools.

Blank spaces under the Year 1, Year 2, and Year 3 columns indicate that, at the time of analysis, some clusters had not yet completed a second or third year of implementation.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to the impacts, which are differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]The numbers in the average columns reflect the average outcome for all students in the sample over the years of available follow-up data for each cluster. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters have a three-year follow-up period, one cluster has a two-year follow-up period, and two clusters have only a one-year follow-up period. This column does not reflect the average of one, two, or three follow-up year means, which are also included in the table.

[b]All cluster averages are calculated vertically with the available data for each follow-up year and the overall average.

Talent Development Evaluation

Table RP.Summary

Impacts on Attendance, Course-Taking, and Promotion
Follow-Up Results
Repeating Ninth-Grade Students

Outcome	Talent Development Schools		Non-Talent Development Schools		Impact at Follow-Up	Impact Effect Size
	Baseline	Follow-Up	Baseline	Follow-Up		
Earned at least 1 English credit for the year (%)	35.6	39.1	39.4	42.5		
Deviation from baseline		3.6		3.2	0.4	0.01
Earned at least 1 algebra credit for the year (%)	14.6	21.6	16.7	20.5		
Deviation from baseline		7.0 **		3.8 **	3.2	0.07
Earned at least 1 math credit for the year (%)	29.6	35.2	37.2	38.3		
Deviation from baseline		5.6 *		1.1	4.5	0.09
Earned 4 or more credits for the year[a] (%)	32.6	32.0	33.8	35.6		
Deviation from baseline		-0.6		1.8	-2.4	-0.05
Earned required academic credits[b] (%)	15.3	13.6	17.1	17.2		
Deviation from baseline		-1.7		0.1	-1.9	-0.04
Promoted to 10th grade[c] (%)	42.1	39.3	45.4	43.4		
Deviation from baseline		-2.8		-2.0	-0.8	-0.02
Attendance rate[d]	56.0	60.3	57.2	58.5		
Deviation from baseline		4.3 **		1.3	3.0	0.10
Attendance rate of 90% or higher (%)	4.8	6.2	4.7	5.6		
Deviation from baseline		1.5		0.8	0.6	0.02
Attendance rate of 80% or lower (%)	87.2	83.5	86.1	83.4		
Deviation from baseline		-3.6		-2.7 *	-0.9	-0.02

SOURCE: MDRC calculations from individual students' school records from a large, urban school district.

NOTES: Sample includes 9th-grade students from five Talent Development high schools and seven non-Talent Development high schools. Students in the sample were included on the district's transcript and attendance records. The sample excludes students who did not attempt at least one credit during a given school year. Repeating 9th-grade students were defined as students whose records indicate that they were in the 9th grade in the year under study and were also in the 9th grade in the previous year's administrative data file.

Results in the Talent Development columns reflect averages across the five Talent Development schools. Results in the non-Talent Development columns reflect averages across five clusters of non-Talent Development schools. Each cluster consisted of between two and five non-Talent Development schools. Some non-Talent Development schools were counted in more than one cluster.

Numbers in the "Baseline" columns reflect averages over the three-year period prior to the initial implementation of Talent Development for a given cluster.

Numbers in the "Follow-Up" columns reflect averages over the entire follow-up period. The length of the follow-up period varies by cluster. Two of the earliest implementing clusters had a three-year follow-up period, one cluster had a two-year follow-up period, and two clusters had only a one-year follow-up period.

(continued)

Table RP.Summary (continued)

The deviation from baseline, indicated in the row directly below each outcome, reflects the difference between the baseline average and the average over the follow-up period.

The impact was calculated as the difference between the deviation from the baseline for Talent Development schools and the deviation from the baseline for non-Talent Development schools.

The impact effect size was calculated by dividing the impact by the standard deviation of the outcome for all 9th-grade students in the district's nonselective, comprehensive high schools from school years 1996-1997 to 1998-1999.

Estimates are regression-adjusted using ordinary least squares, controlling for 7th-grade math and reading SAT-9 test scores, race, and whether a student had repeated a prior grade. (For the full 9th-grade sample, the analysis also controls for whether students were repeating the 9th grade.)

A two-tailed t-test was applied to deviations from baseline and to differences in deviations from baseline between Talent Development and non-Talent Development schools. Standard errors and statistical significance levels are adjusted to account for cohort effects. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]Until the 1998-1999 school year, 9th-grade students in the district were required to earn four course credits in order to be promoted.

[b]Beginning in the 1998-1999 school year, 9th-grade students were required to earn at least five course credits, including one credit each in English, math, and science.

[c]For the purposes of this analysis, 9th-grade students were considered promoted if they were listed as 10th-graders in the next year's administrative data file. Discrepancies between the percentage of students meeting various promotion requirements and the promotion rate may be caused by students earning some credits in previous years, incomplete course-detail records, or inconsistent application of the promotion requirements. Due to data availability, this outcome includes data for only three of the five clusters of Talent Development and non-Talent Development schools.

[d]Attendance rates were calculated for each student by dividing the number of days the student was present by the total number of days the student was enrolled in a given school year.